

COMMISSION OF THE EUROPEAN COMMUNITIES  
INTERNAL INFORMATION ON FISHERIES

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The regional impact of the EEC fisheries policy

The economic and social situation and outlook for the  
fisheries sector in certain regions of the Community:

**NORTHERN SPAIN**

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**NORTHERN BRITAIN**

COMMISSION OF THE EUROPEAN COMMUNITIES  
DIRECTORATE-GENERAL FOR FISHERIES  
Directorate B: Market and structure  
Structural Policy Division

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## SAMENVATTING

De studie over de visserijsector in het noorden van Groot-Brittannië in de jaren zeventig bestaat uit drie onderdelen : een beschrijving van de visserijsector, een analyse van deze sector, en tenslotte vooruitzichten en aanbevelingen.

De visserijsector biedt emplooi aan slechts ongeveer 0,7 % van de totale beroepsbevolking van het noorden van Groot-Brittannië. Het belang van deze sector ligt in de bijdrage tot de werkgelegenheid in perifere gebieden, waar soms meer dan 50 % van de bevolking werkzaam is in deze sector. De visserijsector gaf een teruggang te zien in de jaren zeventig : het aantal arbeidsplaatsen liep in dit decennium terug met 10 %, terwijl het aantal vaartuigen met 4 % daalde.

De visserij had te kampen met teruglopende vangstmogelijkheden omdat niet meer mocht worden gevisst in wateren die nu behoren tot de exclusieve economische zone van derde landen en omdat de bestanden in de wateren van de Gemeenschap overbevist zijn (bijvoorbeeld overbevissing van haring en haringvangstverbod). De verwerkende sector anderzijds had te kampen met een dalende aanvoer van grondstoffen. De rentabiliteit van de vloot liep terug omdat de kosten, en vooral de brandstofkosten stegen, en de opbrengst sinds 1977 geen gelijke tred kon houden met de inflatie. In de studie wordt geraamd dat de capaciteit van de vloot op dit ogenblik voor bijna 1/3 niet wordt benut en dat deze situatie ongedaan kan worden gemaakt door het voor het Verenigd Koninkrijk beschikbare gedeelte van de EEG-quota aanzienlijk te verhogen of een rigoureuus sloopbeleid te voeren. Er is veel te zeggen voor laatstgenoemde mogelijkheid, daar bij grotere aanvoer de afzet voor menselijke consumptie misschien niet gewaarborgd is gezien de voortdurend teruglopende vraag in het Verenigd Koninkrijk en de toenemende invoer.

Het rapport wordt afgesloten met de conclusie dat de visplannen die zijn voorgesteld door enige van de visserij afhankelijke gebieden, op korte termijn misschien wel in het belang zijn van deze gebieden, maar biologisch noch economisch zinvol zijn.





## RESUME

Undersøgelsen af fiskeriet i den nordlige del af Storbritannien i 1970'erne er opdelt i tre afsnit: en beskrivelse af fiskeriet, en analyse af fiskeriet og et afsnit med udsigter og henstillinger.

Kun ca. 0,7% af hele den erhvervsaktive befolkning i den nordlige del af Storbritannien er beskæftiget inden for fiskeriet. Fiskeriets betydning kommer til udtryk i det bidrag, som det yder til beskæftigelsen i afsidesliggende områder, hvor på visse steder over 50% af befolkningen er beskæftiget inden for fiskeriet. Fiskeriet har været i tilbagegang siden 70'erne; der har været et fald i beskæftigelsen på 10% og i antallet af fartøjer på 4% gennem det seneste årti.

Inden for fangstsektoren har der været en tilbagegang i ressourcerne som følge af udelukkelsen fra farvande, der nu ligger i tredjelandes eksklusive økonomiske zoner, og som følge af overfiskning af bestandene i EF-farvandet, f.eks. sild, for hvilke der er indført fangstforbud. Forarbejdningssektoren har været præget af den dalende tilgang af råvarer. Mulighederne for at få flåden til at give overskud er blevet mindre, fordi omkostningerne er steget, især omkostningerne til brændstof, og fordi indkomsterne siden 1977 ikke har kunnet følge med inflationen. Ifølge undersøgelsen skønnes der for øjeblikket i fiskerflåden at være en overskudskapacitet på næsten en tredjedel, og for at fjerne denne overskudskapacitet må Det forenede Kongerige enten have en betydelig større andel af EF-kvoterne, eller der må føres en hård oplægningspolitik. Der er meget der taler for den sidste løsning, eftersom det måske ikke er muligt at finde et konsummarked for øgede landinger på grund af en vedvarende tilbagegang i efterspørgslen i Det forenede Kongerige og den øgede import.

Rapporten konkluderer, at de fiskeriplaner, som en række områder, der er afhængige af fiskeriet, har fremlagt, måske nok er af interesse for områderne på kort sigt, men at de hverken biologisk eller økonomisk er forsvarlige.



## ZUSAMMENFASSUNG

Die Untersuchung über die Fischereiindustrie der 70er Jahren im nördlichen Teil Grossbritanniens besteht aus drei Teilen : einer Beschreibung der Fischereiindustrie, einer Untersuchung dieser Industrie sowie Aussichten und Empfehlungen.

Nur etwa 0,7 % der gesamten Erwerbsbevölkerung im nördlichen Teil Grossbritanniens sind in der Fischereiindustrie beschäftigt. Ihre Bedeutung liegt in ihrem Beitrag zur Beschäftigung in den Randgebieten, wo über 50 % der Erwerbsbevölkerung in diesem Industriezweig Arbeit finden können. Die Fischereiindustrie hat sich in den 70er Jahren derart rückläufig entwickelt, dass im Laufe dieses Jahrzehnts die Beschäftigung um 10 % und die Flotte um 4 % zurückgegangen sind.

Der Fischfang hat darunter gelitten, dass die Fangbestände durch den Ausschluss aus Gewässern, die inzwischen zum ausschliesslichen Wirtschaftsgebiet dritter Länder gehören, und durch Überfischung der Fischbestände innerhalb der EWG-Gewässer zurückgegangen sind (z.B. Hering und Heringsfangverbote). Die Fischverarbeitung hat ihrerseits darunter gelitten, dass die Rohstoffversorgung zurückgegangen ist. Die Rentabilität der Fischereiflotte ist wegen steigender Kosten, vor allem bei Kraftstoff, und fehlender, inflationsausgleichender Gewinne seit 1977 ebenfalls zurückgegangen. In der Untersuchung wird angenommen, dass die gegenwärtige Überkapazität der Flotte fast ein Drittel beträgt und diese Überkapazität nur durch eine erhebliche Erhöhung der EWG-Quoten für das Vereinigte Königreich oder eine energische Verschrottungspolitik abgebaut werden kann. Einiges spricht für letztere Alternative, da grössere Anlagen wegen der schon seit langem rückläufigen Nachfrage des VK und der zunehmenden Bedeutung der Einfuhren möglicherweise keinen Markt mehr für den menschlichen Verbrauch finden würden.

Der Bericht schliesst mit der Feststellung, dass von einigen von der Fischerei abhängigen Gebieten vorgeschlagene Fischereivorhaben kurzfristig für die betreffenden Gebiete vielleicht interessant, weder in biologischer noch in wirtschaftlicher Hinsicht aber sinnvoll sind.





## RESUME

L'étude relative à l'industrie de la pêche du nord de la Grande-Bretagne au cours des années 1970 comporte trois parties, à savoir une description du secteur de la pêche, une analyse de ce dernier et une section qui traite des perspectives en la matière et qui formule des recommandations.

En termes globaux, l'industrie de la pêche ne représente qu'environ 0,7 % de l'emploi total dans le nord de la Grande-Bretagne. Son importance réside dans la contribution que ce secteur apporte à l'emploi dans des zones périphériques où plus de 50 % de la population sont susceptibles d'occuper un emploi industriel. Le secteur de la pêche a décliné durant les années 1970, enregistrant sur une décennie une chute de l'emploi de 10 % et une réduction de la flotte de 4 %.

Le secteur de la pêche a souffert d'une diminution des ressources due à l'exclusion des eaux dorénavant situées dans les zones économiques exclusives des pays tiers et à la surexploitation de certains stocks dans les eaux communautaires, tels ceux du hareng, ayant entraîné une interdiction des captures de ce dernier. Le secteur de la transformation a été affecté à son tour par la baisse de production de la matière première. La rentabilité de la flotte a diminué en raison des coûts croissants, notamment du fuel, et de l'absence de gains permettant de compenser l'inflation depuis 1977. L'étude considérée estime que l'actuelle surcapacité de la flotte est d'environ un tiers et qu'il faudrait, pour remédier à cet état de choses, ou bien augmenter substantiellement la part du Royaume-Uni dans les quotas communautaires ou bien pratiquer une politique de désarmement rigoureuse. Cette dernière solution à la faveur de l'auteur, étant donné que des débarquements accrus risquent de ne pas trouver de marchés pour les produits destinés à la consommation humaine en raison de la baisse, amorcée de longue date, de la demande britannique et de l'importance croissante des importations.

Le rapport s'achève sur la constatation que les plans de pêche proposés par différentes régions tributaires de la pêche, s'ils sont susceptibles de présenter un intérêt à court terme pour ces dernières, ne sont valables ni du point de vue biologique ni économique.



## RIEPILOGO

Lo studio sull'industria della pesca nella Gran Bretagna settentrionale negli anni '70 è diviso in tre parti : una descrizione dell'industria peschereccia, un'analisi dell'industria stessa e una parte dedicata a previsioni e raccomandazioni.

In termini generali, l'industria della pesca rappresenta soltanto lo 0,7 % circa dell'occupazione globale nella regione in causa. La sua importanza dipende dal contributo da essa apportato all'occupazione nelle zone limitrofe, dove può dar lavoro a più del 50% della popolazione. Nella decade in esame l'evoluzione dell'industria è stata negativa : l'occupazione è calata del 10% e il numero dei pescherecci del 4%.

Le catture sono diminuite a causa di una contrazione delle risorse disponibili, dovuta alla cessazione dell'attività peschereccia in acque appartenenti ormai alle zone economiche esclusive dei paesi terzi, nonché al sovrasfruttamento di alcune popolazioni (ad esempio, aringhe) nelle acque comunitarie e al conseguente divieto di catturare le specie in causa. Il settore della trasformazione è stato a sua volta danneggiato dal minor apporto di materia prima. La redditività della flotta è diminuita a causa dell'aumento dei costi, in particolare di quelli del carburante, e a motivo inoltre del fatto che, a partire dal 1977, i profitti sono stati insufficienti a compensare l'inflazione. Secondo lo studio, la capacità eccedentaria della flotta è attualmente dell'ordine di un terzo circa e, per porvi rimedio, occorrerebbe aumentare in misura consistente la parte britannica dei contingenti comunitari o seguire una drastica politica di disarmo. Quest'ultima soluzione sembra preferibile, in quanto un maggior volume dello sbarcato potrebbe non trovare sbocchi sul mercato a causa della continua flessione della domanda nel Regno Unito e dell'aumento delle importazioni.

La relazione conclude che i piani di pesca proposti in varie zone la cui economia è basata sull'industria peschereccia possono risultare vantaggiosi a breve termine ma non hanno alcun fondamento biologico od economico.



## SUMMARY

The study of the fishing industry of Northern Britain in the 1970s falls into three parts, namely a description of the fishing industry, an analysis of the industry and a section on perspectives and recommendations.

In aggregate terms the fishing industry accounts for only some 0.7% of total employment in Northern Britain. Its importance lies in its contribution to employment in peripheral areas where over 50% of the population may be engaged in the industry. The fishing industry has been in decline during the 1970s, with employment dropping by 10% and vessels by 4% over the decade.

The catching sector has suffered from a declining resource base due to exclusion from waters, which now lie in the exclusive economic zones of third countries, and to the overfishing of stocks within EEC waters, e.g. herring and the ban on its catch. The processing sector has in its turn been affected by the declining throughput of raw materials. The profitability of the fleet has diminished, because of rising costs, especially fuel, and the failure of earnings to match inflation since 1977. The study estimates that current excess capacity in the fleet amounts to nearly a third and that to remove this would require either a substantial increase in the UK share of EEC quotas or a vigorous policy of scrapping. The latter option has much in its favour, since increased landings might fail to secure a market for human consumption, given a secular decline in UK demand and the increasing importance of imports.

The report concludes that fishing plans proposed by several fish-dependent areas may be in the short run interest of the areas but make neither biological or economic sense.



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SECTION 1 - Description of the Regional Fishing Industry



## SECTION 1.1    A SOCIO-ECONOMIC SURVEY OF NORTHERN BRITAIN

For the purposes of the study Northern Britain has been defined as the east coast of England from Bridlington northwards, Scotland and the Isle of Man. This area covers approximately 33,000 square miles (85,000 square kilometres) with a coastline of approximately 2,500 miles (4,000 kilometres). The population is approximately 8.5 million, of whom 5.2 million live in Scotland, 3.3 million in North East England and 60,000 on the Isle of Man.

### Population Trends

The last population census in the United Kingdom was in 1981 and the enumerated population of Northern Britain was 8.46 million, compared with 8.6 million in 1971 and 8.4 million in 1961. Thus the population growth of the 1960s appears to have disappeared during the last decade, mainly as a result of emigration (to other parts of the United Kingdom and overseas) and a fall in the birth rate. For Scotland, net emigration had averaged 20,000 per year throughout the 1960s, but fell to only 2,000 in 1974, largely because of the population impact of the North Sea oil and gas discoveries, since when the level of net emigration has again risen to around 20,000 per year.

Regarding sex distribution, the current population divides 48% male/52% female. Regarding age structure 58% of the population are in the working age groups 15-60, with 23% under 15 and 19% over 60.

In the present context, the geographical distribution of population and economic activity is particularly important, principally because fishing activity is concentrated in a few parts of Northern Britain. Table A1 gives a geographical breakdown by the regional authorities for 1978. In Scotland the bulk of the population is in the Central Belt, with virtually half the total in Strathclyde which includes the city of Glasgow with a population of around 1 million. The next most populated region is Lothian which includes the city of Edinburgh with a population of around 500,000. Neither of these regions has a large fishing industry and that also applies to most of the others,



2

since the bulk of the fishing fleet is concentrated in the Grampian and Highland regions and in the islands.

This pattern is even more marked in North East England where fishing activity is concentrated in a few small ports, as discussed below. In contrast there are substantial population centres, notably Newcastle-upon-Tyne, Sunderland and Middlesbrough, none of which have any significant interest in the fishing industry.

### Occupational structure

The labour force is estimated at approximately 3.6 million or 42% of the population. In the more rural parts of the region the activity rates, particularly among females, are much lower. As at June 1980 the recorded unemployment level was 392,500 or 9.9% of the labour force. This compared with 6.9% in the UK as a whole. The male/female division was 259,700 and 132,800 respectively, being 10.8% and 8.4% respectively. In practice the latter figure is likely to be an underestimate insofar as many females do not bother to register as unemployed. This unemployment level is very high, of course, one of the highest in the European Community, and has risen very sharply in recent years as a consequence of the economic recession in the UK.

Within Northern Britain there are also substantial geographical variations, with the worst hit areas being the traditional heavy engineering, shipbuilding and coal mining areas in the Strathclyde region and North East England. For example, according to the June 1980 figures, the unemployment in Strathclyde was 12.1%, Hartlepool 13.5%, Consett 13.8% and Wearside 13.7%.

The occupational structure is shown in Table A2 which gives the distribution of employment by the standard industrial classification for the period 1970-79. The latest available detailed figures for the different parts of Northern Britain are for 1976 but there do not appear to have been any major changes since then and the aggregates for 1979 shown in the table should be sufficient for present purposes.

Regarding the Scottish figures, it will be seen from the table that Scotland has a higher-than-average (GB) share of employment in primary industries, mining and quarrying, heavy engineering and ship-building. The position in North East England is similar and it is unfortunate that many of these industries are declining steadily, which to a large part explains the relatively high levels of unemployment in Northern Britain.

#### Production and income trends

It is impossible to obtain or construct separate production figures for the region. However, separate figures are available for Scotland and Table A3 sets out the index of production up until the second quarter of 1979. Comparable figures for the UK are also given. For Scotland, on the basis of 1975 = 100 the latest 1979 figure is 100.7, representing only a tiny increase in industrial production. The 1978 figure was only 101.1 and it will be seen that this represents a fall from the 1973 peak of 105.4. The pattern in the UK is slightly better but even there the latest 1979 figure of 115.3 represents a very low rate of growth in comparison with other European countries.

There are significant differences across industries. For manufacturing industry as a whole the pattern is fairly uniform but chemicals, gas, electricity and water and a few other industries are well above the averages. Obversely, mining and quarrying, construction and some manufacturing industries are significantly below.

Regarding incomes, the latest available regional estimates are for 1977. In that year, personal disposable income per head of population in Scotland was £2,111, or 97.4% of the UK average. A notable feature in the 1970s was the steady increase in this proportion with, for example, the 1971 figure being 92.1%. Income levels in North East England are very close to those in Scotland, the figure for the former for 1977 being £2,095. The main reason for the narrowing in income differences is undoubtedly regional policy and, in some parts of Scotland, the North Sea oil and gas developments. Certainly, regional income differences are

not great in the United Kingdom (with the exception of Northern Ireland) and regional disparities usually appear in the form of differences in unemployment levels.

#### Administrative organisation

The administrative structure is rather complex. The basic system is one of powers and responsibilities being shared by central government (based in London) and local government. Normally there is a fairly clear distinction, with central government being responsible for national issues such as defence, foreign policy and economic affairs, and local government being responsible for issues such as housing and education. This system applies to England but both Scotland and the Isle of Man are in significantly different positions.

With Scotland, some of the central government activities are the responsibility of the Scottish Office in Edinburgh. The Scottish Office has five main divisions: the Department of Agriculture and Fisheries for Scotland, Scottish Development Department, Scottish Economic Planning Department, Scottish Education Department and Scottish Home and Health Department. In part these activities are delegated by central government in London and the Scottish department is really acting as the agent of the central government department. In part they are a consequence of the separate and distinct legal and educational systems in Scotland. In these and some other fields English/UK legislation does not apply in Scotland, and vice versa.

Specifically concerning the fishing industry, DAFS is in practice an agent of the Ministry of Agriculture, Forestry and Fisheries (MAFF) based in London. For example, it is the UK ministry which is responsible for negotiations with the Community over fisheries policy. The UK ministry is responsible, of course, for the industry in North East England.

The Isle of Man is part of the UK but it occupies a unique legislative and administrative position, with a great degree of local autonomy, notably in fiscal matters - unlike Scotland. In principle

the island is a dependency of the United Kingdom. There is a local legislature - the House of Keys - and the government and legislature are autonomous in respect of matters which do not transcend the island, including taxation, trade, social services, agriculture and fisheries. The last mentioned is the responsibility of the Board of Agriculture and Fisheries.

Local government in England is based on the Local Government Act 1972 under which certain functions are provided by regional and district authorities. The regional authorities in North East England are those listed in Table A1. In Scotland the relevant legislation is the Local Government (Scotland) Act 1973 which makes similar provision for a system of regions, district and islands authorities, with a hierarchy of functions, similar but not identical with the division in England. The region and island authorities in Scotland are also given in Table A1.

In Northern Britain, as elsewhere in the United Kingdom, there are many other public bodies responsible for specialist functions. In the present context the most important ones are the two specialist fisheries bodies, the White Fish Authority and the Herring Industry Board recently merged in the new Sea Fish Industry Authority. Their detailed functions are discussed later in this report. Also of interest are the regional development agencies such as the Highlands and Islands Development Board and the Scottish Development Agency, responsible for economic development in their areas, including where appropriate the fishing industry. Again, more details of their activities are given below.

#### Regional aids from central government

The United Kingdom has had a regional policy since the 1930s, although from time to time it has been more active and effective than in other periods. The main administrative basis for current regional policy dates back to 1965 when the country was divided up into development areas - where certain forms of regional aid were available - and non-development areas. Over time other forms of assisted area have been introduced, of which there are four main ones at present: special development areas,

development areas, intermediate areas and non-assisted areas. Recently the government has announced experiments with urban development corporations and enterprise zones to try to alleviate the special problems of declining city centres in areas like Glasgow.

In the financial assistance, there are two main forms - regional development grants and selective assistance (under the Industry Act 1972). The level of grants for buildings, machinery and equipment varies according to the area's development status. Recently the government have been placing more emphasis on selective assistance, particularly for troubled industries - including fisheries - and the emphasis has moved away from the automatic schemes of assistance. There are also special schemes for training programmes in tourism, some service industries and public finance. Many of these include European Community finance and the fishing industry is eligible for some of them. Specific details are given below. Finally, bodies like the Highlands and Islands Development Board and the Scottish Development Agency have their own, additional schemes of aid for their areas.

As to the value of regional assistance, this has varied from year to year over the period, depending on the policies of the different governments in power, but the average for the 1970's for Northern Britain is about £145 million (in 1975 prices). Scottish GDP in 1975 was an estimated £8237 million and that of Northern England was £4864 million. To expenditure specifically identified as regional aid must be added some element of expenditure of bodies like the Scottish Development Agency, the National Coal Board and British Steel. This could bring the annual average to around £250 million or approximately 2% of the GNP of Northern Britain.

#### Relative importance of the fishing industry

There are many ways of assessing this but probably the best single indicator is employment. Earlier it was noted that the labour force in Northern Britain was 3.6 million. The number of fishermen in Northern Britain is around 10,000 of which 8,800 are in Scotland with



between 17,000 and 20,000 employed onshore in associated industries such as fish processing. In aggregate terms therefore the fishing industry accounts for only 0.7% of total employment and in that light it cannot be seen as a major industry. If other factors, such as the contribution to the balance of payments, multiplier effects on other industries such as boat building, and so on, are taken into account, the significance of the regional fishing industry is greater but obviously still small in the overall context.

Nevertheless, in certain parts of Northern Britain the fishing industry is very important and often the major local employer. In North East England the industry is very small and the contribution to employment is well below the 0.7% given above. In Scotland the industry is to a large extent concentrated in a few areas, as discussed in Section 1.2 below, and these tend to be more northerly and remote areas, particularly in the Grampian and Highland regions and the islands. In some of these areas the fishing industry accounts for up to 40% of total local employment.

It is essential therefore to see the fishing industry in Northern Britain in this more local context rather than with a national perspective.

## SECTION 1.2.1   RESOURCES

### Evolution of landings 1970-1980   Northern Britain<sup>1,2</sup>

In the 1970s Northern Britain accounted for 57% of UK landings by volume and 47% by value. The North Sea is the principal fishing ground for the Northern British fleet for all major species of fish with the exception of mackerel, herring and nephrops, where the West of Scotland grounds are more important.

#### Volume of landings

Figure A illustrates the pattern of landings in Northern Britain by UK vessels in the period 1970-1980. Clearly, 1974 marks the end of a period which had seen the volume of landings steadily increase, and the beginning of a new trend of declining catches. Thus, in 1979, the volume of Northern British landings was down to 393,517 tonnes, 84% of the 1970 level and 69% of the 1973 record level. Landings picked up fractionally in 1980, reaching 396,237 tonnes.

#### Value of landings

From Figure B, an almost continuous growth in nominal earnings is apparent up until 1978, when a record £138.13m was reached. This represented an increase of 346% from the 1970 figure of £30.97 million. Since then, the value has fallen by 8.6% to £126.28 million in 1980.

In real terms,<sup>3</sup> however, the picture is very different (Figure C).

- 
- 1 Landings in "Northern Britain" here include all Scottish landings plus all those made in major ports in North-East England (North Shields, Whitby, Scarborough and Bridlington).
  - 2 Volumes are expressed in terms of landed weights.
  - 3 Real values are expressed in 1970 £'s.

Real earnings peaked in 1973 and 1977 at around the £53 million level. Since 1977 real earnings have continuously declined (by some 33% by 1980), though in 1980, at £35.10 million, they were still some 13% higher than in 1970 (£30.97m). The data are given in Table 1.

Table 1

Volume, Value and Real Value of catches landed by UK vessels in Northern Britain, 1970-1980.

ALL SPECIES	Volume (m.t. '000)	Value (£m)	Real Value (£m, 1970 £s)
1970	468.8	30.97	30.97
1971	511.0	39.72	36.34
1972	517.5	49.39	42.18
1973	568.0	68.91	53.88
1974	524.4	70.87	47.76
1975	463.9	66.39	36.00
1976	521.0	97.27	45.26
1977	471.2	129.63	52.06
1978	497.6	138.13	51.24
1979	393.5	136.46	44.64
1980	396.2	126.28	35.01

Source: S.S.F.S.T. and S.F.S.T.

Composition of the catch

Volume

The contributions of demersal, pelagic and shellfish catches to total landings were, in 1980 and 1970:

Table 2

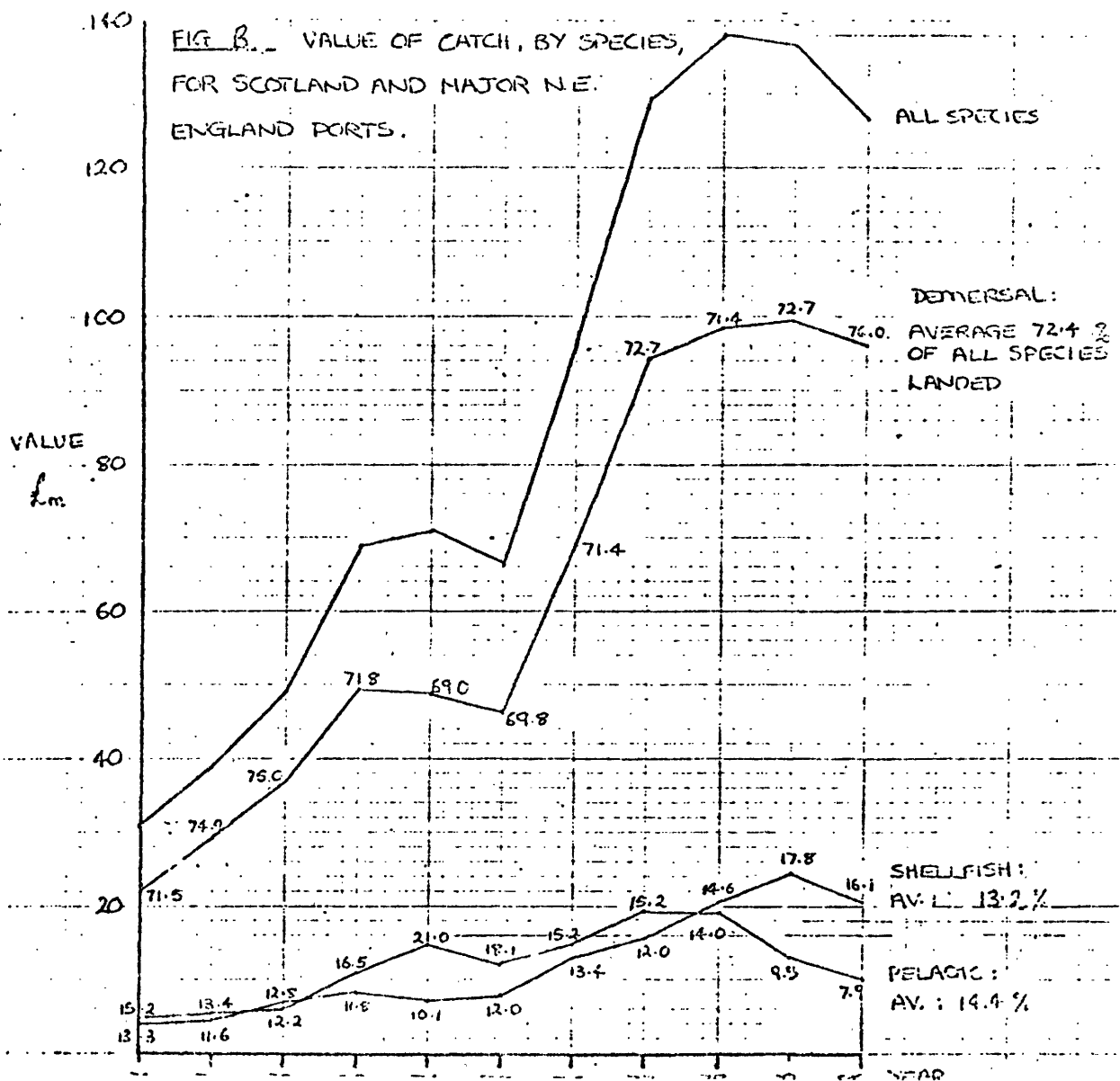
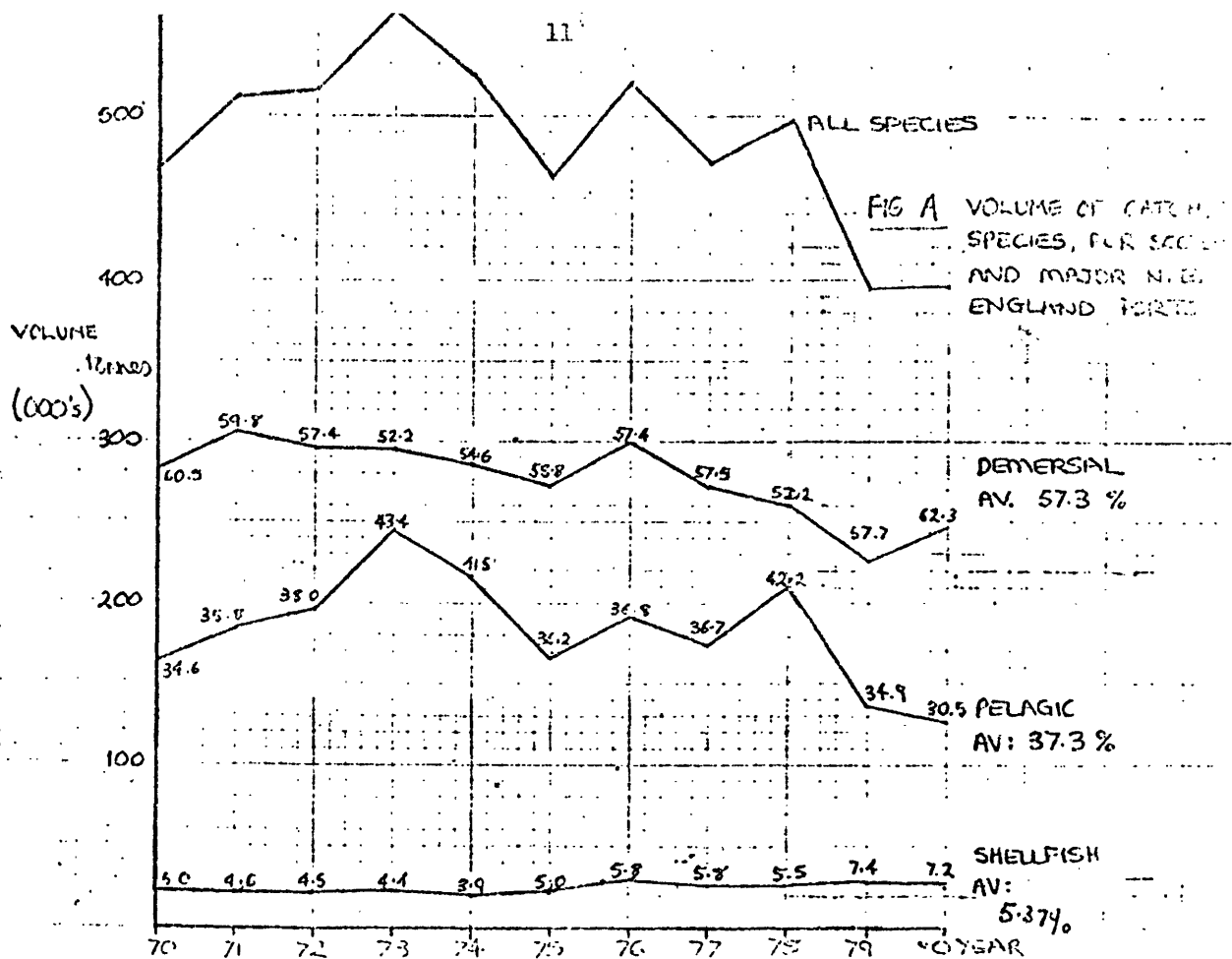
Species	m.t. '000			% of total	
	1970	1980	% change 70-80	1970	1980
Demersal	283.40	246.83	-12.9	60.5	62.3
Pelagic	162.02	120.77	-25.5	34.6	30.5
Shellfish	23.35	28.64	+22.7	5.0	7.2
Total	468.76	396.24	-15.5	100.0	100.0

The major conclusions from Table 2 are that the volumes of demersal and pelagic species landed have declined, while shellfish catches have increased, but that the 1980 shares of demersal, pelagic and shellfish catches were little different from those of 1970.

Examination of Figure A and Table A4 in the Appendix reveals that demersal catches fell almost continuously from 1971 to 1979. In 1980 they picked up slightly but were still some 12.9% less than the 1970 figure and 19% less than the decade record of 305,667 tonnes in 1971.

Pelagic trends exhibit 2 periods of rising catches, 1970-1973 and 1976-1978, the earlier growth being the more rapid, and reaching a higher peak. The years between, 1974 and 1975, witnessed a sharp decline to almost 1970 levels. Recently, in 1979 and 1980, another sharp decline has occurred, bringing the catch in 1980 down to 75% of its 1970 level.

Shellfish catches were steadily rising up until 1979 but dropped in 1980 by 2%. In 1980, the catch was still some 22.7% higher than that recorded in 1970.



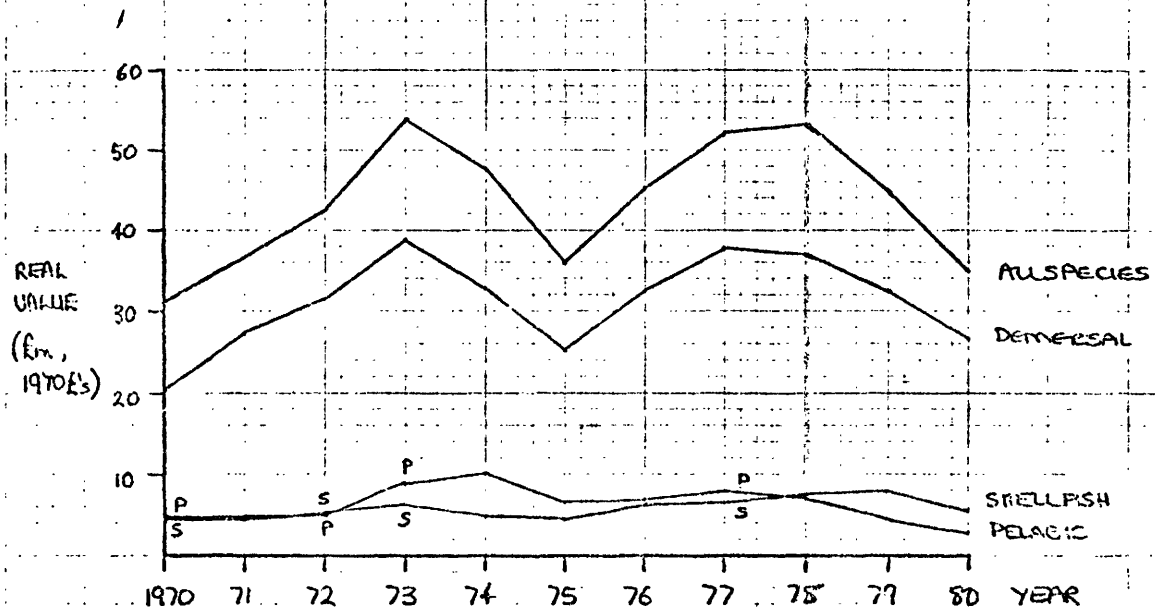


FIG. C : REAL VALUE OF CATCH, BY SPECIES, FOR SCOTLAND AND NORTH-EAST ENGLAND.

Value (nominal and real)Table 3

	(Nominal) £m			(Real) £m (1970Es)		% of total	
	1970	1980	% Nominal Change 70-80	1980	% Real Change 70-80	1970	1980
Demersal	22.14	96.02	+334	26.62	+20.2	71.5	76.0
Pelagic	4.71	9.98	+112	2.77	-41.2	15.2	7.9
Shellfish	4.12	20.28	+392	5.62	+36.4	13.3	16.1
Total	30.97	126.28	+308	35.01	+13.0	100.0	100.0

The major conclusions which emerge from Table 3 are the following. In nominal terms, the earnings of all three groups have risen considerably. Demersal and shellfish earnings have risen substantially faster than the general price level, but pelagic earnings have failed to keep pace with the inflation rate. The demersal contribution to earnings far outweighs those of other species, while shellfish have overtaken pelagic species in earning importance and in 1980 contributed twice as much to value as did pelagic earnings. Table A5 and Figure B reveal the trends in demersal, pelagic and shellfish earnings from 1970-1980. The growth in nominal earnings since 1970 was interrupted in 1974 and 1975 for pelagic, in 1975 for demersal and in 1974 for shellfish species respectively. Peak nominal earnings were reached in 1979 for demersal and shellfish catches and in 1977 for pelagic catches. In these peak years, earnings were some 348% (demersal), 318% (pelagic) and 489% (shellfish) higher than in 1970. In 1980 demersal and shellfish earnings declined by 3.3% and 16% respectively, from the 1979 levels. Pelagic earnings have declined rapidly since 1977, by 49% up to 1980.

In real terms, figure C shows that there have been two peaks in earnings, in 1973 and 1977 for demersals, 1974 and 1977 for pelagics and 1973 and 1979 for shellfish. In the case of demersals and pelagics, the slightly higher peaks were the earlier ones, these representing increases from 1970 of 75% and 113% compared with 71% and 68% for 1977.

However, the decade peak in real shellfish earnings was recent, in 1979, with real earnings up 93% on 1970. Recovery after 1975 was strongest for these species.

Since 1977, demersal and pelagic real earnings have declined by 30% and 86% respectively. Real shellfish earnings declined by 29% in 1980 compared to 1979.

### Catches and earnings of principal species

The principal species by volume and value, landed in Northern Britain in 1970 and 1980 are shown in Table A6 while trends over the decade are illustrated in Figures D and E.

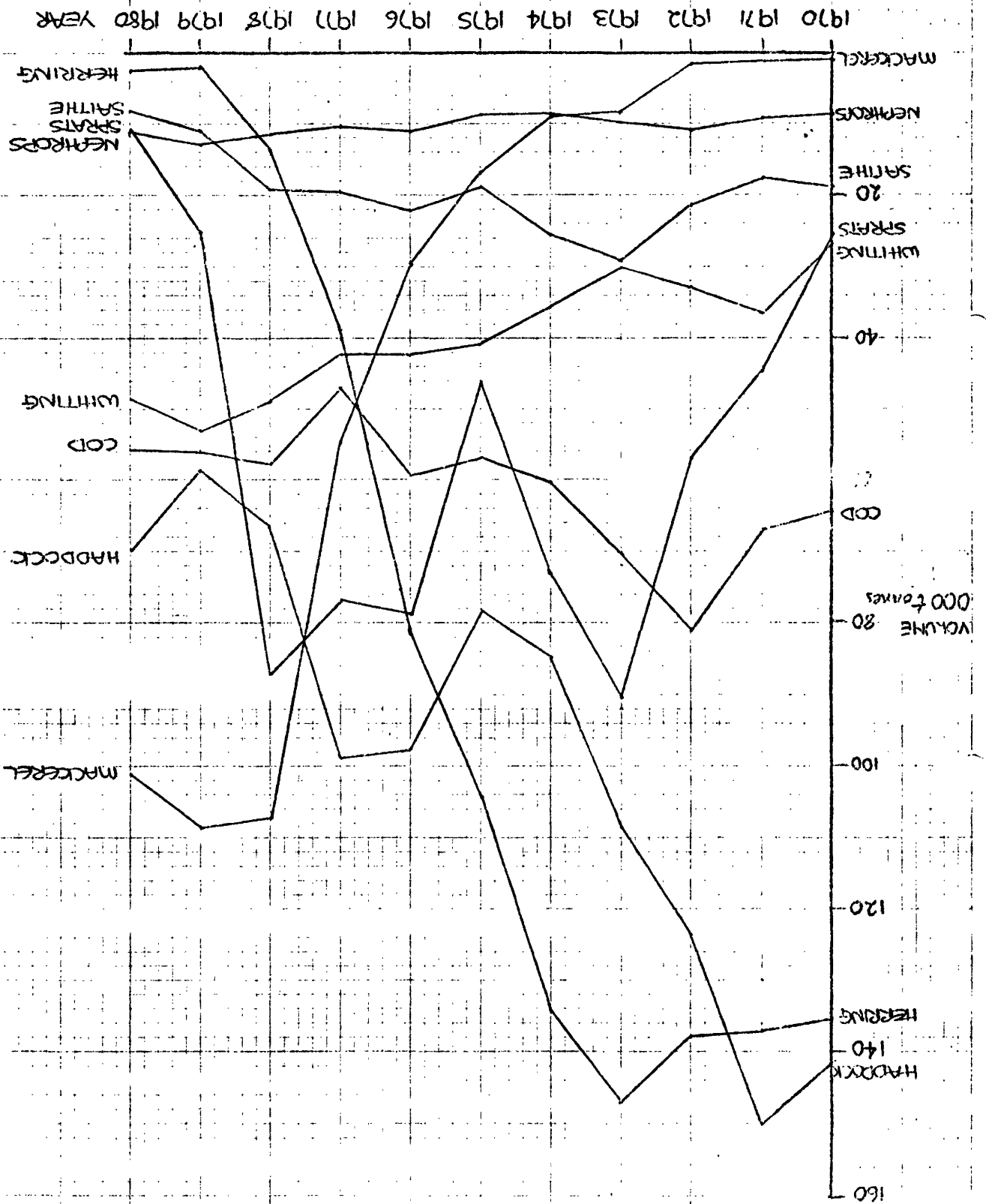
Since 1972, haddock catches have declined in every year except 1976, 1977 and 1980, so that their share of the total catch has been almost halved. Haddock still remains, by volume, the second amongst all species, and the top demersal species, though its lead over cod has been narrowed. Cod catches have declined since 1973 by somewhat less, and their share (the third largest) remained fairly stable. Whiting catches have shown a steady growth since 1970. Their share of the total catch has more than doubled, almost catching up with cod, but remains fourth in importance.

Herring catches have fallen dramatically from their top position in 1973. By 1980 they ranked well below the top 8 species and even lower than some of the minor contributors. By contrast, mackerel has come from almost nothing in 1970 to be the premier species in terms of volume in 1978, 1979 and 1980.

Fifth by volume in 1970 were sprats, highest catches being recorded from 1973 to 1978, except in 1975 when volume plummeted. In 1973, 1974 and 1976, it was the third largest single catch and in 1977 and 1978, the second largest. However, in 1979 the catch dived again, continuing to fall in 1980, so that its share in that year ranked only sixth.



FIG. 1  
VOLUME OF PRINCIPAL SPECIES LANDED IN NORTH  
BRITAIN BY UK VESSELS, 1970-1980



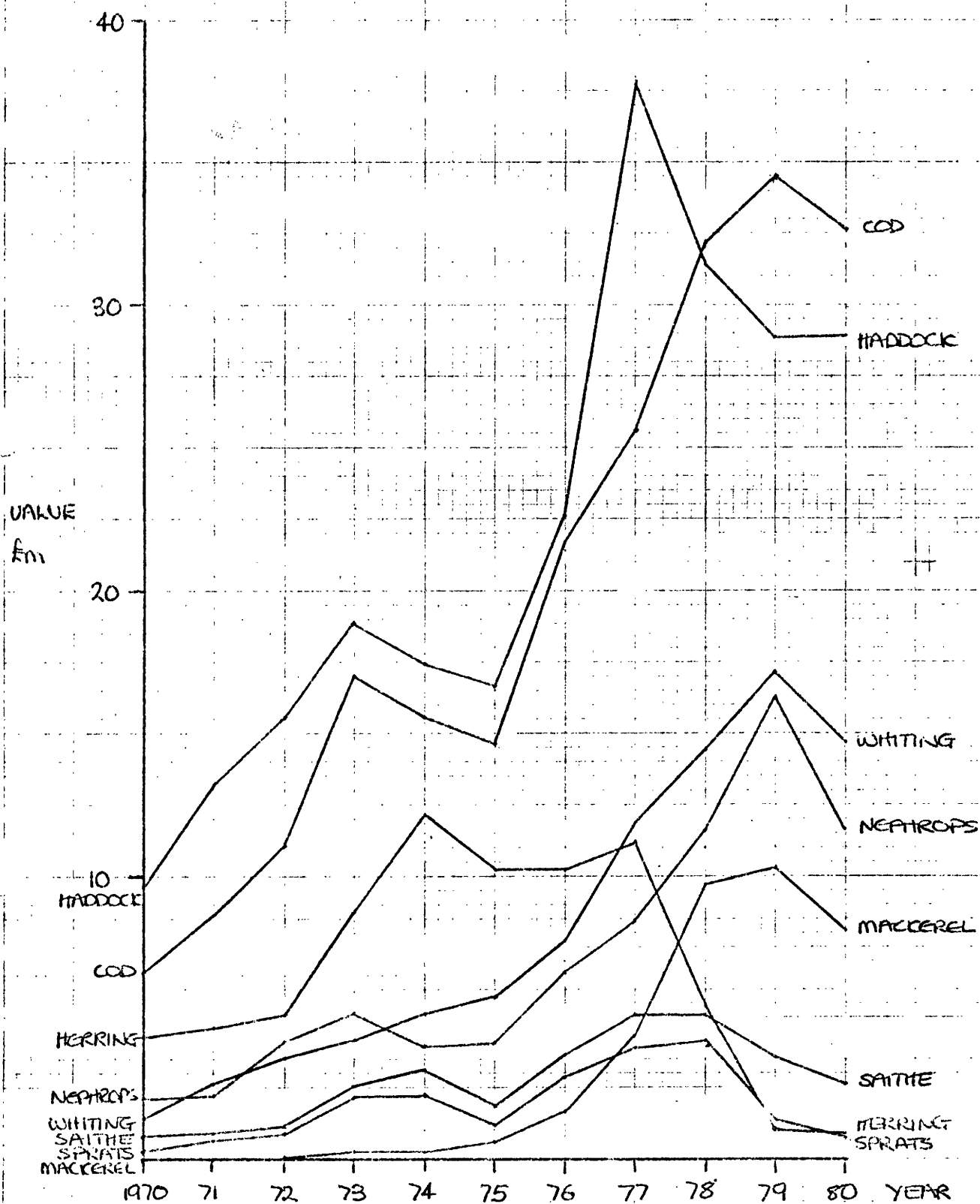


FIG. E VALUE OF PRINCIPAL SPECIES LANDED IN NORTH  
BRITAIN BY U.K. VESSELS, 1970-1980.

The saithe catch, sixth in 1970 and seventh in 1979, grew to a modest peak in 1973 since when it has diminished steadily to less than its 1970 level, its share more than halving. Nephrops catches have remained fairly stable, though, unlike most other species, after the low catches of 1973/4/5, they recovered and grew modestly but steadily. Thus, seventh in 1970, they ranked fifth in 1980.

In terms of value, there have been less dramatic shifts in the rankings of individual species. Haddock, first in 1970, and cod swapped places in 1978 and have stayed there since. Earnings of both species, never far apart, have risen rapidly, but both declined in 1974 and 1975. Whiting earnings have also increased rapidly and continuously up to 1979. As a result they have moved up from fifth to third position. Their 1980 share was more than double that of 1970 but still only half that of haddock. Nephrops earnings showed a similar rapid growth, although they declined in 1974. Their share has increased by almost half and remains the fourth largest.

Herring was third in earning importance in 1970 and right up until 1976 with its share peaking in 1974. Herring earnings plummeted in 1978 and 1979, the fall taking them well out of the "top division". In 1980 herring earned slightly more than sprats, whose earnings had fallen since 1978 and had become only a minor share by 1980. Their contribution in 1980 was less than a quarter of their mid 1970's level. This species was relatively insignificant before 1972.

Saithe has ranked sixth throughout the period with its earnings and its share increasing to a peak in 1978. Mackerel earnings grew rapidly from 1975, entering the league of principal species really only in 1977. Since then, its share has doubled and was fifth largest in 1980.

#### Catches and earnings of minor species

The rest of the Northern British catch was composed as follows:

Table 4

	m.t. '000		% of total catch		£m		% of total catch	
	1970	1980	1970	1980	1970	1980	1970	1980
Other demersal	30.5	64.6	6.6	16.3	3.71	17.13	11.9	13.6
Other pelagic	....	6.8	....	1.7	-	0.19	-	0.2
Other shellfish	14.9	17.9	3.2	4.5	2.05	8.64	6.6	6.8

The big increase in the "other demersal" volume and share reflects a substantial growth in sandeel fishing. This species accounted for 8.1% of the total Northern British catch in 1980 compared with zero % in 1970. However, the low value of sandeels meant that the increased catch had little effect on boosting the share of "other demersal" in earnings. Five other species, plaice, dogfish, monks, lemon sole and skate, contributed most of the remaining "other demersal" catch (4.4% in 1970 and the 5.6% in 1980 in terms of total volume and 7.5% and 8.4% respectively in terms of total value). "Other pelagics" are largely blue whiting.

The "other shellfish" shares of the catch and earnings have changed little. Significant species in terms of volume are crabs, scallops, queen scallops and periwinkles. In terms of value, the scallops, queens and the small volume of lobster are most significant.

Contributions of landings by British vessels in Northern Britain to all landings by British vessels in the UK in terms of volume and value

As can be seen from Tables A7 and A8 Northern Britain has accounted for an average 53% of all landings by British vessels in the UK over the reference period and for an average 47% of the value. Its share in terms of volume was increasing in the early years of the decade, reaching 56% in 1973 but has since declined to approximately 47.1% in 1979. Landings in Northern Britain have, however, contributed a generally increasing share of the value of all UK landings, rising from 40.6% in 1970 to 53.7% in 1979.

Northern Britain has accounted for a rapidly increasing share of demersal landings over the decade. Its 61.5% share in 1979 represents an increase of about 59% over its 1970 level. This trend is matched by that of the Northern Britain share in terms of value, which has increased from 34.6% in 1970 to 57.6% in 1979.

Northern Britain's landings of pelagic fish have contributed progressively less to the UK total in terms of both volume and value. From accounting for 86.3% of pelagic landings in 1970, in 1979 it contributed only 34.1%. Its share of the value of pelagic landings also fell drastically from 85.4% in 1970 to 30.9% in 1979. This considerable change is accounted for by the performance of the herring and mackerel fisheries. Herring was more important to the Northern British fleet than to the UK fleet as a whole, so that the closure of the North Sea and West of Scotland fisheries hit Northern British landings hard. The replacement species, mackerel, is less important in Northern British landings than in UK landings. The South West England mackerel fishery is also the largest, accounting for some 57% of UK landings. Overall there has been a change in the location of pelagic fishing effort away from Northern Britain.

Northern Britain's share of shellfish landings in the UK dropped, in terms of volume, from 41.4% in 1970 to 32.0% in 1974. By 1979, however, the share had risen again to 45.4%. The region's share of value has remained more or less constant, averaging 63% from 1970 to 1979.

### Fishing Regions

Table 5 summarises the relative importance of the major fishing grounds for the principal species in the Scottish catch,<sup>1</sup> in 1970 and 1979.<sup>2</sup> The following are the salient features.

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1 Data are only available for Scottish catches - i.e. landings in Scotland by UK vessels.

2 Detailed data are set out in Table A9 in the Appendix.

The West Coast is predominant for herring and mackerel catches and the North Sea for demersal catches. The sprat catch originates mainly from the North Sea, and to a lesser extent, especially in recent years, from the West Coast. The proportions of the cod and saithe catches caught in Faroese and Icelandic waters have declined dramatically since 1970. As the West Coast proportion of the cod and saithe catches remained constant, the North Sea proportions increased from 54% to 84% and 32% to 70% respectively; it is evident that these increases reflect some diverted effort from Faroe and Iceland to the North Sea. The increased industrial fishing for Norway pout and sandeels has taken place almost exclusively in the North Sea. The West Coast catch of Norway pout has remained very small, so that this area's relative significance has declined.

Table 5

Percentages of total Scottish catch of principal species taken in selected fishing regions. 1970-1979.

	NORTH SEA		WEST SCOTLAND		ICELAND AND FAROE		BEAR ISLAND SPITZBERGEN NORWEGIAN COAST	
	1970	1979	1970	1979	1970	1979	1970	1979
Cod	54	84	13	13	27	3	3	0
Haddock	75	86	19	12	5	0.5	...	0
Whiting	75	81	24	19	1	0	-	-
Norway Pout	7	95	93	5	-	-	-	-
Saithe	32	70	23	24	46	7	...	-
Sandeels	-	100	-	-	-	-	-	-
Herring	18	...	81	100	-	-	-	-
Mackerel	16	5	84	96	-	-	-	-
Sprats	70	90	28	8	-	-	-	-
Nephrops	84	24	64	74	-	-	-	-

Source: Derived from data in S.S.F.S.T.

Trends in total catches from the North Sea and West of Scotland grounds

Tables A10 and A11 illustrate the development of catches of the principal demersal and pelagic fish taken in the grounds of the North Sea and West of Scotland, in the period 1970-1979. Table A12 details shellfish landings in Scotland (by UK vessels) from the same areas, 1970-1979.

The relative importance of Scottish catches of principal species in the North Sea and West of Scotland fishing grounds.<sup>1</sup>

The Scottish section of the Northern British fleet took 64% of the haddock caught in the North Sea, 34% of the whiting and 19% of the cod. In the seas off the West Coast it took 43% of the cod, 51% of the haddock, 65% of the whiting and 19% of the mackerel.

Cod

The main catching nations in 1970 and 1979 by volume were:

'000 TONNES	DENMARK	ENG/WALES	U.S.S.R.	SCOTLAND	NETHS.
1970	40.0 (18)	38.5 (18)	32.1 (15)	30.1 (14)	25.2 (12)
1979	47.8 (21)	54.9 (24)	... (..)	42.8 (19)	34.0 (15)

The disappearance of the U.S.S.R. catch, the third largest in 1970, is particularly striking. The catches and shares of the other four "majors" - Denmark, England/Wales, Scotland and the Netherlands - have correspondingly increased. In 1979, the remaining 21% was caught largely by West Germany, France and Belgium. Catches by non-EEC members (e.g. Norway, Sweden) had fallen to negligible levels.

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1 Volumes, in '000 tonnes, refer to nominal weight. Figures derived from statistics in ICES co-operative research report 1980. Percentages of the total catch are shown in brackets.

Haddock

The main catching nations in 1970 and 1979 were:

'000 TONNES	U.S.S.R.	DENMARK	SCOTLAND	ENG/WALES	FRANCE
1970	344.0 (51)	158.3 (24)	113.0 (17)	19.5 (3)	10.4 (2)
1979	..... (...)	7.8 (9)	54.2 (64)	10.8 (13)	6.5 (8)

The Scottish share of declining total haddock catches increased to be the principal one in 1979, although the absolute catch fell. This is attributable partly to the extinction of the U.S.S.R. catch, which in 1970 was the largest, and partly to the sharp reduction in the Danish catch, which in 1970 was the second largest. Amongst the minor catching nations in 1970, the shares of England/Wales, France and Germany increased, while those of the Netherlands and of non-EEC countries, especially Sweden fell, reflecting much sharper declines in absolute catches.

Whiting:

'000 TONNES	DENMARK	SCOTLAND	FRANCE	U.S.S.R.	NETHS.	ENG/WALES
1970	102.7 (57)	21.1 (12)	25.8 (14)	14.3 (8)	10.1 (6)	3.4 (2)
1979	41.9 (32)	44.8 (34)	22.6 (17)	- -	11.0 (8)	7.6 (6)

The Scottish share almost tripled as its absolute catch expanded to number one position in 1979, ousting Denmark whose catches had more than halved. Again, the Russian catch, once two-thirds of the Scottish, had been reduced to zero by 1979. By 1979 EEC countries took virtually all the remaining catch between them.

Saithe<sup>1</sup>:

'000 TONNES	U.S.S.R.	DENMARK	FRANCE	NETHS.	NORWAY	GERMANY	SCOTLAND
1970	68.1 (31)	63.3 (29)	38.9 (18)	20.5 (9)	11.2 (5)	6.0 (3)	5.3 (2)
1979	2.2 (2)	10.4 (9)	39.7 (35)	2.6 (2)	15.4 (13)	22.0 (19)	8.3 (7)

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1 ICES IV and IIIa.



The Scottish share of the saithe catch has remained rather small, although it has grown some 57% since 1970. The same trend has occurred in the other, all non-EEC, minor catching nations. The 1970 major catchers, the U.S.S.R. and Denmark, experienced sharp absolute and relative drops in catches, so that the French catch became the largest in 1979, although the actual volume was much the same as in 1970. Increased catches for Germany and Norway promoted these countries to second and third positions.

#### Sprats:

'000 TONNES	SCOTLAND	DENMARK	GERMANY	ENG/WALES	NORWAY
1970	26.4 (36)	18.1 (25)	16.7 (23)	8.8 (12)	0.0 (0)
1979	11.8 (3)	268.3 (71)	3.8 (1)	14.3 (4)	78.6 (21)

The Scottish share has considerably declined from its premier position. The Danish catch has grown phenomenally to become the leader, its catch even increasing in 1979, a year when those of all other countries fell. The Norwegian catch has come from nothing to be second largest.

#### Mackerel<sup>1</sup>:

'000 TONNES	NORWAY	U.S.S.R.	FRANCE	DENMARK	SWEDEN	FAROES	SCOTLAND
1970	683.0 (92)	12.5 (2)	11.4 (2)	10.9 (1)	10.8 (1)	3.1 (-)	0.2 (-)
1979	90.7 (60)	0.2 (-)	3.6 (2)	19.2 (13)	3.9 (3)	28.1 (19)	5.3 (4)

The Scottish share of the catch remains very small, despite increased volumes. The biggest catches in 1979 were made by Norway, Denmark and the Faroes. Soviet, Swedish and Polish catches declined.

#### Herring<sup>2</sup>:

The Scottish share of the North Sea herring catch has been rather small (4% in 1970) and was zero in 1979. In fact all catches

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1 ICES IV and IIIa

2 ICES IV and VII d) and e)

have been severely reduced, the total 1979 catch being 97% less than that of 1970. In 1979, most of the small quantity of herring caught, 5922 tonnes, theoretically all by-catch, was taken by Denmark (56%), Norway (19%), France (13%) and England/Wales (12%). The 1970 major catchers had been Norway (34%), Denmark (24%), Faroes (10%) and the Netherlands (8%).

West of Scotland (ICES VIA unless otherwise stated)

Cod:

'000 TONNES	SCOTLAND	ENG/WALES	FRANCE	IRELAND
1970	7.4 (58)	2.6 (20)	1.2 (9)	1.1 (9)
1979	6.9 (43)	2.3 (14)	4.4 (27)	2.2 (14)

Scotland has maintained its predominance, although its catch volume and percentage have declined as the French and Irish catches and shares have grown.

Haddock:

'000 TONNES	SCOTLAND	IRELAND	ENG/WALES	FRANCE
1970	28.7 (84)	2.7 (8)	1.8 (5)	0.8 (2)
1979	7.5 (51)	0.9 (6)	1.7 (11)	4.8 (32)

Again, Scotland is still the largest catcher, though its share has fallen, as the size of the catch has diminished and that of the French has increased.

Whiting:

'000 TONNES	SCOTLAND	IRELAND	FRANCE	ENG/WALES
1970	6.8 (61)	2.4 (21)	1.9 (17)	0.1 (1)
1979	10.6 (65)	2.8 (17)	2.6 (16)	0.3 (2)

The Scottish catch remains the largest, with the Irish and French being the other significant catchers. Catches by all countries have grown.

Saithe:

'000 TONNES	SCOTLAND	FRANCE	ENG/WALES
1970	5.2 (36)	5.1 (35)	3.6 (25)
1979	3.6 (17)	15.6 (72)	1.8 (8)

In the early seventies, the French catch increased more rapidly than the Scottish and has since maintained its margin despite a recent decline in both countries' catches.

Herring<sup>1</sup>:

From being the principal catcher in 1970 (with a share of 58%) Scotland caught nothing in 1979. All countries catches have been reduced to zero apart from Ireland's and the Netherlands' (4.6 and 1.2 tonnes respectively). In 1970 other principal catchers had been Norway (11%), Germany (9%), Faroe (8%) and Ireland (7%).

Mackerel<sup>2</sup>:

'000 TONNES	FRANCE	SPAIN	ENG/WALES	SCOTLAND	NETHS.
1970	31.4 (44)	21.6 (30)	2.7 (4)	0.4 (1)	4.4 (6)
1979	31.5 (6)	20.0 (4)	244.3 (44)	103.2 (19)	62.4 (11)

Scottish and particularly English/Welsh catches have seen a remarkable expansion and in 1979 were the two largest. French and Spanish catches have changed little and so their shares have dropped while U.S.S.R. and Polish catches (9% and 3% in 1970) have disappeared. Norway, Germany, Ireland, the Faroes and Denmark are all newly fishing this stock and constitute today's "minor" fishing nations.

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1 ICES VIA

2 ICES VI, VII and VIII

Geographical distribution of Scottish catches<sup>1</sup>, by distance from shore

This section contains summary data on the geographical distribution of the catches by Scottish vessels by distance from the shore, on the proportion of landings in Scotland accounted for by Scottish vessels, on the home base of vessels making catches in various areas and some information on the itinerant nature of the fleet measured as landings in fishing districts other than the home district of the vessel. (More detailed information is contained in Tables A13, A14, A15 and A16 while maps 1 and 2 in the Appendix give details of ICES regions and base districts).

Table 6

Percentages of Scottish catches within different distances from shore, 1975 and 1979.

	Year	<3 miles	3-12 miles	>12 miles
All Species	1975	38.1	16.6	45.3
	1979	35.5	17.2	47.4
Demersal	1975	13.6	20.5	65.9
	1979	10.1	17.7	72.2
Pelagic	1975	85.3	6.4	8.2
	1979	83.2	8.2	8.5
Shellfish	1975	82.0	6.6	11.4
	1979	72.4	13.3	14.3
Industrial	1975	14.2	28.9	56.9
	1979	1.2	73.7	25.0

Source: D.A.F.S.

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1 "Scottish catches" here refer to landings in Scotland by Scottish based vessels. Volumes indicate nominal weight.

In 1979, 52.6% of all fish caught by Scottish vessels and landed in Scotland was caught within the 12 mile limit. This was not much different from the figure of 54.7% for 1975. Pelagic shellfish and industrial species are all caught predominately within the 12 mile limit : the percentages for 1979 are respectively 91.5%, 85.7% and 75%. Moreover, most pelagics and shellfish are caught within 3 miles of the shore, whilst industrial species are caught between 3 and 12 miles. The major fishing grounds within this 12 mile zone for these species are:

Table 7

		1975		1979	
		'000m.t.	% <sup>1</sup>	'000m.t.	% <sup>1</sup>
Pelagic:	South VIA (W. Scotland)	103.1	85.1	83.4	86.6
Shellfish:	South VIA (W. Scotland)	8.0	79.3	13.8	58.9
	Orkney & Moray Firth	0.6	5.7	3.5	14.9
	IVB (Mid N.Sea)E.C. Sector	1.5	14.6	2.8	11.8
Industrial:	Shetland	13.3	66.8	12.4	99.8

It is of note that shellfishing has expanded most rapidly in the Orkney/Moray Firth area.

The bulk of the Scottish demersal catch, 72.2%, is caught out-with the 12 mile zone. This 1979 figure is a greater proportion than the 65.9% of 1975. The major fishing grounds within this 12 mile zone for these species are:

Table 8

		1975		1979	
		'000m.t.	% <sup>1</sup>	'000m.t.	% <sup>1</sup>
Demersal:	IVA (North N. Sea)				
	1. Shetland	21.8	14.4	28.3	18.2
	2. Orkney/Moray Firth	28.9	19.0	43.7	28.1
	3. Rest of IVA	31.3	20.6	28.8	18.5
	Total	81.9	53.9	100.8	64.8
	IVB (Mid N. Sea)				
	1. E.E.C. Sector	21.4	14.1	28.1	18.1
	2. Norwegian Sector	3.2	2.1	7.9	5.1
	North VIA	11.2	7.4	12.3	7.9
	'Other'	31.3	20.6	4.6	3.0
	South VIA (W. Scotland)	2.9	1.9	2.0	1.2

<sup>1</sup> As percentage of total catch taken inside 12 miles.

The volume caught in 'other' areas has declined substantially. North Sea catches have correspondingly risen and heightened the importance of this region. The northern section was in 1975, and is even more so in 1979, the most productive zone. Within this area, catches in the Shetland and to a much greater extent in the Orkney/Moray Firth region have expanded, whilst those in the rest of the north North Sea have declined.

Catches by Scottish vessels comprise the following percentages of the total catches from fishing grounds around Northern Britain which are landed in Scotland:

Table 9

	<3 miles	3-12 miles	>12 miles	All Bands
1975	90.2	96.4	98.1	94.6
1979	84.8	98.9	99.1	94.0

The Composition of 'other vessels' catches within 3 miles was as follows. In 1975 they were mostly pelagic and shellfish from region VIA - south (31% and 20%), while in 1979, 91% of the catch was pelagic from VIA - south.

The following table shows the catches made in 1979 and landed in Scotland, by vessels from sub-regions 1 to 5 within different distances from shore.

Table 10

miles from shore	1		2		3		4		5		ALL VESSELS	
	m.t.	%	m.t.	%	m.t.	%	m.t.	%	m.t.	%	m.t.	%
<3	7.8	6.0	76.1	58.9	11.9	9.2	33.6	26.0	19.7	15.2	129.3	100
3-12	6.0	9.6	33.6	53.7	18.4	29.4	4.7	7.5	0.7	1.1	62.6	100
>12	21.0	12.2	130.4	75.5	14.3	8.3	7.1	4.1	1.6	0.9	172.7	100
ALL	34.8	9.5	240.0	65.8	44.5	12.2	45.3	12.4	22.0	6.0	364.7	100

Sub-regions: 1 Eyemouth-Arbroath  
 2 Aberdeen-Wick  
 3 Orkney and Shetland  
 4 Stornoway-Ayr  
 5 Vessels from outside Scotland

Vessels from Aberdeen - Wick dominate catches within all distance bands, but particularly outwith 12 miles, where they take their largest catch. The vessels of next importance for each band are:

<3 miles	: Stornoway to Ayr
3-12 miles	: Orkney and Shetland
Outwith 12 miles	: Eyemouth to Arbroath

These bands are also those providing the largest catches for the respective vessel groups. Vessels from "other" areas are most significant within 3 miles.

Table A15 shows the relative importance of vessels from each sub-region within different ICES sea areas and sections thereof. Again Aberdeen - Wick based vessels are predominant in most areas except for the EEC sector of the middle North Sea (ICES IVb), where vessels from Eyemouth - Arbroath dominate, and for the regions other than IV and VIA, where vessels from Stornoway - Ayr dominate. The table also shows that in Shetland waters, the activity of vessels based there comes a close second to that of Aberdeen - Wick vessels. In Orkney/Moray Firth and other IVA waters the Aberdeen - Wick vessels are heavily predominant accounting for over 90% of the catches.

In the Norwegian sector of the middle North Sea, on the other hand the activity of vessels from Eyemouth - Arbroath is particularly strong, while in the northern part of the waters to the west of Scotland, vessels from base districts in that region and from Orkney/Shetland take significant minor shares of the catch.

To the south-west of Scotland, western-based vessels and to a lesser extent, "other" vessels are significantly active. This too is the area second in importance to Orkney/Shetland vessels, for it is here that their purse seiners take their mackerel catch.

Examination of Table A16 gives an indication of the itinerant nature of some fleets. The table shows the attraction of Peterhead and Fraserburgh for landings on the East Coast for vessels from the Moray Firth districts and to a lesser extent from Orkney and Ullapool. The

volume of landings at Ullapool on the West Coast by vessels registered elsewhere is a marked feature. Just 4% of landings in Ullapool are by boats based there. 78% are from East Coast boats, especially from Fraserburgh, Macduff and Peterhead, 10% from Orkney and Shetland boats and the remaining 12% from other West Coast boats particularly from Mallaig and Ayr.

Some vessels on the other hand land most of their catches in their own district. On the East Coast Aberdeen vessels land 94% of their catch at their home port, while the percentages for Eyemouth, Arbroath and Wick are 89%, 84% and 78% respectively. The figures for other fleets are Shetland (71%), Stornoway (71%), Ullapool (70%), Oban (93%) and Campbeltown (88%).

#### Salmon, Grilse and Sea Trout

Salmon, grilse and sea trout are typically treated separately in the presentation of statistics, for a variety of reasons: they are high value fish taken both in salt and fresh water and by catching techniques different from those used for other fin fish, e.g. static nets on the sea shore, nets and small boats on the lower reaches of rivers and by rods for sport further up river.

Over the whole period of the study figures are available only for volume of catches for Scotland. Up to 1973, figures were available for the value of the catch. These showed that on average the value of the salmon, grilse and sea trout catch amounted on average to some 6% of the value of the sea fish catch; for example in 1973, the value of salmon, grilse and sea trout was £3.08 million and of sea fish £60.2m. Figures also existed for employment, most of it being seasonal. Employment declined steadily from 1,418 in 1970 to 1,161 in 1973.

Because landings vary erratically from year to year, the following table uses three year averages to establish some stability in the trends of catches:



Table 11Catches of Salmon, Grilse and Sea Trout in Scotland: three year averages

Tonnes	1970-72	1971-73	1972-74	1973-75	1974-76	1975-77	1976-78	1977-79
Salmon	834.6	938.9	975.2	979.7	775.6	712.1	639.6	644.1
Grilse	675.8	753.0	739.4	707.6	589.7	535.2	503.5	467.2
Sea Trout	172.4	158.8	154.2	145.1	140.6	131.5	127.0	127.0

Source: Fisheries of Scotland Reports, 1970 to 1979.

All the species show a decline in catches when the first three year period is compared with the last. Salmon is down by 23%, grilse by 30% and sea trout by 27%. The catches late in the decade are so much below the long-run average as to make commentators think new factors are at work. Those identified have been the growth in high seas fisheries for salmon off Greenland, Norway and Faroe, fish disease in the form of ulcerative dermal necrosis and illegal drift net fishing off the East coast of Scotland.

Salmon and trout are caught both commercially and as sport, and one trend obvious in all three species is the increasing proportion being taken by line and rod. Angling accounted for 23% of the salmon catch in 1970 and 41% in 1979. For trout the figure rose from 15% to 21%.

It is interesting to note that the Scottish production of farmed trout, some 1,279 tons in 1979, exceeded the wild catch in that year, 122 tons, by a factor of ten. While wild salmon and grilse still exceeded the farmed species in 1979 in Scotland, 900 tons against 520, and probably did so in 1980, in 1981 the farmed output should considerably exceed the wild catch.

### Aquaculture

Aquaculture production in Northern Britain is comprised almost entirely of the production of trout and salmon. Official statistics are not yet kept, and the best sources of information are the study by M.R. Lewis<sup>(1)</sup> and two reports from the DAFS Marine Laboratory, Aberdeen. ((2) and (3)).

Table 12 below gives Lewis's estimate of the volume of trout for table production in tonnes.

Table 12

	1977	1978	1979	1980	1981
1. Northern Britain	1201	1636	2227	3097	3932
2. Great Britain	2158	3096	4415	6001	7442
3. 1. as % of 2.	55.6	52.8	50.4	51.6	52.8

As can be seen from the table, Northern Britain's share amounts to just over half of the British production, which is expected to increase by some 240% between 1977 and 1981.

The figures for salmon relate only to Scotland and estimate production at 350 tonnes in 1977; 430 in 1978; 520 in 1979; with a forward estimate of over 900 tonnes in 1981.

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- (1) M.R. Lewis (1979), Fish Farming in Great Britain: An Economic Survey with Special reference to Rainbow Trout, University of Reading, Department of Agricultural Economics and Management, Miscellaneous Study No.67.
- (2) A.L.S. Munro, I.F. Waddell and K.G.R. Elson (1980), Report of the Growth of Scottish Salmonid fish farms and their production and manpower in 1979. DAFS Marine Laboratory, Aberdeen.
- (3) A.L.S. Munro, I.F. Waddell (1981), The Growth of Scottish Salmon and Trout Farming 1969-1980 with a report on Production and Manpower in 1980. DAFS Marine Laboratory, Aberdeen.

The period 1970 to 1980 witnessed a steady growth in both trout farms and salmon farms. In 1970 there were only 5 rainbow trout farms operating in Scotland. This figure had risen to 29 by 1975 and 61 by 1980. In 1970 there was 1 salmon farm in Scotland, in 1975 16 and in 1980 the total had risen to 45.

Table A17 gives details of Scottish production of rainbow trout in 1980 by type and size of farm site. Total production at 1,717 tonnes was 34% up on the 1979 figure of 1,219 tonnes. Of total production in 1980 35% came from lined or earth ponds, 32% from tanks and 27% from freshwater cages. Most farms (56%) had an output of less than 20 tonnes per year. The industry employed 113 full-time staff and 54 part-time. On the assumption that part-timers work half-days, output per man per year for all employees would be 12.3 tonnes, which is only about half that of many continental countries. Low production per man is to be explained in part by the small size of many farms. All but 3 of the 23 farms in Scotland engaged in the separate production of salmon and grilse in 1980 used floating cages. The 1980 output of 598 tonnes was 15% greater than that of 1979 and was produced on sites of the following sizes:

Seawater Production of Salmon and Grilse 1980

Tonnes/Site	>200	101-200	51-100	26-50	10-25	<10	New Farms	TOTAL
								598
No. of Sites	0	1	5	5	1	5	5	22

152 full-time and 31 part-time staff are involved in salmon production.

In their 1979 report Munro, Waddell and Elson attempted to value the 1979 output of salmon and trout. Assuming a price per pound for salmon of £2 and 70p for trout, they valued the salmon output at £2,329,600 and trout at £2,005,472.

There are currently no commercial farms for marine fish, although the White Fish Authority is beginning to sell juvenile turbot for commercial production. There are 5 fish farms producing eels in Northern Britain: two in the North of England and three in Scotland. Current

production is less than 100 tonnes per year but could rise to over 400 tonnes by 1982. There is also a small commercial production of cultivated shellfish, principally mussels and oysters, and there is a number of pilot projects for scallops. Output of mussels by suspended culture is reckoned to be about 50 tonnes per year. Oysters production (mostly Pacific oysters) could increase from about 0.25 million to about 1.5 million by 1982.

### SECTION 1.2.2 INFRASTRUCTURE

#### Ports

Table A18 provides data on the size distribution of ports in the Scottish section of Northern Britain in 1980 by numbers of vessels and by landings. It can immediately be seen that the rankings vary according to whether the criterion is vessel or landings.

In 1980 seven ports had 50 vessels or more registered at them with Fraserburgh, Peterhead and Buckie taking the top three places. Six ports had landings in excess of 10,000 tonnes with Ullapool being the largest port followed by Peterhead and Aberdeen. Ullapool's position is somewhat overstated, since mackerel account for most of the landings and most of the mackerel is transhipped to foreign vessels at sea, so that the physical volume of landings may be only 20% or so of the recorded landings. Peterhead may then rightly claim to be the premier fishing port in Northern Britain and the UK.

Scotland has a very decentralized and widespread pattern of fishing ports: the 1980 SSFST list 40 ports with more than 10 vessels and altogether there are 65 listed ports, which are a considerable number for a country with a population of 5 million and 9000 fishermen. Many of the smaller ports are little more than landing quays and harbours where boats stay overnight, but nevertheless they show a very dispersed pattern of fishing. Figures F, G and H record the recent history of the Scottish regions and ports with regard to the number of fishing vessels.

In North East England, fishing is more concentrated with the main ports being Bridlington and North Shields, which together account for 85% of the vessels registered in this part of the region.

Table A19 shows the size distribution of ports in 1970. Comparing the two, the most striking feature is the decline of Aberdeen in terms of vessels and landings and the rise of Peterhead by the same two criteria.

FIG F : DISTRIBUTION OF SCOTTISH VESSELS,  
BY REGION.NO. OF  
VESSELS

2500

2000

1500

1000

500

0

TOTAL

EAST COAST

WEST COAST

ORKNEY AND  
SHETLAND

70 71 72 73 74 75 76 77 78 79 YEAR

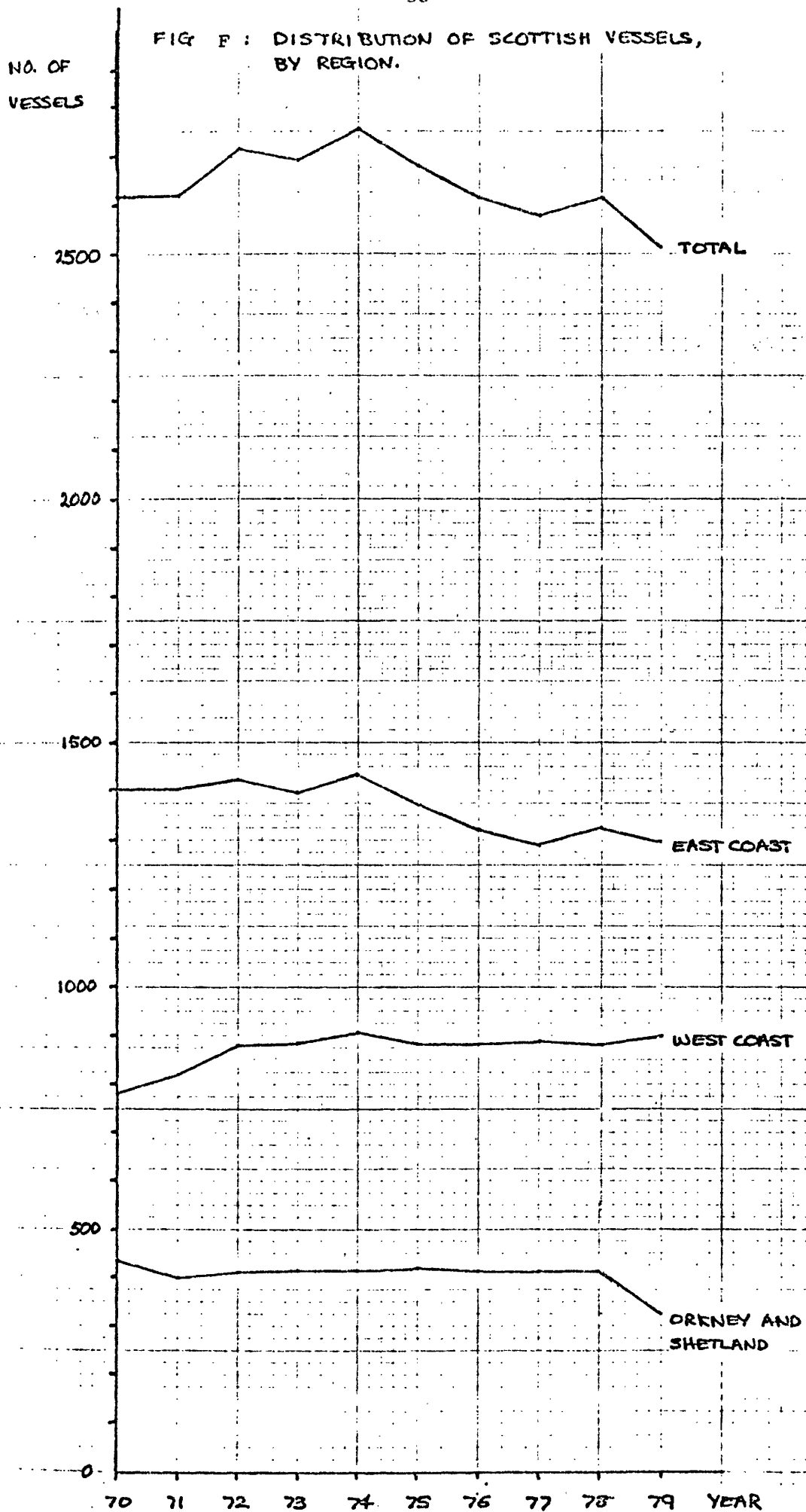
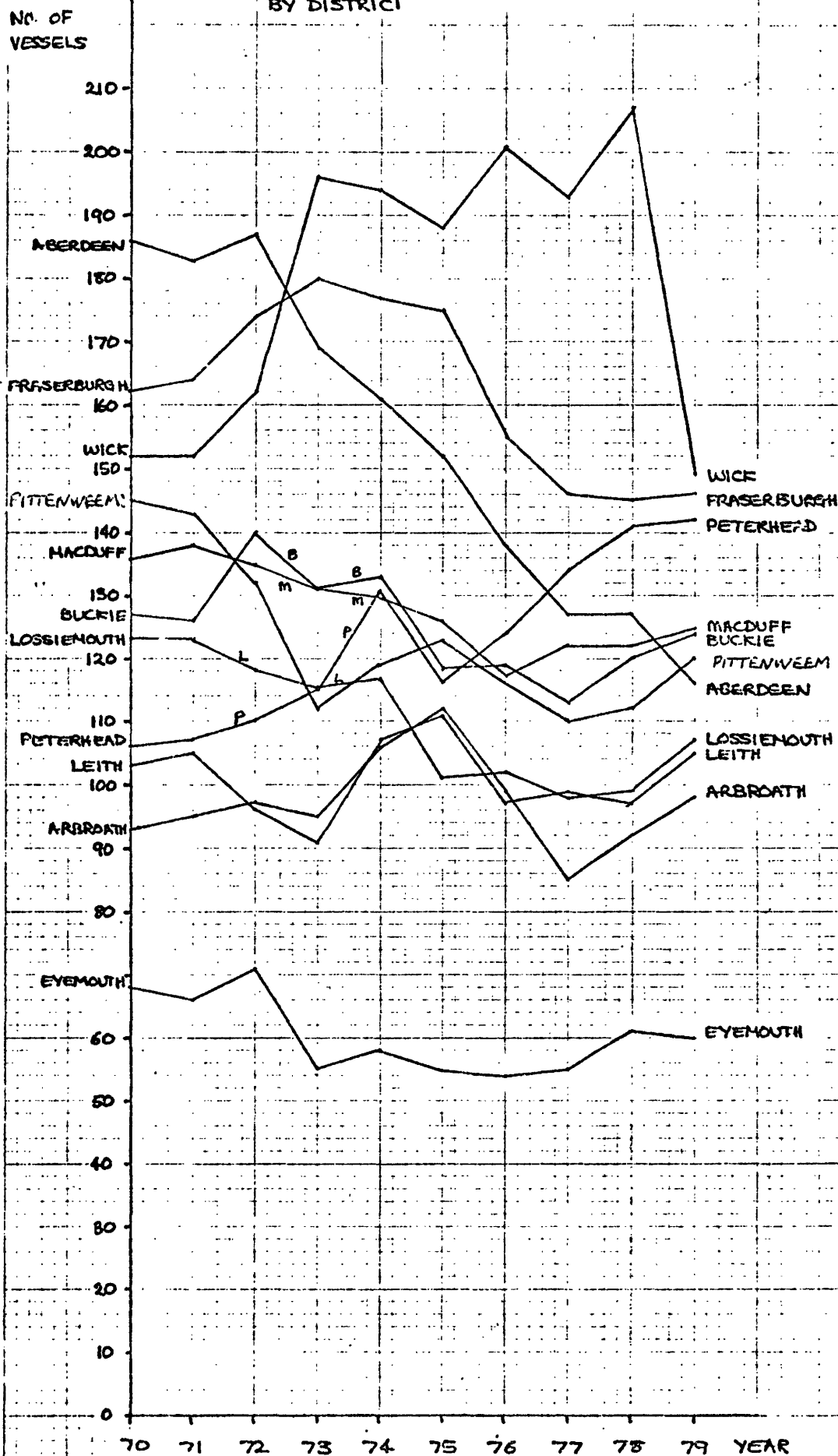
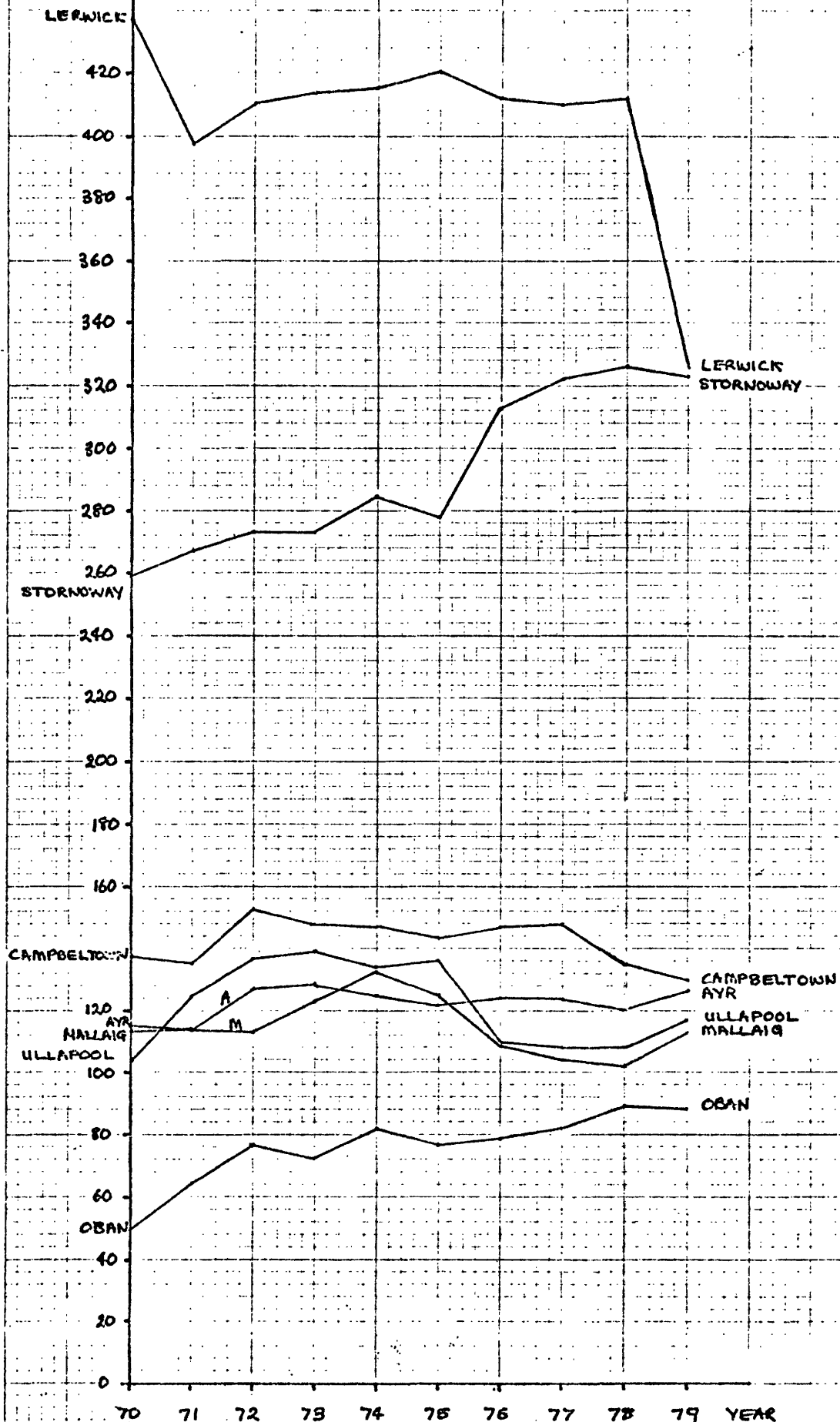


FIG. G : DISTRIBUTION OF EAST COAST VESSELS  
BY DISTRICT



NO. OF 460  
VESSELS

FIG. H: DISTRIBUTION OF WEST COAST AND ORKNEY/SKETLAND  
VESSELS, BY DISTRICT.





### Port Facilities

Information has been collected about facilities at 41 ports in Northern Britain, covering by that term items such as the availability of fresh water, fuel supplies, ice, ship chandlers, ship repairers, slipways, box makers, salesmen, cold storage etc. Fresh water is available in all the ports covered and there is a permanent local fuel supply in all but three, Helmsdale, Lybster and Bridlington. In these cases fuel is either brought by road tanker (Helmsdale and Lybster) or the vessels call in at a nearby port as happens with vessels from Bridlington.

Ice is less widely available and problems of access and quality were mentioned by a number of people interviewed. Seventeen of the 40 are without local ice making plants and it has either to be brought to them by lorry or the vessels have to call at other ports. On the mainland this does not seem to be a particular hardship, for example Helmsdale, Lybster and Scrabster are all dependent on Wick but the road distances involved are only 20, 37 and 15 miles respectively. However, Argyll (particularly Campbeltown, Carradale and Oban) is not well served and there are problems in all the island groups because of the dispersed nature of activity. The worst example is probably the Orkney Islands where there is no specialist ice plant, and although the general view is that the local fleet is too small to support one, it represents a significant barrier to any future expansion.

There is a similar pattern with respect to centralized repair, slipway and building facilities. Again, most of Northern Britain is reasonably well served but there are serious gaps, notably in the North West of Scotland, particularly Sutherland, and the Western Isles. Vessels in Aberdeen, Peterhead and Lerwick have also suffered from the competition of the offshore oil and gas industries although these pressures are now waning.

Generally, the more specialised the service, the less widely available it is, so that activities like the making of boxes and nets, specialist engineering and such like are largely concentrated in Aberdeen and a few other big centres. Although people mentioned the occasional difficulties with these, it is recognised that it would not be a commercial proposition to provide them in more ports.

Table A20 lists three important facilities which are often lacking at ports.

#### Institutional framework

This varies enormously and "confused" would probably be an accurate descriptive adjective. Ports and harbour facilities are variously owned and controlled by central government departments such as DAFS and the Forestry Commission, local government including both district and regional authorities, regional development agencies such as the Highlands and Islands Development Board, elected public bodies in the form of harbour trusts, private companies (with or without fishing interests) and private individuals.

In the past a great deal of money has gone into ports and facilities which are now grossly underused. On the other hand, some ports with potential for growth (particularly in the Highlands and Islands) have been constrained by the lack of available finance. The multiplicity of bodies, with differing objectives and financial states, has meant that sensible and co-ordinated planning has been impossible.

Paradoxically the position has improved significantly in recent years with the increasing shortage of finance. Most public money for improvements now comes from or through DAFS in Scotland and MAFF in England. European Community assistance comes through these channels, with the UK departments acting as agents, and this procedure attracted a lot of criticism in our interviews. Many fishermen and harbour authorities would prefer direct access to the Community because they believe that the UK government departments are not considering their applications fairly and promptly.

However, DAFS and MAFF can do little to prevent private developments proceeding and even the HIDB were able to proceed with their major Breasclete development in the Western Isles without central government financial support. Although most of the bodies with whom we discussed this issue wished to maintain local control over the ports, there was widespread acceptance of the need for some sort of national ports and harbours plan, along the lines currently under way in Norway. DAFS recognise the need for such a plan, assuming that it also covers non-fishing activities.

### SECTION 1.2.3 FISHING FLEET

#### a) Vessels

There has been considerable stability in the number of vessels in the Scottish section of the Northern British fleet in the 1970s. A decline in vessels under 40 feet and in vessels over 110 feet has been broadly matched by an increase in the 60-80 feet class, which accounts for 51% of landings in 1979 and 43% of new vessel registrations between 1972 and 1978.

#### Fleet Structure by Length

Table A21 contains details of the Scottish fleet from 1970 to 1980 with a six fold breakdown by length size. The total of all vessels shows considerable stability over the ten years, with the 1980 figure being only 4% less than that for 1970, though 9% below the peak figure reached by the fleet in 1974. The decline in total numbers is more than accounted for by the fall in the number of small boats of less than 40 feet. The constancy in the total number of boats greater than 40 feet masks a changing composition among class sizes.

There has been a decline in the numbers of the largest vessels of 110 feet and over. This is largely to be explained by the demise of the Aberdeen trawler fleet due to a variety of factors. One of the most important has been the loss of fishing grounds as a result of the introduction of the 200 mile limit. The gradual exclusion from the grounds around Faroe has been particularly significant. It is estimated that as many as 40 boats have been tied up because of the loss of these grounds. The rise in the price of fuel has also had a major impact on the deep sea fleet since it has further to sail to its grounds. The effects of North Sea oil activities have also had their impact, directly in the loss of access to some parts of grounds<sup>1</sup> and indirectly by a higher

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1 Loss of catch in the North Sea due to restrictions on access has been calculated to lie in a range of £50,000 to £460,000 per annum. ("Loss of Access to Fishing Grounds Due to Oil and Gas Installations in the North Sea". Department of Political Economy and Institute for the Study of Sparsely Populated Areas, University of Aberdeen, 1978).

level of costs for ancillary services and for labour for the fleet. Low market prices for fish have been another factor. At the time of writing the Aberdeen trawler fleet amounts to some 30 vessels compared to around 100 in 1970.

The 80-109.9 feet class has remained remarkably stable in numbers. This has come about as a result of two opposing forces, namely the decline in the number of trawlers, many of which are in this class, largely at Aberdeen, and the growth in fleet numbers of purse seine vessels which are more widely spread throughout Scotland. This is seen most clearly in Table A22 which gives a breakdown of vessels of 80 feet and over by type.

The 60-79.9 feet class has shown a substantial increase and the 40-59.9 feet class a sharp decline, especially since 1974. As Table A23 shows, of the new vessels registered in Scotland between 1972 and 1978, 171 out of a total of 395 were in the 60-79.9 feet class, i.e. 43% of new vessels. Though the bulk of the fleet by numbers is in the under 40 feet class, these boats accounted for only 9% of landings by value in 1979, while the growing 60-79.9 feet class was responsible for 51% of landings by value, so that this class now represents the backbone of the Scottish fleet. Details of landings by vessel size are given in the accompanying table.

Value of Landings of Scottish Fleet by Length Group in 1979 (£000s)

	<u>Under 40ft</u>	<u>40-59.9ft</u>	<u>60-79.9ft</u>	<u>80-109.9ft</u>	<u>110ft+</u>	<u>Total</u>
Demersal	1613	19,434	52,635	6494	5800	85,976
Pelagic	25	1,385	3,734	3132	1768	10,044
Shellfish	8945	9,765	4,431	15	17	23,173
Total	10583	30,584	60,800	9641	7585	119,193
Percentage of Total	9	26	51	8	6	100

Figures exist for vessels in North East England over 40 feet for 1979. Aggregating these with the figures for the Scottish fleet

over 40 feet gives the following picture for the Northern British fleet excluding the Isle of Man.

Vessels over 40 feet in Northern Britain, excluding the Isle of Man in 1979

Length	40-59.9ft	60-79.9ft	80-109.9ft	110ft & over	Total
Number	702	499	61	32	1294
Percentage	54.2	38.6	4.7	2.5	100

Source: Scottish Sea Fisheries Statistical Tables 1979 and private communication from the Ministry of Agriculture, Fisheries and Food.

Fleet Structure by Age

Published figures for the Scottish Inshore Fleet (40-79.9 feet) by age have been available only since 1976. The following table provides a presentation of the available data for 1976 and 1979. This shows that while the proportion of vessels 15 years old or less has remained fairly constant, the percentages at 10 years and under, and 5 years and under, have both declined significantly. In other words we have evidence of an ageing fleet, through lack of investment in new boats. This has been due largely to the rising costs of new boats and the difficulties confronting the industry in financing them.

Scottish Inshore Fleet (i.e. 40-79.9ft) - Percentage of Fleet of Less than Certain Ages at 31 December 1976 and 31 December 1979

Percentage of Fleet of Age:

	<u>5 years and under</u>	<u>10 years and under</u>	<u>15 years and under</u>	<u>20 years and under</u>	<u>25 years and under</u>
1976	23.6	44	54	70.3	78.5
1979	14.0	37.3	53.4	66.0	81.0

Source: Derived from White Fish Authority Annual Reports for 1976-7 and 1979-80.

Table A24 provides data on the age distribution of the inshore fleet for some of the major Scottish ports. The data on the percentage of the fleet that is aged 10 years and under throws up an interesting comparison. The fleets which are nomadic (i.e. which will sail to wherever fish are available) are much younger than the fleets which are sedentary (i.e. fleets which fish their local waters). In the former category would be included fleets from Lossiemouth, Buckie, Macduff, Fraserburgh, Peterhead, Aberdeen and Pittenweem, while the latter would include the fleets from Lerwick, Stornoway and the Clyde area.

Some data exist on the age structure of deep sea vessels (greater than 80 feet) for Northern Britain excluding the Isle of Man. In 1979 there were 93 deep sea vessels in North Britain. Of these less than half were registered in Aberdeen, and of those for which information is available (69 vessels) 64% were 16 years old or more. Deep sea vessels are not normally expected to have a life beyond twenty years as operating costs rise sharply with age as does the cost of UK Department of Trade surveys, which are legally required. Given the age of the fleet and the loss of fishing grounds and other problems, the deep sea fleet with the exception of the purse seiners is likely to contract dramatically.

#### Ownership of Vessels

Ownership of vessels falls into two distinct classifications. Deep water vessels are typically company-owned and manned by a trade union organised crew. Between 1976 and 1979, the pattern of ownership became less concentrated for as Table A25 shows, in 1976 seven owners controlled 66 vessels, which represented over 70% of the fleet. In 1979 by way of contrast most owners had just one vessel, for there were 57 owners in that class. The change in pattern is to be explained by the decline in the fortunes of the company-owned trawler fleet and the growth in purse seiners which are likely to be owned on a 'share' basis like the inshore fleet.

Inshore vessels on the other hand are typically owned by the skipper and crew themselves, the proportions or 'shares' owned depending

on individual circumstances. Occasionally outside interests, such as merchants or agents, have minority holdings in the boats: in new boats in the early years they may even have majority holdings. Earnings are normally paid out in proportion to the 'share' of the boat owners.

#### Distribution of Vessels by Gross Registered Tonnage

Vessels of less than 40 feet in length are the most numerous in Northern Britain as earlier tables have shown. Data on tonnage for 31 December 1979 exist for those between 30 and 39.9 feet for Scotland only. This shows that of 343 vessels 269 (78%) are of less than 15 tonnes (Table A26).

The fleet between 40 and 79.9 feet is the most important part of the fleet of Northern Britain in terms of catches. The distribution by tonnage at 31 December 1979 is as follows:

#### Vessels between 40 and 79.9 feet

Gross Registered Tonnage	<15	15-29.9	30-49.9	50-79.9	80-99.9	>100	Total
Number of Vessels	6	517	445	151	41	41	1201
Percentage	0.5	43.0	37.1	12.6	3.4	3.4	100

This shows that 80% of this section of the fleet have tonnages between 15 and 50 tonnes. On the East Coast, in Orkney and Shetland and in North East England more vessels fall into the 30-49.9 tonnes class than any other, while on the West Coast the most populous class is the 15-29.9 tonnes. (Table A26).

Of vessels longer than 80 feet, distributing them by 50 tonne classes shows that 32 out of 94 are between 200 and 249.9 tonnes. 13 vessels have a tonnage greater than 300 tonnes. (Table A26).

Distribution of Vessels by Tonnage and Year of Construction

Data from the vessel lists produced by the Department of Agriculture and Fisheries for Scotland and from the Ministry of Agriculture, Fisheries and Food show two peaks in construction for vessels in all length groups. These occurred in the years 1956 to 1960 and in 1971 to 1975.

In the 40 to 79.9 feet sector of the fleet there has been a tendency over time for new vessels to become heavier as can be seen from the following table showing the percentage distribution of new vessels by tonnage over 10 year spans.

Percentage of Vessels (40 to 79.9 feet) in Northern Britain in each Gross Registered Tonnage Class by Period of Construction, Registered as at 31 December 1979.

Period of Construction	<u>Tonnage</u>					Total
	<30	30-49.9	50-79.9	80-99.9	>100	
Pre 1945	77	23	-	-	-	100
1946-55	63	31	6			100
1956-65	42	46	11	-	-	100
1966-75	36	37	16	4	6	100
1976-79	20	33	19	17	11	100

Of pre 1945 vessels still registered 77% are of less than 30 tons, while of those constructed in 1976-79 only 20% fall into this class.

Although some of the 40 to 79.9 feet vessels have a tonnage in excess of 100 tonnes, the bulk (71%) of vessels in excess of this weight also exceeds 80 feet in length and has been built since 1956.

Detailed information is given in Table A27.



### Distribution of Vessels by Horsepower

Of 343 vessels in Scotland between 30 and 39.9 feet, 64% have an engine of less than 100 horsepower and only 2% have an engine of more than 200 horsepower.

Of 1201 vessels in Northern Britain of between 40 and 79.9 feet 404 (34%) have a horsepower rating of 100 to 199.9, while 60% of the fleet have engines in the horsepower range 100 to 299.9, as the summary table below shows.

### Percentage of Vessels (40 to 79.9 feet) in Northern Britain by Horsepower Class

Horsepower	<100	100-299.9	300-499.9	500-699.9	700-899.9	>900	Total
Number of Vessels	81	711	253	118	32	2	1201
Percentage	6.7	59.2	21.1	9.8	2.7	0.2	100

As can be seen from Table A28 the East Coast of Scotland has the majority of vessels with a horsepower in excess of 500, for the East Coast fleet has 132 (87%) out of 152 vessels in this class.

Of the vessels in excess of 80 feet in length just under half, 46 vessels, have engines in the 600-799 horsepower range, while 37 have engines of more than 800 horsepower. The more powerful vessels are once again to be found on the East Coast, though 4 of the 6 Orkney and Shetland boats have engines of more than 1000 horsepower.

The information in the vessel list reveals a trend over time towards building vessels of greater horsepower in all of the three groups being described.

### Percentage Distribution of Vessels by Length, Horsepower and Period of Construction in Northern Britain

<u>Vessels under 40 feet</u>	<u>Horsepower</u>		
Period of Construction	<100	100-199.9	200-299.9
Pre 1960	77%	23%	0%
1960-79	52%	44%	4%

<u>Vessels between 40-79.9 feet</u>		<u>Horsepower</u>					
Period of Construction	<100	100-299	300-499	500-699	700-899	>900	
Pre 1955	23	73	4	0	0	0	
1956-1970	3	78	19	2	0	0	
1971-1979	0	27	37	27	8	1	

<u>Vessels over 80 feet</u>		<u>Horsepower</u>			
Period of Construction	<600	600-800	800-1000	>1000	
Pre 1960	24	68	4	4	
1960-1979	4	43	24	28	

Source: Vessel Lists for 1979 of DAFS, Edinburgh and MAFF, London.

As the table shows, of vessels under 40 feet constructed before 1960 only 23% had engines of more than 100 horsepower. Of those built after that date 48% had engines of more than 100 horsepower.

Of the vessels in the 40 to 79.9 foot class, of those built before 1955 none had an engine of more than 500 horsepower, while of those built since 1971, 36% had.

Of vessels over 80 feet, 52% of those built since 1960 had engines of more than 800 horsepower, compared to only 8% of those built before 1960.

#### Vessels by Method of Fishing

Table A29 gives information on vessels by method of fishing. This shows that while the total number of vessels declined from 2678 to 2517 between 1975 and 1979, those engaged in shellfishing increased by nearly 3% in numbers and comprised 55.7% of the total in 1979 as against 51% in 1975.

In demersal fishing only trawling by vessels under 80 feet and by 'other methods' increased : lining, seining and trawling by vessels over 80 feet showed substantial declines, so that overall vessels in demersal fishing declined by 12.6%..

Vessels engaged in pelagic fishing declined in number by a third. The only method of fishing to show an increase, and that a significant one in view of catching capacity, has been purse seining.

Our information which relates to 1979 about the rest of Northern Britain is fragmentary. In Scarborough (30 vessels) all the boats are trawlers except for two elderly liners and a similar situation exists in Bridlington (34 vessels) where all vessels are again trawlers with the exception of three elderly liners. In Whitby (18 vessels) all are trawlers except for two seiners and two liners. Hartlepool (25 vessels) has fairly equal numbers of trawlers and seiners and three liners. In North Shields (47 vessels) about two thirds of vessels are trawlers with seiners accounting for most of the rest. There is no information about the minor ports of North East England (35 vessels).

b) Manpower

It is common to divide employment into its offshore (fishermen) and onshore (fish processing and related activities) components, and we have followed that practice. For fishermen in Scotland, the Department of Agriculture and Fisheries publishes annual statistics, the latest of which are for 1980, so that some up-to-date and historical analysis is possible. Unfortunately the English Ministry does not publish employment data and so the same analysis cannot be undertaken for those parts of England falling within our area and therefore this section deals only with Scotland. From our discussions in England, however, we believe that the trends have been similar and that the situation in Scotland resembles that in Northern Britain. The Isle of Man is covered separately in Appendix 1.

Beginning with fishermen, Table A30 sets out the number of fishermen employed in the industry in Scotland for each year since 1970. The geographical breakdown is by fishery district and aggregations are given for the three main areas - East Coast, West Coast and the Northern Isles (Orkney and Shetland). With the fishery districts it should be remembered that some cover fairly extensive areas and the main ports may

not be those bearing the name of the district. For example, in the Leith district virtually all the fishing is done from Port Seton. Also the districts hold the registrations of vessels and fishermen and these are not necessarily the districts in which catches are landed. In recent years many East Coast vessels have been fishing from West Coast ports such as Kinlochbervie and Lochinver and landing catches there, so that to obtain a comprehensive picture of the industry in terms of its geographical distribution it is essential to consider not only vessels and employment but also landings.

Table A30 shows that the number of fishermen in Scotland has fallen from 9297 in 1970 to 8699 in 1980, a fall over the ten year period of 6.5%. In fact the number increased fairly steadily in the early 1970s to a peak of 9666 in 1973, after which it fell to 8848 in 1975 before rising to another, lower peak of 9241 in 1978 followed by another fall to its present level. In 1979 the fall was equivalent to 4.5% and in 1980 to 1.4%. Thus there has been a cyclical pattern over the decade but imposed upon a significant downward trend.

The pattern and trend are probably clearer from Table A31 which presents the same data in index number form with 1969 = 100. By 1980 the total index had fallen to 95 with a peak of 105 in 1973.

The published statistics distinguish between full time fishermen (regularly employed) and part-time (partially employed). Of the 8699 fishermen in 1980, 7561 (or 87%) fell into the former category and 1138 (13%) into the latter. In some areas part-time fishing is the dominant type, particularly in the islands and remoter areas where it is part of a multioccupation system. One group of part-timers who merit special attention in Scotland are the crofter-fishermen, who officially numbered 115 in 1980, a substantial fall from 244 in 1975.

Tables A30 and A31 provide considerable detail on the geographical distribution of Scottish fishermen. In 1980, 65% were from the East Coast, 25% from the West Coast and 10% from the Northern Isles (Orkney and Shetland). In 1970 the comparable shares were 68%, 22% and 10%, so there has been a slight shift in favour of the West Coast. The reasons for the changes are discussed in Section 2.4.

One feature of Table A30 is the wide geographical spread of activity throughout the country. In terms of 1980 figures, no district has more than 900 fishermen and, excluding the combined Orkney and Shetland districts, the largest (Peterhead) accounts for only 9% of total employment. It is certainly fair to conclude that the fishing industry is important in many of Scotland's regions, particularly the rural and island authorities, and does not display the concentration features common in many other countries.

Another feature, clearer perhaps from Table A31, is that there has not been a uniform pattern of change over the last decade. Some ports and districts have grown in employment; others have declined substantially. Using the index numbers in Table A31 the various districts can be grouped into three: those in which employment has grown significantly (i.e. the 1980 index is over 115); those which have been relatively stable (85-115); and those which have declined sharply (less than 85).

In the 'growth' group two districts stand out - Oban and Peterhead - and there are three others - Ullapool, Mallaig and Ayr. In Peterhead the number of fishermen has increased from 496 in 1970 to 781 in 1980, and in Oban the increase has been from 83 to 198. It is interesting to note that the other three districts are on the West Coast. Four districts fall into the declining group; Aberdeen where the 1980 index level was only 43, Wick (63), Leith (68) and Lerwick in the Shetlands (82). The reasons for these changes are discussed in Section 2.4.

Regarding fish processing and related onshore employment, data for 1980 are not available yet but those for the period 1970-79 are shown in Table A32, using the DAFS functional breakdown into principals, office staff, fish workers and other workers. It is estimated that onshore employment related to the fisheries totalled 17,098 in Scotland in 1979. Given that the number of fishermen in that year was estimated at 8824, this gives an onshore:offshore ratio of 1.94 or approximately 2:1. The equivalent ratios in 1970 and 1975 were 2.1 and 2.1 so there appears to have been a fall in recent years. Certainly, onshore employment shows a pattern similar with that for fishermen. Employment in 1970 was 19,756 so the 1979 level represents a 13.5% fall over the intervening period, and the evidence available suggests that the decline continued in 1980

and 1981. However, onshore employment increased in the early 1970s to a peak of 22,100 in 1972 since when, apart from a slight increase in 1976 there has been a steady reduction. The bottom half of Table A32 shows the annual percentage changes and the pattern is fairly uniform for all four categories of employment.

Table A33 provides a geographical breakdown over the same period, again on the basis of the fishery districts. As with fishermen, it is noticeable that there is a wide spread of employment throughout the country, although in this instance Aberdeen and Fraserburgh have relatively high figures, reflecting the existence of large processing plants. It is true that onshore employment, and landings, are more concentrated than are fishermen but there is still a generally dispersed pattern in Scotland.

Table A34 gives the annual percentage changes for each of the districts and Table A35 presents the same data in index number form with 1969 100. The latter table is comparable with Table A31 for fishermen. Using the three groups identified from Table A31, with onshore employment the 'growth' districts (those with figures over 115 in 1979) number nine out of a total of 19. The highest are Eyemouth (199), Stornoway (182) and Lossiemouth (160). The declining districts (1979 figures less than 85) number four - Wick (39), Leith (62), Aberdeen (70) and Mallaig (70). Again, the reasons for these geographical shifts are discussed in Section 2.4.

The final two tables in this section show total fisheries employment in each district (Table A36) and that employment as a percentage of the estimated local population (Table A37). The former is the simple sum of the separate data for fishermen and onshore employment. As would be expected, it shows Aberdeen as the largest fishing centre in Scotland, with 1979 employment of over 5500 (21% of the total), followed by Fraserburgh (13%), Ayr (9%) and Peterhead (8%).

As shown in Table A37, despite Aberdeen's continuing (but declining) dominance, such employment accounts for less than 3% of the Aberdeen population, reflecting the city's involvement in other activities such as North Sea oil and gas, paper, textiles, education and administration.

In contrast many of the smaller areas are much more dependent on the fisheries. The table shows seven districts in which fisheries employment involves more than 20% of the local population (as distinct from the local labour force) and in Mallaig and Ullapool the level exceeds 50%, a very high proportion. Indeed in most of the districts covered, the fisheries remain the most important local industry.

### Characteristics of Labour Force

The main source of information about the characteristics of manpower in the catching sector of the fishing industry in Great Britain is a Survey of Training Needs in the Sea Fishing Industry commissioned by The Sea Fisheries Training Council.<sup>1</sup> Though the data relate to Great Britain as a whole, Northern Britain accounts for about one half of the manpower, so that the overall findings are likely to be representative of the situation in Northern Britain. On some matters there are disaggregated data relating to parts of Northern Britain.

Table A38 which relates to Great Britain shows the age at which men joined the fishing industry. This shows that about 70% of men joined the industry at age 16 years or less and about another 10% joined at age 17. Tables A39 and A40 provide data for Peterhead and for minor Scottish ports and the figures broadly conform to the pattern of entry age for Great Britain, though Peterhead has younger entrants than the average and minor ports have older entrants.

Fishermen not only enter the industry at a young age but they also have a commitment to it, for the Metra study found three-quarters of the men interviewed in the British sample had worked continuously in the industry since joining. Figures for individual ports showed that of fishermen interviewed 77% had given continuous service in Fraserburgh, 88% in Pittenweem, 68% in Mallaig, 65% in Lerwick and 83% in Peterhead. Even among those who had not given continuous service, only a small percentage of their fishing working lives, 3% on average for Scotland and

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1 Survey of Training Needs in the Sea Fishing Industry, Metra Oxford Consulting, Old Road, Shotover Hill, Oxford, OX3 8TA, 1980.

5% for Britain, was spent outside the industry.

The Metra study also found that Scottish fishermen tended to sail for long periods with one boat. Over half the fishermen interviewed had served on the same boat for two years or longer and about a quarter had 5 or more years of service on the same boat. This longevity of service is largely to be explained in terms of the type of ownership of inshore boats, where most of the crew will own shares in the boat. The table below gives details for five Scottish ports.

Time on Boat by Base Port (Percentage of Fishermen in each Port)

	0-3 mths	0-6 mths	6-12 mths	1-2 yrs	2-5 yrs	5-10 yrs	10+ yrs	Total
Fraserburgh	15.4	7.7	3.8	7.7	30.8	26.9	7.7	100
Pittenweem	28.0	8.0	4.0	16.0	12.0	16.0	16.0	100
Mallaig	8.0	24.0	24.0	16.0	16.0	8.0	4.0	100
Lerwick	22.6	12.9	Nil	3.2	22.6	3.2	35.5	100
Peterhead	14.7	Nil	10.3	16.4	38.8	16.4	3.4	100
Total Number of Fishermen	37	14	20	30	67	33	22	223
% in Each Category	16.6	6.3	8.9	13.5	30.0	14.8	9.9	100

Source: Metra Study

While Scottish fishermen tend to stay on one boat for long periods they are mobile in that they fish from more than one port. 45% of men sampled sailed from three or more ports, and only 34% sailed from one port. Fishermen also show considerable mobility between types of boat. Of trawlermen interviewed at Peterhead only 43% had spent more than 81% of their fishing career on trawlers; for minor Scottish ports the figure was 53%. Of seinermen interviewed at Peterhead and minor Scottish ports respectively 62% and 43% had spent more than 81% of their fishing career on seiners. The implication is then of considerable mobility between types of boat.

The Metra study provided an estimate of the age distribution of British fishermen as at 31 December 1977. The figures in Table A41



show that though the age distribution is weighted towards the under 45 age group it does not show any significant distortions and suggests an even progression through the age bands.

The figures for Scotland reproduced below though of a broader classification show a similar structure.

Age Characteristics of Sample of Scottish Fishermen 1977

	Under 20	21-30	31-40	41-50	51-60	60+	Total
Number in Each Age Group	34	66	60	40	24	5	229
Percentage	15	29	26	17	10	2	100

Source: Metra Survey

Skills of Fishermen

Training within the fishing industry of Northern Britain, apart from the statutory Department of Trade Certificates, which are concerned with navigation and apply to skippers and mates of larger boats, is organized on a voluntary basis. There are no statutory requirements on the engineering side, though insurance companies set their own examinations to ensure a minimum standard of competence in larger boats.

When it comes to training the industry was divided into two clear sectors until January 1981. For the bulk of the industry in Northern Britain training has been unorganized and ad hoc. Only the Aberdeen Fishing Vessels Owners' Association employed a training officer and operated new entrant and induction training schemes in conjunction with colleges.

Fishermen in other areas and sectors of the fleet did not receive induction training, i.e. training, including sea going training, prior to qualifying as a deckhand. To the extent that fishermen received any training, this sometimes took place while at school, e.g. in

Lerwick and in Stornoway, and sometimes by attending courses in Aberdeen, Fraserburgh, Lossiemouth, Eyemouth, Leith, Anstruther, Stromness, Lerwick, Stornoway, Islay and Glasgow. The lack of a compulsory training scheme meant that of fishermen interviewed in the Metra survey only 29% in Peterhead had received training, 27% in Fraserburgh, 10% in Lerwick and nil in Pittenweem and Mallaig. The situation is, however, changing, for with the help of the Sea Fisheries Training Council, two training officers have been appointed for Northern Britain, in connection with the establishment of the North East Fishermen's Joint Group Training Association and the Firth of Forth Fisheries Training Association. The training is provided for all sections of the fleet. The first course for twelve new entrants to the industry commenced in January 1981.

The level of training in engineering is low: the Metra survey estimated that about half the boats were sailing with crew without any engineer's training.

The White Fish Authority provides training in fishing techniques at its flume tank in Hull and by means of its mobile training unit. In the period January 1978 to October 1979, surveyed by Metra, 86 fishermen from Northern Britain attended the gear technology course at Hull and 181 attended courses on acoustic fish detection, coastal engineering courses and an electrics/hydraulics course presented by the mobile unit at a variety of locations in Northern Britain.

#### Sea Fisheries Training Council - Strategic Plan 1981/2 to 1983/4

Because of the dangerous nature of fishing (with fatal accidents at the rate of 131 per 100,000 at risk on inshore vessels in 1977-8 and 380 in trawlers) and because of the lack of training among fishermen, the Sea Fisheries Training Council, founded in 1979, has established a strategic plan to provide training to new recruits to the industry and to those already in the industry. The Council offers grant aid to help with the formation and operating costs of two types of cooperative training associations. These are Group Training Associations which are to serve the interests of all types of fishing in or near a major fishing

port and the smaller Area Training Associations, concerned with a more limited range of training services. Both associations are to recruit training officers, whose tasks are to see that appropriate courses are arranged in cooperation with educational and other organizations, providing for, inter alia, new entrants' training, brief courses on survival and fire-fighting and courses in basic navigation and on the maintenance and repair of fishing gear. In the area of business/management training the Council has decided that it should be directly involved and experimental courses in basic business skills for share fishermen and in fish stock management are to be provided in the ports by consultants engaged by the Council.

### Earnings

The data earnings are very scanty. There are accurate figures for average earnings in the Scottish deep water fleet for 1980 as follows:

Skipper	£16,128
Mate	£13,102
Chief Engineer	£ 7,586
Second Engineer	£ 6,482
Deckhand	£ 5,864

If the figure for average weekly earnings of all male employees in Great Britain, £124.5 in 1980, is expressed as an annual figure, it amounts to £6,474, so that apart from deckhands annual earnings are above the British average, though the men involved would also possess above average skills.

On the inshore fleet the evidence is indirect. Taking the data on Scottish Inshore Costs and Earnings in section 2.3, and dividing through the labour cost entries by an assumed crew size for vessels in the 50-60 ft., 60-70 ft. and 70-80 ft. classes of 4, 6 and 8 crew respectively, we have obtained income figures on a weekly basis as follows:

Range of average weekly earnings on Scottish inshore vessels between  
50-80 feet and British figures for all male employees

	£s			
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Average Weekly Earnings of all Male Employees (Great Britain)	72	79	89	101
Range of Weekly Earnings on vessels of 50-80 feet	85-131	117-139	130-169	127-150

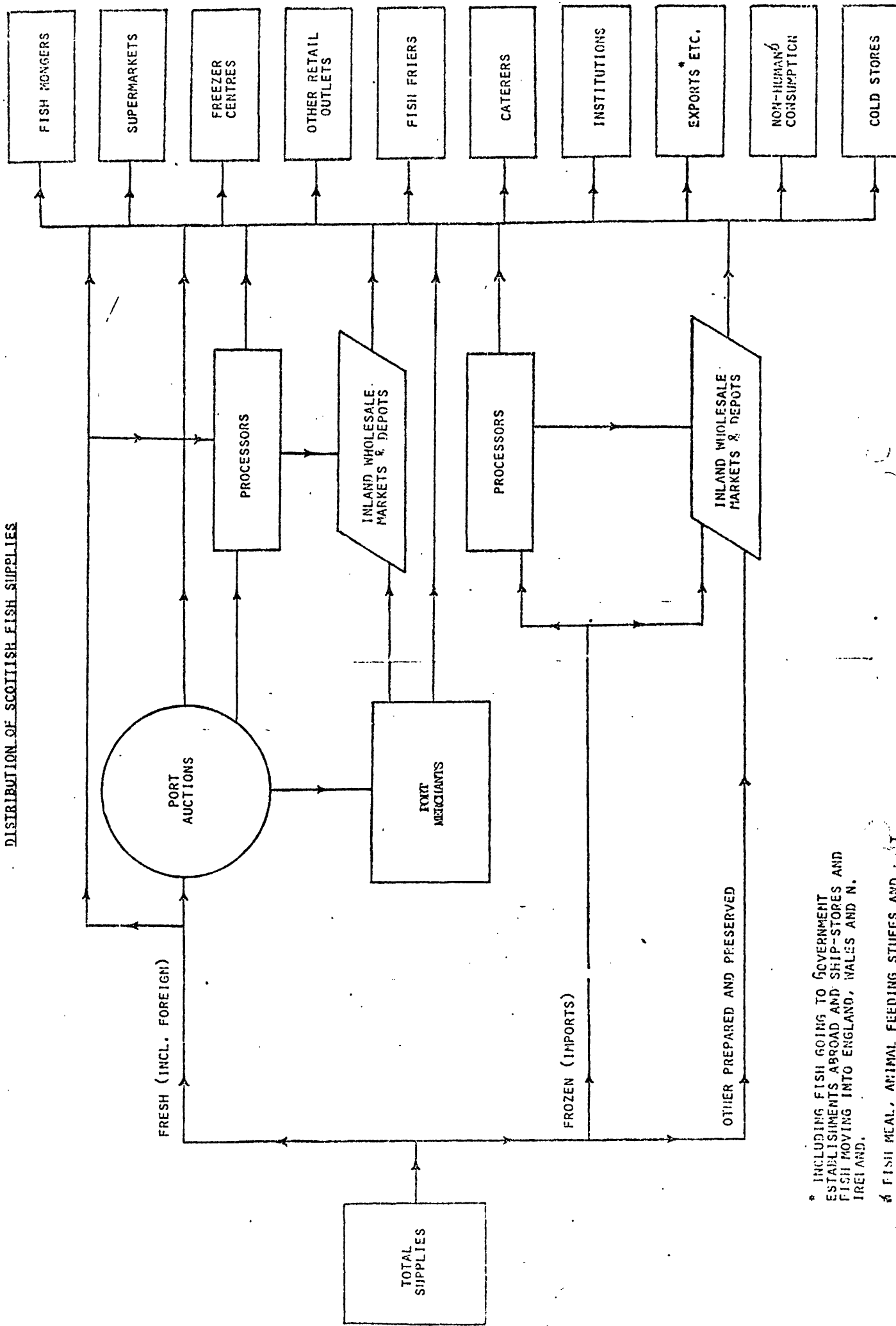
Though these calculations are very rough and ready they do seem to suggest that incomes of the fishermen of larger inshore vessels are considerably above the average earnings, though so also would be their skills and the dangers they run.

#### SECTION 1.2.4    OVERVIEW OF DISTRIBUTION OF LANDINGS TO FINAL USE

The figure below shows the distribution of Scottish fish to final use. An accurate breakdown of the figures for the UK, let alone Scotland or Northern Britain is not available. Where appropriate, statistics for individual sectors are contained in the text.

It is not possible to attach any quantitative magnitudes to the flow chart of fish from landings to final use for Northern Britain or even for its major component Scotland. Difficulties arise both when there are figures and when there are not. There are figures for imports and exports of fish and fish products but these are produced on a United Kingdom basis and are not disaggregated even for large geographical entities like Scotland. Secondly no figures are collected of the domestic flows of fish from auctions to merchants to processors to type of retail outlet.

# DISTRIBUTION OF SCOTTISH FISH SUPPLIES



\* INCLUDING FISH GOING TO GOVERNMENT ESTABLISHMENTS ABROAD AND SHIP-STORES AND FISH MOVING INTO ENGLAND, WALES AND N. IRELAND.

† FISH MEAL, ANIMAL FEEDING STUFFS AND ETC.

### SECTION 1.2.5      ORGANIZATION OF FIRST HAND SALES

Demersal fish is generally sold at quayside auctions either to local fish merchants and processors at the point of landing or to merchants and processors in the principal ports, notably Aberdeen. Some fish from peripheral ports may be sold locally and then re-exposed for sale on a second market but are more usually consigned directly to a major market for first sale.

Although a considerable quantity of Aberdeen and Peterhead fish is sent to Humberside, fish from west and north west Scotland are also sent to Aberdeen and Peterhead depending largely on whether it is trawl or seine net caught fish. North Shields is a focus for its surrounding area and Bridlington fish are sent to Humberside.

There has been a tendency in recent years for less central ports to handle their fish selling through co-operatives<sup>1</sup> some of which are also engaged in the supply of equipment and the processing of fish. The Scottish Fishermen's Organisation is also involved in fish selling through a subsidiary. There remains, however, a lack of buying strength in the smaller markets.

Fish selling is conducted by specialised fish selling companies, sometimes subsidiaries of larger fishing companies, which also manage vessels' financial affairs. Fish buying is dominated by the 200 or so fish merchants and processors located in Aberdeen. This sector is characterised by small independent businesses each specialising in a limited range of fish species and quality grades.

The bulk of mackerel and sprat catches is sold on contract to overseas buyers, the catch being transferred at sea. In 1979 about 65 per cent of mackerel and about 13 per cent of sprats were klondyked as the process is called. Pelagic fish for the home market is usually auctioned after the inspection of a sample from the catch.

It is usual for shellfish fishermen in certain ports to enter into personal contracts with individual merchants and processors, the

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1 See Section 1.2.9.

length of the contract depending on the steadiness of the market. Shellfish, especially Nephrops, are auctioned in ports where there is strong buying strength.

#### Evolution of first hand sale prices

Table A42 shows the average value of the principal species landed in Scotland during the reference period. Whilst all prices have risen substantially in a period of continuing inflation it would be mistaken to draw significant conclusions from the statistics as they stand. Demand and supply factors have changed greatly over the period. Whilst the changing fisheries regime has had an overall effect on the supply and price of fish, changed conditions of access have led to a variation in the grade and quality of certain landings. Deep sea cod of 1970 is not exactly the same product as inshore cod of 1979. With products such as herring or mackerel, permitted catches, methods of capture and handling on board, volume landed and type of outlet for the product have altered completely. In recent years the UK market structure, the position of competitors and the terms of trade have all altered to make conditions very different from those prevailing in 1970.

Table A43 gives data for the price of main species in 1970 prices. Most species have witnessed two peaks in real price: one around 1973-4 and another between 1977-79. Cod peaks in 1973 and 1978, haddock in 1974 and 1978, whiting in 1973 and 1977, herring one peak in 1979 (when hardly any was available), mackerel one peak in 1973, sprats in 1973-4 and in 1979 and Norway lobsters in 1973 and 1979.

The years 1975 and 1980 have been similar in that they were both years when prices fell back sharply from the levels of the previous year, while costs rose sharply as a result of fuel increases. In both these years the fleet sought and received aid from the UK government. The decline in prices in 1980 and the continuation into 1981 are largely due to the competition from imports because of the high value of the pound, though other factors were also at work.<sup>1</sup>

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1 See Section 2.3 for a detailed analysis.



Decline in price has been particularly damaging where products, notably haddock and Nephrops, had experienced real price rises and where expectations have been hit hard. As the price of fish in Scotland varies not only because of market size and proximity to major markets but on the quality of fish landed depending, in the case of demersal species,, on whether it is caught by line, seine net, demersal trawl or Nephrops trawl, the down-turn in prices has had the most marked effect on peripheral ports particularly where their white fish catch is a by-catch of Nephrops trawling. The table below shows, for instance, how the Western Isles have been hardest hit by the decline in the price of Nephrops in the first half of 1980 compared to 1979.

Average Value of Nephrops Landings

	<u>1979</u>		<u>1980</u>	
	<u>All Scottish</u>	<u>Stornoway</u>	<u>All Scottish</u>	<u>Stornoway</u>
	<u>Districts</u>		<u>Districts</u>	
January	1,120	1,115	1,228	1,065
February	1,096	1,132	1,295	990
March	1,265	1,149	1,442	965
April	1,299	1,231	1,177	912
May	1,309	1,163	1,215	1,155
June	1,381	1,197	1,023	764

Figure J illustrates graphically how the Nephrops market has dropped away.

Figure K shows how the price of whiting differs from one district to another and how the peripheral districts suffer most in a period of price decline. Supplies at the peripheral ports tend to be more sporadic and lacking in consistency than those made at the main ports. At times of weak demand and low prices transport costs of the whole fish may be seen as a greater proportion of total than during more buoyant times and this may operate to the disadvantage of outlying areas. Companies may consider their activities in the peripheral ports to be only marginally worthwhile and when trading conditions deteriorate they may withdraw from these areas first.

FIGURE J.: AVERAGE PRICE PAID FOR NEPHROPS IN SELECTED SCOTTISH DISTRICTS

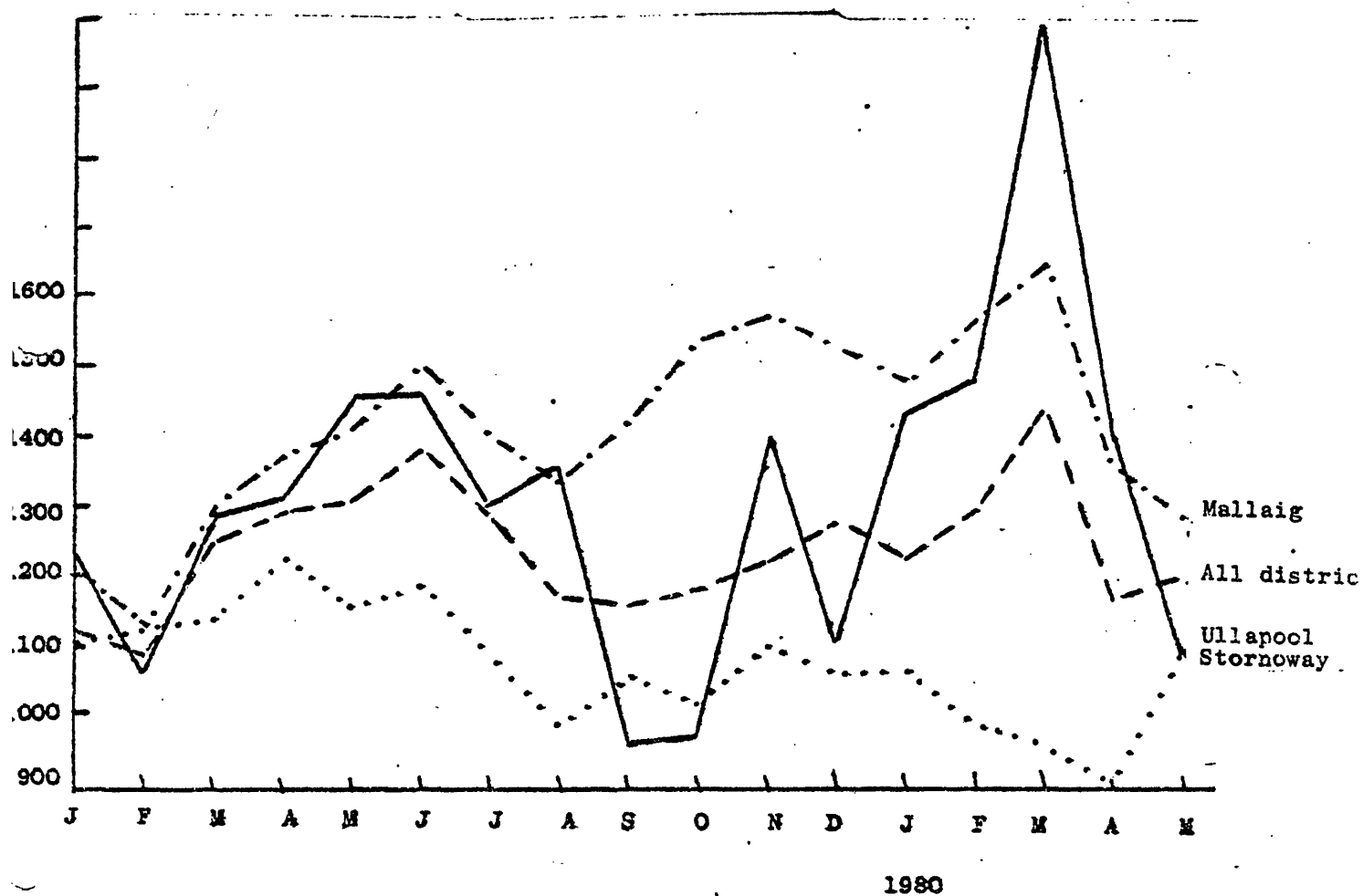


Figure K: Average Price of Whiting at Selected Scottish Districts

— Stornoway  
 ..... Ullapool  
 ----- Peterhead

£/tonne

500  
 450  
 400  
 350  
 300  
 250  
 200  
 150  
 100  
 50

J

F

M

A

M

J

J

A

S

O

N

D

J

F

M

A

M

J

J

A

S

O

N

D

J

F

M

A

M

J

J

A

### Distribution after First Sale

With Scottish landings accounting for between 40 and 50 per cent of the UK total and a population of less than ten per cent of the total it is reckoned that no more than ten percent of the Scottish catch is consumed locally as fresh fish. About twenty per cent of the catch is bought by Scottish processors and sold throughout the UK and abroad. The balance is sent for processing or retail distribution in other parts of the UK and abroad.

The distribution system remains strongly influenced by the location of merchanting and processing facilities which are concentrated in the North East of Scotland which has two thirds of the processing employment in Scotland, notably in Aberdeen. About 60% of demersal catches are landed in the North East, with a proportion of landings from other areas passing through these markets too. Of the pelagic species, a larger proportion of sprats is landed and processed on the east coast. Herring processing formerly and mackerel processing now is located mostly on the east coast, notably at Fraserburgh but with other centres at Aberdeen and Leith. The processors now receive their herring supplies from the west coast and from imports. Mackerel also comes from the west (96% of the 1979 Scottish mackerel landings) and small amounts from the English south coast fishery. Shellfish catches are also larger on the west coast, where over 70% of the 1979 Scottish shellfish landings were taken. Although some processing takes place on the east, shellfish processing plants are more scattered than white fish plants and there is substantial processing capacity on the west coast, both by small independent companies and by subsidiaries of larger organisations.

Within the North East the main landing ports are Aberdeen and Peterhead. In recent years Peterhead has increased in importance as a landing point because inshore vessels can unload their own catches there. (At Aberdeen unloading is confined to the staff of the dock labour board). However, there is little fish processing at Peterhead and it is reckoned that 35 per cent of landings are sent to Aberdeen for processing and 55 per cent is sent south, mainly to Humberside, in a gutted form for further processing. Peterhead has been the premier British port since 1978 when its landings exceeded those of Grimsby: its 1979 landings were £31.8 million and those of Aberdeen £23.4 million.

Where fish are to be sold to retailers in Scotland or the Glasgow wholesale market it is mostly filleted by the port wholesalers, although some fishmongers, particularly those within easy access of major ports, fillet their own fish.

The principal destination of Scottish demersal landings is thus the Humberside processing centres of Hull and Grimsby which are supplied exclusively by road transport.<sup>1</sup> The rail service between Aberdeen and London was withdrawn in 1979. Road transport is provided both by merchants/processors and by agents acting on their behalf. There is, too, regular road container traffic to the continent both of chilled fish, notably mackerel and high value demersal species and frozen products.

A market exists for Shetland processed white fish products in the USA. The product form has tended to change recently from laminated blocks to interleaved fillets. The product is carried directly by sea from Shetland to the USA.

A traditional trade in transferring herring at sea for processing by foreign vessels for overseas markets has been continued both for sprats and mackerel, the former mostly for canning in Scandinavia, the latter, in part for pickling but mostly for freezing, for the East European and West African markets. The majority of the mackerel catch is intended for human consumption whereas a high proportion of the sprat catch is landed directly or transferred by road for conversion to fish meal or for the production of pet food.

There is a small home and export market for canned fish, now, mainly mackerel and sprats which is mostly distributed from Fraserburgh.

High value products notably live lobsters are exported either in insulated road vehicles or by air after storage in tanks. Lower value products such as periwinkles are taken to the continent as a make-weight for higher value loads. Other shellfish, in particular Nephrops, are sold both in the UK and on the continent mostly as whole or processed frozen products in retail and consumer packs.

Farmed fish is mostly sold fresh or frozen although a proportion is smoked and a small quantity canned.

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1 For an explanation of this feature see Section 2.5.

### SECTION 1.2.6 FISH PROCESSING

In terms of volume the major form of processing carried out in Scotland is freezing, with the freezing of pelagic fish being the major activity. Although the figures for shellfish are not broken down in this way, virtually all the processing of shellfish involves freezing. As Table A44 shows the volume of processing activity in Scotland has, with the exception of 1977, shown a fairly steady decline over the five years 1974 to 1978. The throughput by volume in 1978 was only some 59% of the 1974 figure. The major decline occurred in pelagic fish where the volume of output in 1978 was only 48% of the 1974 figure, while that for demersal fish was 77% of the 1974 figure. Shellfish on the other hand showed an expansion of 93% in volume. The reason for the decline in pelagic species has been the dramatic decline in the landings of herring, while the decline in haddock landings has been responsible for most of the fall in the processing of demersal species.

The two figures for cured fish in 1979 show a further decline in pelagic species, while demersal species were holding their own.

The weight of processed fish, 88,577 tonnes, in 1978 as a percentage of landings in Scotland was nearly 21%. Given the loss of weight in processing, the fish going to processors must account for a much higher percentage of landings. If this is so the widely held view that of all fish landed in Scotland 10% is consumed in Scotland in the form of fresh fish, 20% is bought by processors located in Scotland, and the balance of some 70% goes direct to the rest of the UK would seem to exaggerate the extent of direct exports from Scotland: a figure of 50-55% would seem more reasonable.

#### White Fish Processing

The pattern of white fish processing by species and type of product is illustrated in the table below.

Demersal Fish Processed in Scotland 1978 (tonnes processed weight).

	<u>Frozen</u>	<u>Cured</u>	
	tonnes	tonnes	value (£m)
Haddock	6,585	5,205	7.175
Cod	3,938	881	1.206
Whiting	3,352	1,682	1.741
Saithe	2,533	1,507	1.246
Ling	585	505	0.480
Plaice	515 )		
Monk Fish	122 )	179	0.144
Lemon Sole	59 )		
Others	<u>243</u> )		
Total	17,932	9,959	11.992

Haddock is much the most important species both in volume and value. Of total employment in white fish processing in 1978, of 5432 people in Scotland, 77% of the employment occurred in the Grampian region of Scotland in the towns of Aberdeen, Fraserburgh and Peterhead. The only other centre of significance was Shetland which accounted for 9.2% of employment. It is estimated that about one half of the Scottish white fish catch is processed or frozen for UK and export markets, the rest being marketed fresh mostly after filleting.

Pelagic Fish Processing

As Table A44 shows the major feature of the processing of pelagic fish in recent years has been the great drop in the volume of fish processed which has resulted from the lack of herring because of the bans on herring fishing in the North Sea and off the West coast of Scotland. Such has been the decline in pelagic fish processing that the volume of employment in this sector declined by over 50% between 1975 and 1978. In the former years 2477 persons were employed in this activity while by 1978 the number had dropped to 1230. As with demersal fish, the processing of pelagic fish is heavily concentrated in Grampian

Region, especially in the towns of Fraserburgh and Aberdeen. In 1978, 85% of employment in pelagic fish processing was in Grampian region.

While the processors are located in North-East Scotland, the landings of pelagic fish now take place on the West Coast of Scotland, for mackerel now accounts for over 80% of the catch by volume and it is largely caught off North-West Scotland in the autumn. The bulk of this catch is exported directly, so that while mackerel may have taken the place of herring by volume in landings, it has failed to replace the lost herring by volume, and even less so by value, in pelagic processing. The two tables below give details of the curing of pelagic fish for recent years.

Quantities and Values of Pelagic Fish Cured in Scotland 1976-79

	1976		1977		1978		1979	
	metric tonnes	£m.	metric tonnes	£m.	metric tonnes	£m.	metric tonnes	£m.
Herring	27,611	10.7	22,959	17.1	19,239	17.0	8,846	9.6
Mackerel	378	0.15	1,796	.96	2,627	1.4	4,968	2.9
Sprats	2,211	1.8	3,049	2.1	2,082	1.4	1,341	.7

Methods of Processing Pelagic Fish (excluding freezing) in Scotland in 1979

	SMOKED		PICKLED		CANNED		MARINATED	
	metric tonnes	£000s	metric tonnes	£000s	metric tonnes	£000s	metric tonnes	£000s
Herring	7,597	8,868	220	142	302	232	727	402
Mackerel	1,577	1,056	26	13	3,365	1,884	-	-
Sprats	-	-	272	84	1,069	620	-	-

Source: derived from Scottish Sea Fisheries Statistical Tables 1979.

There are thought to be about 240 processing establishments in Scotland with 12-15 companies accounting for 70% of production. Adding



together the employment figures for all three types of processing for 1979 gives a total of 7,931 people. The Grampian region in North East Scotland is much the most important processing area with 5,205 employees, representing 66% of all employment.

A postal survey seeking 1980 figures for Scotland elicited responses which gave information on firms covering about three-quarters of all employment in processing. What this showed was that 411 firms employed 10,022 people in 1980, and that of these firms only 27 employed more than 50 people, with the average figure of a firm's employment being 24 employees. More than half the firms were located in Aberdeen, but the three largest firms in the industry are to be found in Fraserburgh. The figures diverge from those in the previous paragraph because of a less strict definition of processing for many merchants carry out some degree of processing.

The Grampian region accounts for some two-thirds of processed fish output in Scotland and it has been possible to obtain from a local road haulage firm, which distributes the bulk of processed fish from North East Scotland, a geographical breakdown of the destination of processed fish from Grampian region.

Percentage Distribution of Processed Fish by Weight from Grampian Region by a Major Road Haulier - 1980

North Scotland	1.2
South Scotland	15.0
North East England	2.0
Lancashire and North West England	29.3
South and East Yorkshire	11.8
Midlands and South Wales	13.6
London and South of England	27.2
	<u>100.0</u>

For some of the fish the above will be only initial destinations, since some could be exported.

A questionnaire distributed to fish processors in the Aberdeen area in spring 1981 brought a response from firms which provided about

one third of the total employment in processing. The questionnaire sought an indication of broad magnitudes as to species processed, method of processing and location of market. The results were as follows:

Percentage Distribution of Major Species Processed 1981

Haddock	Whiting	Cod	Mackerel	Herring	Others	Total
40.2	20.9	17.4	8.6	4.0	8.8	99.9

This confirms the predominance of white fish processing and the rank ordering of haddock, whiting and cod.

As to methods of processing, freezing is much the most important as this table shows:

Percentage Distribution of Major Methods of Processing 1981

Freezing	Wet Fish	Smoking	Other	Total
62.6	27.0	10.0	0.3	99.9

As to the outlets for processed fish the data gathered from the questionnaire is at odds with figures provided by the road haulier, though both sets of figures agree roughly on the proportions going to the rest of Scotland and to London and Southern England. The table is as follows:

Percentage Geographical Distribution of Processed Fish

Scotland	14.7
North East England	30.5
Lancashire and North West England	7.0
London and Southern England	31.1
Rest of England	8.7
Overseas	7.7

This table does have the merit of indicating the extent of exports. Further information on exports is also contained in summary details for 1980 given to us by one of the largest fish processors in Northern Britain and one which is not included in the questionnaire

returns above. This firm exported 3% of its output by value, with the other 97% going to destinations within the UK. The major species (by volume) which it processed were herring 26%, haddock 21% and cod 17%. No other species accounted for more than 6%. All the output was frozen. Of particular significance was that of its input of raw materials. 45% by value were imported. This figure summarises the conflict of interest which can arise between processor and catcher. The processing firm requires fish (e.g. herring) which the British fleet cannot supply and it requires other fish at low cost, which foreign sources can often supply more easily than domestic suppliers.

### Fish Meal

There are currently five plants in Scotland producing fish meal and one at North Shields, which is temporarily closed. Of the Scottish plants two are small, at Stornoway and Falkirk, while the others at Aberdeen, Fraserburgh and Bressay (Shetland) have larger capacities. The Scottish plants are estimated\* to have an annual capacity of some 551,200 tonnes for raw material and a meal output of some 122,500 tonnes. The mean raw material throughput for the years 1974 to 1979 was 152,600 tonnes which was just some 27% of 1980 capacity and the throughput has been declining since 1976, because of the lack of availability of fish offal (a by-product of white fish landings) and a decrease in pelagic fish available for reduction. Mean imports of meal into the UK over the period 1974-79 were 225,280 tonnes, which is approximately equal to UK capacity if it could all be used.

### Shellfish

The landings of shellfish in Northern Britain accounted for a higher proportion of the landings of all fish both by volume and by value

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\* P.O. Johnson and R.S. Bailey: Prospects for Fuller Utilization of UK Fish Meal Capacity, MAFF Directorate of Fisheries Research, Laboratory Leaflet No.53, Lowestoft 1981.

in 1978 than they did in 1970. The figures were respectively 4.6% and 5.5% by volume in 1970 and 1978 and 13.3% and 14.6% by value in 1970 and 1978. As Table A44 shows a similar trend is to be seen in processed shellfish over the period 1974 to 1978 in Scotland. The composition of the shellfish and squid frozen in 1978 in Scotland by volume was:

Nephrops	56.9%
Shrimps	32.2%
Crabs	5.9%
Scallops	2.9%
Squid	1.7%
Queen Scallops	0.3%

Employment in shellfish processing unlike that in demersal and pelagic processing, both of which declined, showed a substantial increase between 1975 and 1978 the period over which figures are available, for numbers rose from 1,552 to 2,668\*. The processing of shellfish is also much more widely distributed throughout Scotland than is the other types of processing, almost all of which occurs in the Grampian Region. In 1978 the distribution of employment in shellfish processing was as follows:

<u>Region</u>	<u>Numbers Employed</u>	<u>Percentage of Total</u>
Strathclyde	1085	40.7
Grampian	619	23.2
Borders	330	12.3
Tayside	161	6.0
Lothian	115	4.3
Orkney	112	4.2
Shetland	99	3.7
Fife	70	2.6
Highland	41	1.5
Western Isles	36	1.3
	<u>2668</u>	<u>100</u>

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\* These figures exclude data from the Dumfries and Galloway Region which may have had as many as 750 people employed in shellfish processing.

SECTION 1.2.7    MARKETS AND MARKETING

In a period of rapid change services tend to reflect the requirements of an earlier period. Thus, although landings on Humberside have decreased the ports are still key links in the distribution chain.

Just as the British market is influenced by traditional lines of communication so, too, is it influenced by dependence on traditional species, notably distant water cod - albeit that the dependence is continually reinforced by television advertising of revamped cod-products.

The decline in landings at the Humber ports has increased producers' dependence on the Humberside market. Although there has been substantial rationalisation on Humberside there has been little sign of fish processors relocating. The reasons for this are a mixture of inertia, the presence of fish related skills, a developed transport network to the principal population centres, economies of agglomeration and the integration of fish processing with meat and vegetable products.

There has been a quality problem in developing efficient transporting of fish from North East Scotland, exacerbated by the tendency to land at Peterhead instead of Aberdeen.

Although fish landed at the Scottish ports is potentially of high quality, product and handling problems associated with lack of icing, poor grading, unhygienic fish boxes, archaic practices - influenced by current quota systems where fish and ice are packed too tightly - still prevail.

The practice of installing chilled or refrigerated sea water tanks on board their vessels and of buying new vessels with this equipment installed has allowed the pelagic fleet to furnish a high proportion of mackerel catches to the human consumption market - including exports to the quality conscious continental market.

Over the decade there have been improvements in the handling of shellfish and, after a number of market shakeouts, a realisation that quality is essential in an increasingly competitive export market. The collecting of lower value shellfish such as periwinkles remains disorganised.

Over the seventies fish has tended to become increasingly uncompetitive with meat, a position which is reflected in lower national consumption of fish (see Figure A45). In the interval immediately following the extension of fishing limits a period of market distortion, a weakened pound, relatively high fish prices and a decline in real fuel prices obscured producers' view of the need to take a positive approach to marketing.

Over the last two years, a stronger pound, a poor US market prompting more aggressive selling by Iceland, Norway and the Faroes, improved quality by Canadian exporters, a greater realisation of the potential of the UK market amongst more market-conscious continental producers, have been amongst the factors which have led to increased imports into the UK and consequent increased price competition coupled with changes in consumption patterns.

The evidence from the household consumption data (Table A46) is that Scotland has followed the declining trend in fish consumption over the early and mid seventies and has not yet shown the upturn apparent in UK household consumption. Although Scotland has followed the UK trend the pattern of consumption differs, which may account for some of the failure to respond to more competitive prices. Not only does Scotland prefer to eat more fresh filleted fish than England but Scotland prefers haddock to cod. Haddock prices have been influenced by the demand from the English fresh trade and have remained high due to severely curtailed supplies. By contrast producers have not been able to capitalise on the greater availability of whiting partly perhaps because more fish means smaller fish yielding smaller more expensive block fillets. Scotland, too, has been deprived of cheap and plentiful herrings. Scots, too, appear to carry home less fish than the English. In the past, this may be because they prefer puddings and pies but could also be because they eat more of their 'carry outs' on the street.

Trend data for the Scottish institutional market are sparse, although it is known that minimum quantities to be taken by prisons and schools have been reduced on grounds of price. More detailed information is available on the retail market for frozen fish.

The household consumption in "Scotland" of frozen fish and frozen fish products is contrasted with that for Great Britain.<sup>1</sup> The data are based upon two quarterly consumer panel reports prepared by Attwood Statistics Ltd., Buckhamstead, England. One report covers frozen fillets, steaks and portions ("frozen fillets") and the second frozen fish fingers, fish cakes and other fish dishes ("frozen processed").

The proportion of households in Scotland in which frozen fillets were consumed during the year ended June 1980 ranged, on a quarterly basis, from 19.5 per cent to 23.3 per cent. Comparative ranges for Great Britain as a whole were 36.4 per cent to 40.7 per cent.

In absolute terms in the year to June 1980 total sales of frozen fillets for consumption in the home amounted to 45,600 tonnes of which 1,800 tonnes or less than 4 per cent were sold in Scotland (see Table A48). In the year ended June 1978 frozen fillets sales were 38,600 tonnes of which Scotland, with 1,600 tonnes, accounted for 4.1 per cent (see Table A49). Comparable figures for the sales of frozen processed fish in the years ended June 1980 and 1978 were respectively total sales 43,700 tonnes, Scotland 3,000 tonnes (6.9 per cent) and total sales 48,100 tonnes, Scotland 3,100 tonnes (6.4 per cent). The number of households in Scotland account for 9.4 per cent of the national total.

The most popular varieties of fish sold as frozen fillets in Britain are cod, haddock and plaice which, in the year ended June 1980, accounted for 50.5, 20.1 and 12.3 per cent respectively of the total. Comparable figures for sales in Scotland were cod 42.9 per cent, haddock 26.5 per cent and plaice 4.7 per cent. The cod preference reflects the strength of national T.V. advertising.

The popularity of frozen processed fish in Scotland is much closer to the national average than it is for frozen fillets. This is caused by the inclusion under this heading of fish fingers which account in total for more than two-thirds of frozen processed sales. The household consumption of fish fingers is determined, to a great extent,

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1 The area covered by the survey is that of the Scottish and Border T.V. companies. Inclusion of the Tyne Tees, Yorkshire and Granada T.V. areas would have covered the Fleetwood and Humberside distribution systems. See figure A47.

by the number of children in a home as national advertising has established them as a favourite food for children. Apart from the preference for fresh fish, another restraining factor affecting the demand for frozen fish in Scotland is the lower proportion of households with domestic freezers. Figures published by Birds Eye, the leading UK frozen fish producing company, show that 1979 was the first year in which the sales of frozen foods to freezer owners exceeded those to non-freezer-owners. As the national proportion of households containing freezers is 41 per cent and that for Scotland only 26 per cent it is to be expected that sales per household of frozen foods, including fish, would be below the national average.

It may not, however, be simply a matter of customer choice that causes variations in regional consumption patterns of frozen foods. They may also originate from manufacturer's policies. The two major producers shared 30 per cent, by volume, of the total British market of sales of frozen fillets for consumption in the home and 44 per cent of the market for frozen processed. Their share of the Scottish market was 40 per cent of the frozen fillets and 69 per cent of the frozen processed.



### SECTION 1.2.9 INDUSTRIAL ORGANIZATIONS

Apart from government departments, statutory bodies (such as the new Sea Fish Industry Authority operative from 1 October 1981, which supersedes the WFA and HIB) and organizations arising from Community regulations (producers' organizations), which are described in Section 1.4, the fishing industry in Northern Britain comprises the following major organizations.

#### 1. "Political" organizations

There are first of all the 'political' organizations which represent various sections of the fleet in negotiation with the UK government or in consultations with EEC institutions and with foreign fishermen's organizations. These are the Scottish Fishermen's Federation, representing inshore fishermen, the National Federation of Fishermen's Organizations, representing inshore fishermen in England and therefore covering English inshore fishermen in Northern Britain, and the British Fishing Federation (with a Scottish office in Aberdeen) representing the interests of trawlers. Such bodies take a variety of initiatives towards the UK government on aid, conservation, objectives for the British fleet in EEC negotiations etc., and their officials may serve on boards of statutory bodies like the Sea Fish Industry Authority.

At a lower level are various associations of fishermen, whose rationale stems either from a regional context or from a type of fishing. Thus the Scottish Fishermen's Federation has member associations based on locality e.g. Clyde Fishermen's Association, The Firth of Forth Fishermen's Association, Mallaig and North-West Fishermen's Association and The Shetland Fishermen's Association and The Scottish White Fish Producers' Association. The Scottish Fishermen's Organization (a producer's organization) is also a member, while many members of the listed associations are members of the Scottish Fishermen's Organization. The regional associations look after the interests of their members at a more local level. They may act as a clearing office for regulation applying to fisheries, promote regional fishing plans, organize training, use their influence over their members to establish particular patterns of fishing effort, negotiate with local government authorities and make the case for fishermen in the local and national press, radio and television. At a still lower level there are fishermen's associations which are members of the regional associations. Thus for example The Firth of Forth Fishermen's Association comprises associations at Arbroath, Cockenzie and Port Seton, Eyemouth, Musselburgh, Newhaven and Pittenweem.

Likewise the National Federation of Fishermen's Organizations includes regional organizations in North East England such as the North-East Vessel Owners' Association.

In addition to the Scottish office of the British Fishing Federation there is also in Aberdeen the Aberdeen Fishing Vessel Owners'

government or in consultations with EEC institutions and with foreign fishermen's organizations. These are the Scottish Fishermen's Federation, representing Scottish inshore fishermen, the National Federation of Fishermen's Organizations, representing inshore fishermen in England and therefore covering English inshore fishermen in Northern Britain, and the British Fishing Federation (with a Scottish office in Aberdeen) representing the interests of trawlers. Such bodies take a variety of initiatives towards the UK government on aid, conservation, objectives for the British fleet in EEC negotiations etc., and their officials may serve on boards of statutory bodies like the Sea Fish Industry Authority.

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Likewise the National Federation of Fishermen's Organizations includes regional organizations in North East England such as the North-East Vessel Owner's Association.

In addition to the Scottish office of the British Fishing Federation there is also in Aberdeen the Aberdeen Fishing Vessel Owners'

Association which is a trade association representing the interests of trawler owners' companies. It negotiates collective agreements with the trade union (Transport and General Workers Union) representing crews and is also the registered employer of dock labour at Aberdeen, so that the Association is responsible for the provision of vessel discharging facilities for all comers to the port.

On the processing side of the industry there is a Federation of British Port Wholesale Fish Merchants' Associations, which deals with matters which affect the industry as a whole e.g. negotiations with government, training, delegates to EEC meetings etc. The members of the Federation in Northern Britain include Associations at Hartlepool, North Shields, Aberdeen, Fraserburgh and Shetland. The largest association in Northern Britain is the Aberdeen Fish Curers' and Merchants' Association with over 200 members, which offers a variety of services to members, for as well as representing their interests locally it provides financial services, a box depot, a fuel station and a sawmill.

There are also associations of fish merchants which are not members of the Federation, for most ports with landings of any quantity have associations.

Another national organization on the processing side is the Herring Buyers Association, which operates on a UK scale, but is thought to have about 100 members in Northern Britain. As its brief also covers mackerel it represents the pelagic processor on a national scale.

The fishing industry of Northern Britain is not strongly unionised. Unions are not involved in the inshore fleet since it is predominantly share-owned, with each member having a stake in the boat. In the deep-water fleet labour is unionised in the Transport and General Workers' Union, but the decline of this fleet means that the proportion of labour unionised, small at its heyday, is now insignificant. The fish porters at Aberdeen, who are covered by the Dock Workers Employment Scheme 1967, which guarantees security of employment until retirement, are also members of the Transport and General Workers' Union. This union also organizes workers in some ancillary activities such as the ice factories and is strongly represented in the transport of fish.

Because of the scattered nature of the processing industry and the small scale of most plants, processing is not unionised to a significant extent, although the Transport and General Workers' Union is active in some of the larger plants. Two other unions, the Municipal and General Workers' Union and the Union of Shop Distributive and Allied Workers have some, minor, representation in processing.

## 2. Cooperatives

The development of fishermen's cooperatives is a fairly recent development. In the mid 1970s the number of cooperatives in Scotland was little greater than 10 and there was no national organization. The number of cooperatives has now reached the low thirties as fishermen have joined to cut out middlemen, get the advantages of bulk purchases and share in the profits. There are two national organizations for co-operatives in Scotland, the Scottish Federation of Fishermen's Co-operatives Ltd., and Fishing Co-operatives Trading (Scotland) Ltd.

The first-named body aims to protect and promote the interests of fishermen's cooperative organizations in Scotland and elsewhere by promoting the adoption of co-operative principles among fishermen for the production, manufacture and supply of requirements and for the sale, marketing and processing of products.

The second body, Fishing Co-operatives Trading (Scotland) Ltd., undertakes commercial functions such as bulk buying for members and engaging in the trading and marketing of commodities. It operates a warehouse from which the requirements of fishermen's cooperatives are despatched. Its turnover in chandlery rose four fold between 1976 and 1979.

The percentage of fishermen who are members of co-operatives varies greatly between fishing districts. It is estimated that virtually all fishermen are members of cooperatives in the Isle of Man and in Orkney, 95% on the Scottish East coast between Eyemouth and Arbroath, 90% in the Western Isles, 50% in Shetland and on the Clyde but only 15% in Grampian Region, which has the greatest concentration of fishermen.

The low figure in Grampian region is due to the fact that fish salesmen, ship chandlers etc., have shares in many of the boats. In total it would seem that 40-45% of all fishermen are members of co-operatives.

The individual co-operatives offer a variety of services to their members; the most important activity is the supply of ship chandlery, followed by fuel, but among other services are the manufacture and sale of ice, the repair and manufacture of nets, the processing of fish,<sup>1</sup> including shellfish, the hire of boxes and the insuring of boats.

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1 The scale of activity is not large, since only about 20 people are employed in processing cooperatives in Scotland.

### SECTION 1.3 SUBREGIONS

#### Relative significance of sub-regions<sup>1</sup> in terms of landings

Landings in the sub-regions have remained fairly constant as shares over the decade, though North East England has been overtaken by Orkney and Shetland. The East coast is predominant in demersal landings where over the decade it has accounted for an average of 67%, while the West coast is most important in pelagic (an average of 63%) and in shellfish.

Figure L illustrates that the distribution of total Northern British landings by sub-region remained fairly constant up until 1978. Since then the predominant shares of the East Coast and West Coast have stayed roughly the same, in 1980 being 47% and 36% respectively, but the share of North-East England has declined while that of Orkney/Shetland has risen with the result that in 1980 the latter sub-region's share was the greater, 11% compared with North-East England's 6%.

The relative importance of each sub-region in terms of earnings has remained very stable over the whole period 1970-1980 (see Figure M). Thus, in 1980 the respective shares in the value of Northern Britain's landings of the East Coast, West Coast, North-East England and Orkney/Shetland were: 61%, 25%, 10% and 4%. These features are to be explained through consideration both of the trends in volumes and composition of landings in each sub-region and of the relative average prices of the different species.

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1 In terms of map 1 in the Appendix

- a) North East England: Bridlington to Scottish border
- b) East Coast of Scotland: Eyemouth to Wick
- c) Orkney and Shetland: the islands of the two groups
- d) West Coast of Scotland: Stornoway to Ayr.

The East Coast predominates in demersal landings, having contributed on average 67% of total Northern British demersal landings over the decade. The remaining 33% is roughly equally distributed between the other three sub-regions. For all edible demersal species (excepting hake) the East Coast is the major landing area, being especially predominant in haddock landings. However, for most other edible species the minor shares of other sub-regions tend to be relatively more important. For example, there are more significant contributions to landings of i) whiting in all other sub-regions; ii) cod, lemon sole, dog-fish and plaice in North-East England; iii) skate, dog-fish, monks, saithe and plaice on the West Coast of Scotland. Hake is mostly landed on the West Coast. As for industrial species, the East Coast has the only significant minor share of sandeels, the principal contribution coming from Shetland, but Norway pout is today exclusively a West Coast and Shetland occurrence.

The top six demersal landing districts in 1980 were:

1	Peterhead	29%
2	Aberdeen	17%
3	Shetland	15%
4	Fraserburgh	7%
5	North Shields	5%
6	Ullapool	4%

By individual species the biggest landing districts in 1980 were:

Haddock	Peterhead 42%; Aberdeen 22%
Cod	Peterhead 34%; Aberdeen 18%; North Shields 11%
Whiting	Peterhead 31%; Shetland 13%; Aberdeen 13%
Saithe	Aberdeen 42%; Peterhead 27%
Plaice	Peterhead 13%; Aberdeen 10%; Wick 10%; Ullapool 9%
Dog-fish	North Shields 14%; Aberdeen 14%; Ullapool 12%; Peterhead 12%
Lemon Sole	Peterhead 18%; Aberdeen 18%
Norway Pout	Stornoway 67%; Shetland 33%
Sandeels	Shetland 78%; Fraserburgh 15%; Aberdeen 6%

FIG. 1: DISTRIBUTION OF LANDINGS, BY REGION. (VOL.)

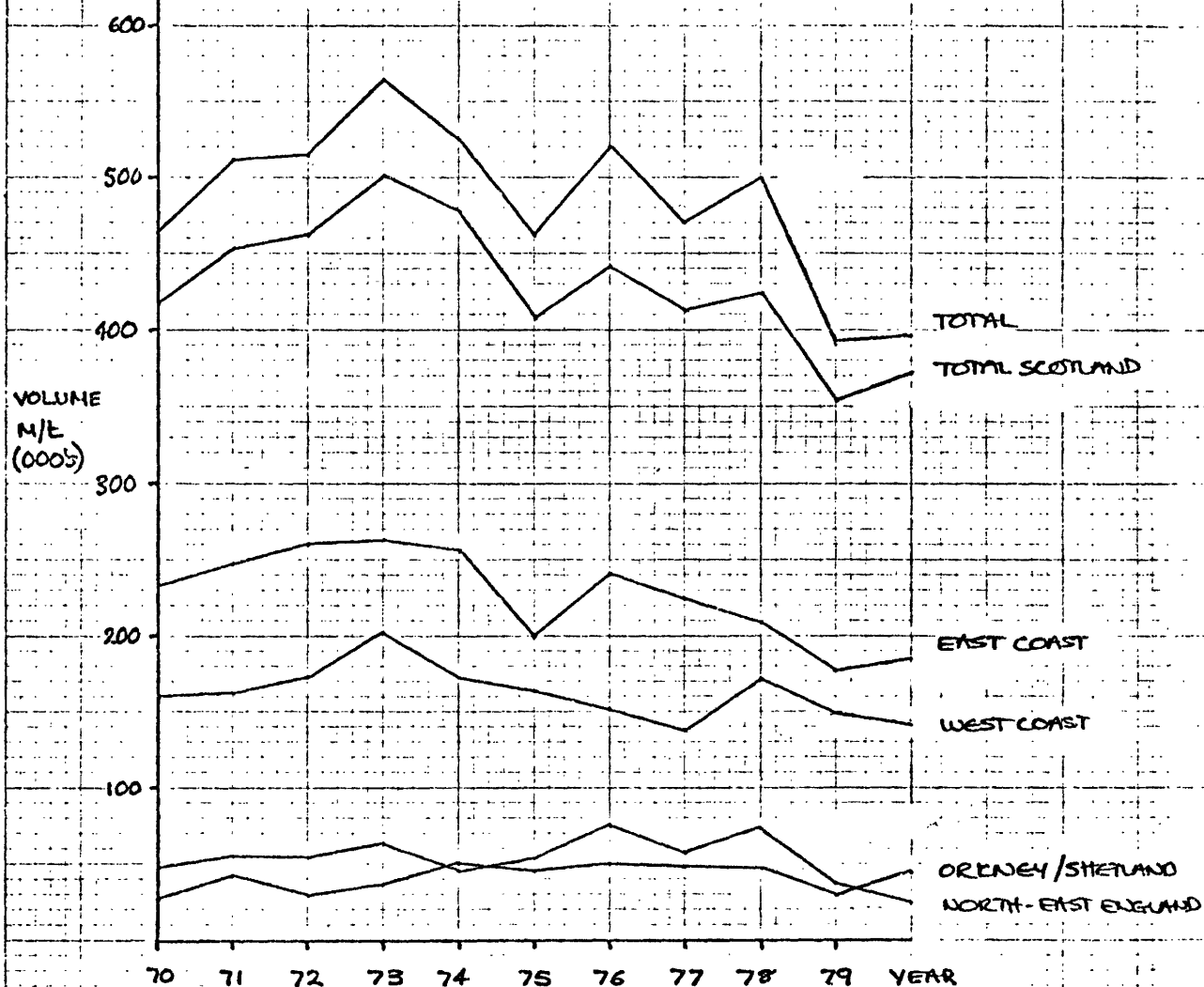
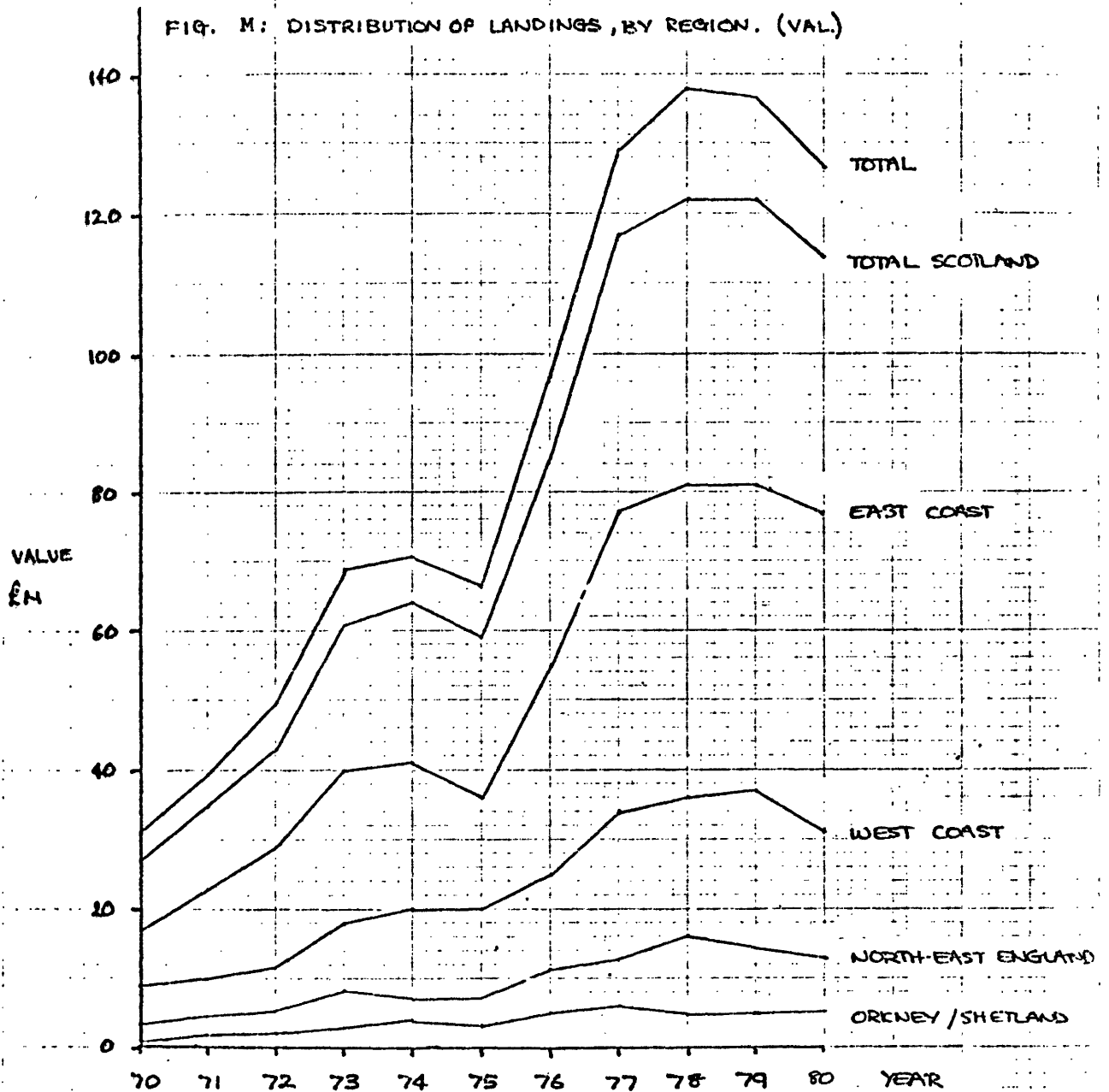




FIG. M: DISTRIBUTION OF LANDINGS, BY REGION. (VAL.)



By contrast, the West Coast predominates in pelagic landings, the average share of this sub-region in the seventies being 63%, and the significant landings here being of herring and mackerel. The East Coast has the second largest share but here landings consist very largely of sprats. Likewise, the North-East England landings are sprat-dominated, and the recent decline in pelagic landings here and consequently of this area's share (previously roughly on a par with Scotland's East Coast) is attributable to a failure of the sprat fishery. The Orkney/Shetland landings have been relatively insignificant, particularly since 1974. Here, herring and mackerel are the species caught.

The top six pelagic landing districts in 1980 were:

1	Ullapool	63%
2	Stornoway	11%
3	Fraserburgh	8%
4	Mallaig	4%
5	Shetland	4%
6	Lossiemouth	3%

By individual species the biggest landing districts in 1980 were:

Herring	Ayr	52%;	Campbeltown	41%		
Mackerel	Ullapool	75%;	Fraserburgh	9%		
Sprats	Lossiemouth	39%;	Leith	27%;	Mallaig	15%

Contributions to total shellfish landings by the four sub-regions have remained fairly stable, with approximately 60%, 30%, 5% and 5% of landings being made on the West Coast, East Coast, Orkney/Shetland and North-East England respectively. The West Coast predominates in landings of nephrops, scallops, queen scallops, lobsters and periwinkles; in 1980 its share were respectively, 70%, 62%, 92%, 42% and 70%. Crab landings are bigger in all the other sub-regions, the East Coast being most significant (49% in 1980). The East Coast also lands the most mussels, shrimps and squids. Lobster catches in this sub-region amounted to 31% of the North British total in 1980.

The top six shellfish landing districts in 1980 were:

1	Ayr	21%
2	Campbeltown	14%
3	Mallaig	9%
4	Oban	8%
5	Ullapool	6%
6	Stornoway	5%

By individual species the biggest landing districts in 1980 were:

Nephrops	Mallaig 18%; Campbeltown 14%; Ullapool 12%; Ayr 11%
Crabs	Orkney 16%; Pittenweem 8%; Wick 8%
Lobsters	Stornoway 25%; Orkney 17%; Wick 10%; Pittenweem 8%
Scallops and Queen Scallops	Ayr 42%; Campbeltown 23%; Wick 9%; Oban 8%

#### Sub-Regional trends in landings

##### East Coast : Eyemouth-Wick

Figure A51 illustrates trends in East Coast landings and in the catch composition. There has been a decline in landings since the record year of 1973 when 264,215 m.t. was landed. By 1979 East Coast landings had declined by some 33%, but picked up 4% in 1980 to 185,716 m.t.

East Coast landings are comprised largely of demersal fish - on average 81% over the decade. Pelagic species have accounted for on average 15.6% of East Coast landings. The share was greatest in 1974 (22%) and just 9% in 1980, the catch having declined some 69%. Shellfish make the smallest contribution by weight to East Coast landings - just 4.1% in 1980. This is almost double its 1970 share however, reflecting a 20% larger catch.

With regard to earnings, the East Coast's landings are even more heavily dominated by the demersal catch, which contributed on average 90.5% over the decade. Pelagic earnings, having declined 64% since 1977, in 1980 provided just 2% of the total, while the expanded shellfish earnings contributed 7%. (See Figure A53).

### West Coast : Stornoway-Ayr

Figure A50 illustrates the trends in West Coast landings and in the catch composition. As on the East Coast the catch has declined since 1973, the 1980 catch being some 29% less than in that peak year.

These trends have been predominantly influenced by pelagic landings which accounted for on average 69% of all landings in the seventies. The demersal catch remained fairly constant up to 1977, but since then it has declined, though 1980 saw some improvement. Nevertheless, the 1980 catch was some 29% lower than that of 1970. Shellfish landings have steadily increased since 1970, by 20% in 1979, but in 1980 they dropped 2%. Their contribution to total West Coast landings was 13% compared with 10% in 1970.

As shown in Figure A52, earnings from West Coast landings have risen steadily over the decade, apart from in 1975 and 1980. Pelagic earnings are not as predominant as landings might suggest, particularly in later years. In 1978 and 1979, shellfish earnings rose sharply, in contrast to earnings of other species, which have declined. However, in 1980 shellfish earnings fell, but they have retained their position as the principal contribution, reached the previous year, with a share of 42%.

### Orkney and Shetland

Figure A54 demonstrates the trends in Orkney and Shetland landings and catch composition from 1970-1980. Up to 1973 demersals and pelagics commanded roughly equal shares, together accounting for the bulk of the catch. In 1974 demersal landings rocketed and continued to increase up to 1978. At the same time pelagic landings plummeted, so that in 1978 demersal landings contributed 92% and pelagics 4% of landings. In 1979 demersal landings experienced a sharp drop to pre-1974 levels, but have since recovered significantly. Shellfish landings have remained fairly stable, contributing 3 to 4% in the period.

Demersal earnings have been of prime importance over the decade, contributing 75% to 80% of the value of all landings. Shellfish and pelagic earnings were fairly steady until 1976 at which point shellfish

earnings continued their gradual growth and pelagic earnings fell to negligible amounts. (See Figure A56).

#### North-East England

Figure A55 illustrates trends in North-East England's landings and the catch composition. Landings have fluctuated somewhat with the variations in pelagic landings creating the trend. Pelagic shares increased from approximately 30% in 1970 to approximately 60% in 1978 but subsequently fell to 0% in 1980. Demersal landings have remained fairly stable since falling in 1974. In 1980 they contributed almost 100% of all landings - shellfish landings remaining negligible over the whole decade.

By contrast, demersal earnings comprised roughly 80% of the value of total landings from 1970-1980. Up to 1978 the pelagic share was roughly 12%, but since then the contribution has dropped to an insignificant level. Shellfish now contribute 7.2% (1980) compared with 4.5% in 1970. (See Figure A57).

#### Geographical distribution (by ICES region and distance from shore) of catches by vessels from each sub-region

##### Notes on methodology:

- 1 The data were only available for catches by Scottish vessels.
- 2 Catches for a sub-region indicate catches by vessels based in that sub-region which may not correspond with landings, as vessels may land outside their base district.
- 3 Volumes stated are in terms of nominal weight.
- 4 The sub-region "East Coast of Scotland" is subdivided into
  - a) Eyemouth - Arbroath
  - b) Aberdeen - Wick

## a) Eyemouth - Arbroath

Percentages of catches in selected fishing regions, 1975 and 1979

		Demersal		Pelagic		Shellfish		Total	
		1975	1979	1975	1979	1975	1979	1975	1979
IVA:	Shetland	27	1	1	...	...	-	22	1
	Ork/M.F.	2	3	3	...	...	2	2	2
	Rest of	11	7	...	...	-	-	9	6
IVB:	EEC.	44	71	68	99	91	92	49	76
	Norw.	4	12	-	-	-	-	3	9
VIA:	North	...	...	-	-	-	-	...	...
	South	2	1	23	1	8	6	5	1
OTHER		10	5	5	-	1	-	9	4
<3 miles		2	6	46	100	61	69	10	22
3-12 miles		20	19	42	-	34	27	23	17
>12 miles		78	75	12	...	5	4	67	60
Total Volume '000 m.t.		33.1	27.8	4.9	4.1	1.7	3.0	39.7	34.8

Since 1975, the predominance of the EEC sector of the mid North Sea (ICES IVB) has increased, especially for catches of demersal and pelagic species.

Demersal catches from the northern North Sea, particularly in Shetland waters both within and outwith the 12 mile band, and elsewhere outwith 12 miles, have declined noticeably. These declines have been compensated to some extent by increased catches within all bands in the EEC sector of the mid North Sea, and outwith 12 miles in the Norwegian sector. The distribution of demersal catches between "bands" has not altered much as a result (see table above).

Pelagic catches from VIA south, mostly within 3 miles, and from IVB EEC outwith 3 miles, have dropped considerably, but those taken within

3 miles of the coast in IVB EEC have greatly expanded. As a result, in 1979 pelagic species were caught almost exclusively within 3 miles.

The geographical distribution of shellfish catches has not altered significantly.

b) Aberdeen - Wick

	Demersal		Pelagic		Shellfish		Industrial		Total	
	1975	1979	1975	1979	1975	1979	1975	1979	1975	1979
IVA: Shetland	15	20	...	...	...	...	2	-	9	13
Ork/M.F.	25	32	10	9	43	56	94	-	23	26
Rest of	16	17	...	3	1	-	...	-	10	12
IVB: E.C.	8	11	3	2	...	2	...	-	6	8
Norw.	1	3	-	2	-	-	-	-	1	3
VIA: North	8	8	1	1	1	...	-	-	5	6
South	9	7	85	83	50	42	4	-	36	32
OTHER	17	2	...	1	5	-	-	-	10	1
<3 miles	10	6	89	83	61	59	4	-	38	32
3-12 miles	19	17	4	9	5	16	1	-	13	14
>12 miles	71	78	7	9	33	25	95	-	49	54
Total Volume '000 m.t.	164.7	157.4	100.6	75.2	3.5	7.4	13.1	-	281.9	

The major fishing region for vessels based in these districts is the northern North Sea (ICES IVA). Always the major demersal ground, in recent years its relative importance has grown, while that of 'other' (especially traditional distant) grounds has sharply diminished. The larger IVA catches are made outwith 12 miles - indeed, demersal catches within 12 miles in this area have declined. Also outwith the 12 mile band, catches from the mid North Sea (both EEC and Norwegian sectors) have grown.

Pelagic species were caught predominantly in the southern part of area VIA and mostly within 3 miles, both in 1975 and 1979.

Shellfishing by these vessels has expanded in recent years, especially in the Orkney/Moray Firth region which has now overtaken the southern west coast as the major region. Activity is concentrated within 3 miles, but in the Orkney/Moray Firth area the 3-12 mile zone is growing in importance.

Industrial fishing, once practised in Orkney/Moray Firth waters, had died out by 1979.

c) Orkney and Shetland

	Demersal		Pelagic		Shellfish		Industrial		Total	
	1975	1979	1975	1979	1975	1979	1975	1979	1975	1979
IVA: Shetland	90	76	77	5	-	58	100	99	94	68
Ork/M.F.	6	5	9	-	79	41	-	-	3	4
Rest of	4	1	-	2	-	-	-	1	1	1
VIA: North	...	18	2	-	21	-	-	-	...	6
South	...	...	12	94	-	1	-	-	1	22
<3 miles	6	1	18	94	24	94	-	1	4	27
3-12 miles	51	38	35	1	-	4	49	74	48	41
>12 miles	44	61	47	5	76	2	51	25	48	32
Total Volume '000 m.t.	16.6	15.6	5.6	10.3	...	2.1	26.9	16.5	49.2	44.5

Orkney and Shetland vessels fish predominantly in waters around their home shores. Shetland remains the principal area for demersal fishing, despite a decline in the catch taken here, especially in the 3-12 mile zone. In contrast, catches taken to the north-west of Scotland, and more than 12 miles offshore, have recently shown considerable growth. Hence, waters beyond 12 miles have become more significant than those closer to shore.



The pattern of pelagic fishing has changed radically since 1975. Then it was concentrated in Shetland waters, the biggest catches being made outwith 12 miles. In 1979, however, the catch now almost double the 1975 volume, came almost exclusively from the West of Scotland grounds, within 3 miles of the shore.

Shellfishing by these vessels was barely significant in 1975. Since then it has expanded considerably, and takes place close inshore around Shetland and Orkney.

Industrial fishing is concentrated in Shetland waters. It has declined by some 39% since 1975, particularly outwith 12 miles.

d) Stornoway -- Ayr

	Demersal		Pelagic		Shellfish		Industrial		Total	
	1975	1979	1975	1979	1975	1979	1975	1979	1975	1979
IVA: Shetland	...	3	-	2	-	-	-	-	...	1
Ork/M.F.	1	6	1	1	...	-	...	-	I	3
VIA: North	14	11	...	12	-	...	-	-	4	8
South	83	72	99	82	100	73	100	100	94	76
OTHER	1	7	-	2	...	26	-	-	...	11
<3 miles	88	71	97	74	100	77	99	100	95	74
3-12 miles	2	7	1	14	...	11	1	...	1	10
>12 miles	11	22	2	12	...	13	...	...	5	16
Total Volume '000 m.t.	15.9	14.7	20.9	15.8	6.2	14.8	6.1	...	49.1	45.3

Demersal and pelagic species are caught primarily to the south-west of Scotland, mostly within 3 miles. However, recently catches both here and elsewhere within 3 miles have dropped, whilst those further away have grown. Demersal catches taken between 3 and 12 miles, both to the west of Scotland and in 'other' areas, have increased. Outwith 12 miles,

the North Sea, especially Shetland and Orkney/Moray Firth and 'other' areas, have yielded larger catches of these species. The areas of growing significance for pelagic species are, between 3 and 12 miles off the west Scottish coast and around Orkney, and outwith 12 miles, to the north-west of Scotland, 'other' areas and Shetland.

Shellfish catches have more than doubled since 1975, the increase taking place mostly close inshore to the south-west of Scotland. Shellfishing has also expanded in 'other' areas. about half between 3 and 12 miles and half outwith 12 miles.

Industrial fishing, as significant as shellfishing by volume in 1975, and taking place to the south-west of Scotland within 3 miles, is now a negligible activity.

#### Landings by district

##### East Coast ports

Figure A58 shows landings for the East Coast by district between 1970 and 1980. The most significant feature is the reversal of roles between Aberdeen and Peterhead as the most important fishing port in North Britain. In 1970 the volume of landings at Aberdeen was broadly ten times the volume of those at Peterhead. With Aberdeen declining and Peterhead rising the two ports were broadly equal in 1978, while by 1980 landings at Aberdeen were only some three fifths of those at Peterhead. The major species of fish landed at both ports are the same, being haddock, cod and whiting in descending order of importance. The reversal of the fortunes of the two ports is largely to be explained by two factors. The first has been the loss of fishing grounds by the Aberdeen trawler fleet whose numbers were down some 80% over the decade and the second has been the fact that the port of Aberdeen is in the Dock Labour Scheme. As a result fish porters have guaranteed employment for their working life. Their numbers are excess to requirements and can only be reduced by voluntary redundancy with financial compensation. The implication of this is that a charge of some £1.70 is levied per box of fish landed, a charge which fishermen can avoid by landing at Peterhead.

Fraserburgh is the third most significant port in terms of landings. Edible demersal species form a fairly stable core to the port's landings at some 11,000 tonnes per annum while the great variability in total landings is accounted for by fluctuation in industrial species (Norway pout and sprat) and in pelagics (herring and mackerel).

By 1980 landings at other East Coast ports were remarkably equal around the 5000 tonne mark with most ports experiencing a smaller volume of landings in 1980 than in 1970.

#### West Coast ports

Figure A59 plots the data for landings on the West Coast. Its most striking feature is the decline of Mallaig as the major port for landings and its supersedure by Ullapool. This reversal has been due to the diverging performance of the two fisheries with which they are associated. Mallaig was predominantly a herring port and with the decline and eventual ban on herring catches, landings in 1980 were only about one seventh of peak 1974 landings. It is now the fourth port by volume of landings, with just over one third of the landings being mackerel and just under one-third each going to demersal fish (mainly whiting) and to shellfish.

Ullapool is now the principal port on the West Coast being the centre of transhipped mackerel operations. It has recently been accounting for three quarters of Scottish mackerel landings, and mackerel represents over 85% of its own landings. A high proportion of the catch (65-70%) is transhipped for processing mostly on to East European vessels.

Stornoway is usually the third port by landings by volume, but like the other ports of Ayr, Campbeltown, Oban and, nowadays, Mallaig, the majority of its income comes from shellfish.

#### Orkney and Shetland

Landings in Orkney are not substantial being only 935 tonnes in 1980, of which 92% is shellfish. Figure A54 shows the overall

composition between pelagic and demersal in Orkney and Shetland. Broadly equal until 1972, pelagic landings fell off thereafter, while demersal landings increased to a level about twice that at the beginning of the period from 1974 onwards. This growth is accounted for largely in industrial species, initially in Norway pout but by the end of the decade sandeels accounted for about four fifths of industrial species. Edible demersals, haddock and whiting, have remained around the 10,000 tonne mark.

### North East England

North Shields is the major port of landing accounting for about three-quarters of all landings in North East England during the period 1970 to 1980. The pattern of landings at North Shields has been dominated by sprats which between 1970 and 1978 averaged about 51% of landings, though annual figures showed great volatility. In 1979 and 1980 the sprat catch has virtually disappeared. Demersal landings also declined by 50% over the period. Scarborough, Bridlington and Whitby are basically ports for the landing of demersal fish. (See Figure A60).

### Employment

#### Fishermen

Between 1970 and 1979 employment fell in two of the Scottish regions, on the East Coast and in Shetland and Orkney, and rose on the West Coast. The East Coast witnessed a decline of 10% with the decline occurring from 1975 onwards. Employment in Shetland and Orkney remained above the 1970 level right up to 1978 but declined fairly sharply in 1979, when employment was only 89% of the 1970 level.

The most significant changes occurred at Aberdeen, where the number of fishermen declined by 55% to 622, and at Peterhead, where employment grew by 57% to 779 so that Peterhead is now the largest employment centre for fishermen.

Employment on the West Coast remained fairly stable until 1976 and the growth has occurred since then, so that employment had risen by 13% by 1979. Employment grew at Stornoway, Ullapool, Mallaig, Oban and Campbeltown, with only Ayr showing a decline.

### Processing

Between 1970 and 1979 employment in fish processing and related industries declined by 15% in Scotland as a whole. The performance of the regions differed markedly. While the numbers in Orkney and Shetland were almost identical in 1970 and 1979, the East Coast witnessed a decline of 20% in employment from 16,360 to 13,173, while the West Coast witnessed an expansion of 20% to 2,964. The decline on the East Coast was concentrated largely upon Aberdeen and Leith, with the former losing 2,540 jobs and the latter 722. Of the 510 extra jobs on the West Coast, 534 were accounted for by Ayr. The only port to show a significant decline was Mallaig which had 60 fewer jobs in 1979 than in 1970.

### Total Employment

The broad picture considering employment at sea and in processing and related activities is that the East Coast, which accounted in 1979 for 73% of all types of employment, is offering a declining volume of employment, while the West Coast with 20% of jobs has shown a 17% expansion between 1970 and 1979. Orkney and Shetland have seen a 5% decline in total employment.

In a North British context the major decline in fishing employment is occurring in Aberdeen, which is the centre of the North Sea oil boom. While individual ship owners and fishermen are without doubt harmed financially by the decline in fishing activity, the opportunity for alternative employment is greater in Aberdeen than elsewhere in North Britain. Peterhead has seen expansion both in fishing and oil related activities and might be considered doubly fortunate. Shetland too has benefited from oil exploration and oil terminal construction, though the major impact of development, particular in onshore construction, may now be past, so that fishing will be of increasing importance in the future. In most of the other areas in Scotland, where there is less alternative employment, fishing employment has been more or less maintained.

## SECTION 1.4    FISHERIES POLICY

### 1.4.1   National fisheries policy:   administration

Apart from the Isle of Man, which is dealt with in Appendix 1, fisheries policy in Northern Britain is the responsibility of the Minister of Agriculture, Fisheries and Food in the United Kingdom government. Implementation of the policy is carried out by two government departments, the Department of Agriculture and Fisheries for Scotland in the Scottish part of Northern Britain and the Ministry of Agriculture, Fisheries and Food in the rest of the mainland area, and by two statutory non-government bodies, the White Fish Authority and the Herring Industry Board, which now share the same headquarters and staff. As their names suggest, the White Fish Authority is responsible for white fish, and the Herring Industry Board for herring and other pelagic fish.<sup>1</sup>

The main areas of fisheries policy which are administered by the government departments are the collection of data for the monitoring of policy and research, the enforcement of fishery protection legislation, the provision of operating subsidies to the fishing fleet, financing harbour maintenance and improvement and the prosecution of research both into biological and technical matters and into the preservation and handling of fish.

The Herring Industry Board, founded in 1935 for the purpose of reorganising, developing and regulating the herring industry, has fulfilled a different role from that of the White Fish Authority, established in 1951, for the former endeavoured to procure equitable marketing systems, by determining minimum prices, buying herring for reduction, operating

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1    Since 1 October 1981 the White Fish Authority and the Herring Industry Board have been superseded by a new Sea Fish Industry Authority, which is expected to carry out many of the functions of its two predecessors.

reduction factories and acting as a broker in foreign markets. The White Fish Authority introduced statutory minimum prices for certain species of white fish only in 1970. Both bodies support research and development and promotional campaigns for their products, but from the policy point of view their most important function has been the administration of grant and loan schemes for the construction of new vessels and for the improvement of existing ones. The main source of finance for both the Herring Industry Board and the White Fish Authority has been a levy on the first hand sale of fish landed. Funds are also supplied by the UK government, e.g. for the grant and loans scheme.

In the Highlands and Islands of Scotland, the Highlands and Islands Development Board, established in 1965 as an instrument of government regional policy, has paid considerable attention to fishing as part of its development policy. It has supported training schemes for fishermen, provided capital for the establishment and improvement of shore facilities and grants and loans for the purchase of boats.

### Policy in Outline

For Northern Britain, other than the Isle of Man, four major strands and several minor may be identified in fisheries policy. The major strands are (i) the provision of operating subsidies to the fleet, (ii) the provision of loans and grants for fleet renewal and modernisation, (iii) the support of research and (iv) the adoption of measures for fish stock conservation.

#### (i) Operating subsidies

The rationale for the provision of operating subsidies has been that the fleet needed support in its day to day operations, while its structure was being improved by the grant and loan schemes with a view to its becoming self-supporting. Since 1970 subsidies were paid up to 1973 in terms of the White Fish Subsidy (Deep Sea Vessels) (United Kingdom) Scheme and the White Fish (Inshore Vessels) and Herring Subsidies (United Kingdom) Scheme. The subsidies were discontinued in July 1973 as fishing improved, but a temporary operating subsidy was paid in 1975,

when boats were faced with rapidly rising fuel costs and a sluggish demand for fish. Subsidies have been introduced in somewhat similar circumstances in 1980, when fuel prices once again rose sharply and fish prices were down on previous years. Of the first subsidy of £3 million paid in the spring of 1980 for the UK fleet, about £1 million was used to finance exploratory voyages in search of new fish species, while most of the rest was devoted to supporting market prices by producer's organisations. A second subsidy of £14 million to the UK fleet in the autumn of 1980 was paid out on the basis of vessel length. This criterion was used again in allocating £25 million of aid to the UK fleet in the spring of 1981. The Northern British fleet obtained just over half of the total aid.

Table A61 gives details of the subsidies paid to herring fishermen in Scotland and expresses these as a percentage of the value of pelagic landings in Scotland. While the subsidy relates only to Scottish fishermen, the landings are by fishermen from other areas as well. In 1975 and 1979, for which data are available, landings of pelagic fish in Scotland by Scottish vessels accounted for 95% and 81%, respectively, of Scottish landings. The subsidy as a percentage therefore understates the assistance to Scottish herring fishermen.

The details for the white fish industry in Scotland are given in Table A62. The figures for 1979 show that Scottish vessels accounted for over 99% of the landings of demersal fish in Scotland. If this was true of earlier years the percentage figure would fairly accurately measure the assistance to the fleet from this source.

The temporary operating subsidy for 1975 expressed as a percentage of the combined landings of pelagic and demersal fish amounted to some 6.4% of the value of landings. The subsidies which were made available in 1980 to white fish and herring boats amounted to about 7½% of the value of landings, and the 1980 aid would appear to amount to about 10% of the value of landings.

#### (ii) Grants and loans

Excluding the Isle of Man grants and loans have been available to fishermen for the purchase of new boats, for engines and for improvements to existing boats.



Loans have normally been restricted to inshore vessels and have been provided at the normal lending rate of the UK central government plus a margin to cover the costs of the administering authority, either the White Fish Authority or the Herring Industry Board. The maximum loan available has been 50% of the cost of the project and this could be on top of any grant. Given that the rate of interest payable has been about the going rate for the economy, a loan does not represent a great benefit, except where a borrower might have expected to pay a risk premium for finance. Loans for large vessels were excluded on the grounds that finance for purchasing larger vessels was available under the terms of the Shipbuilding Industry Act of 1967.

Grants, once more administered by the White Fish Authority and the Herring Industry Board, were made available under the Fishing Vessels (Acquisition and Improvement) Grants Scheme, which has been subject to almost annual amendment up to date.

The rate of grant payable has been as follows:

	<u>Boats under 80 feet</u>	<u>Boats 80 feet and over</u>
1970 (a) Until October	40%	35%
(b) After October	30%	25%
1971, 1972, 1973, 1974	30%	25%
1975 (a) Until March	30%	25%
(b) After March	25%	25%
1976, 1977, 1978, 1979	25%	25%

It is possible to obtain grant figures for the Scottish section of the Northern British fleet from figures published in the Annual Report of the White Fish Authority (see Table A63).

Of the cumulative total of all grants made available by the White Fish Authority to all boats in the UK, just under £77 million at March 1980, the Scottish fleet enjoyed some £33.5 million or nearly 44%. Of the cumulative Scottish figure of £33.5 million the inshore fleet (vessels of under 80 feet) had received £25.8 million, i.e. just over 77%.

The scale of these grants can be gauged by comparing their size with the value of demersal landings in Scotland. In 1971-72 they

amounted to 10% of demersal landings, in 1974-75 5.8% and in 1977 to 4.8%. However, as the table shows, the real value of grants has declined from £2.6 million in 1971-72 to £0.8 million in 1979-80.

The data on grants made by the Herring Industry Board (Table A64) relate to the whole of the United Kingdom, but since Northern Britain accounts for the bulk of the fleet and the bulk of the landings, the published figures probably represent a reasonable picture for Northern Britain.

The table below provides a percentage distribution of grants made by the White Fish Authority and Herring Industry Board together to the Scottish fleet by length sizes. It shows that the class most favoured in the distribution of aid has been the 60 to 80 foot range which has received 50% (the unweighted average) of the grants over the nine years. The next most favoured class is the 80 to 110 foot range.

Percentage Distribution of Grants to the Scottish Fleet by the White Fish Authority and Herring Industry Board 1970/71 to 1978/79

Length of Vessel	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79
Under 40'	4.1	4.6	1.8	1.9	1.5	2.0	0.7	0.7	1.5
40-59.9'	37.4	20.4	14.8	19.7	13.3	14.2	11.4	13.2	11.4
60-79.9'	48.1	40.4	33.7	58.7	52.7	54.5	67.0	41.4	60.5
80-109.9'	8.9	17.4	25.5	11.5	18.8	28.4	19.5	42.8	24.7
110-139.9'	1.3	10.1	24.2	8.2	13.5	0.8	1.2	0.7	1.5
140'	0.02	7.1	0.04	0.05	0.08	0.2	0.2	1.2	0.4
Total	100	100	100	100	100	100	100	100	100

Source: White Fish Authority.

The number and value of grants made annually have been subject to three influences. Firstly there is the demand for assistance from

fishermen, and this has broadly reflected the prosperity of the industry. The demand has been greatest in good times and fallen off in bad times. Secondly, the UK government has influenced the timing and volume of grants and loans, notably in the first half of 1974 when it imposed a moratorium. When the moratorium was lifted, the government imposed ceilings on the total value of approvals. Thirdly, both the White Fish Authority and the Herring Industry Board have pursued policies aimed at structural reform of the fleet in their allocations of grants and loans. Up to 1967 the White Fish Authority and Herring Industry Board adopted a policy of containing the size of the fleet by allowing only replacement needs to be met in new vessels or by allowing aid only if a new vessel was necessary for the operations of a port or firm. An expansive policy ensued at the end of the 60's which eventually gave way to a more restrictive policy from 1973 onwards with the moratorium of 1974 and the 1976 amendment to the Fishing Vessels (Grants) Scheme requiring the Herring Industry Board and the White Fish Authority to have

"regard to the needs and interests of the white fish and herring industry before approving assistance."

The Herring Industry Board has adopted a policy of containment of the fleet with funds being reserved for the requirements of safety and improvements in the quality of the fish landed. The White Fish Authority has applied restraint on new building approvals, a restraint which itself has been reinforced by the limited funds made available to it by the government.

In providing grants and loans priority has been given as follows: firstly replacement of a lost vessel, secondly replacement of a vessel of more than ten years old, and thirdly new vessels which will not increase the strength of the fleet as established at 1st January 1977 with preference for young skipper-owners in a new partnership. The strictness of the policy has varied with the availability of funds from the central government. For instance, because of lack of funds all new building applications were stopped in February 1979, while currently, given increased funds from the government and lack of demand from the industry, the policy has become more relaxed e.g. 200 vessels which came into the fleet from abroad during the period of restriction and were blacklisted for improvement grants have now become eligible. Even so

the White Fish Authority will not give assistance for the fitting out of vessels, the hulls of which were ordered during the period of restriction. Likewise the Authority will not consider grants for the construction of purse seiners.

#### The Highlands and Islands Development Board

Established in 1965 with the objectives of reducing the high levels of unemployment and emigration in an area which accounts for about one half of Scotland and one fifth of Great Britain, although having a population of only some 325,000 in 1979, the Board has from its early stages paid considerable attention to fishing. In the 1970's landings by value in the Board's area have typically amounted to 15% of Scottish white fish landings, over 80% of Scottish pelagic landings and above 60% of shellfish landings. This may overstate the importance of fishing, given the practice of boats from outwith the area making landings in the area. Nevertheless measured by employees in employment, a measure which excludes proprietors and the self-employed of which fishing has an above average representation, in 1965 fishing offered 3,100 jobs. This accounted for 2.7% of employees in employment in the Board's area. The comparable figure for Scotland is 0.1%.

In 1967 the Board established a Fisheries Development scheme, with a target of providing a set number of boats over a five year period. This was done by the provision of loans and grants, with loans where the boats already benefited from grants from the White Fish Authority or Herring Industry Board and grants as well as loans in other cases. The scheme applied to the purchase of second-hand as well as new boats, and to assistance with the provision of onshore facilities such as processing facilities, some of which were bought by or built for the Board and operated by it, ice-making plants, cold storage, the improvement of boatyards, the improvement and in some cases construction of piers and slipways, as well as aid for research and development and for commercial exploitation of fish farming and fresh-water fish. The scheme was extended beyond its initial five years and eventually came to an end in April 1979. It is estimated that some £20 million had been advanced

to the industry as a whole, that some 4,300 jobs had been created or retained and some 500 boats, new and second-hand, had been acquired.

In 1979 £3.2 million, some 28% of all assistance offered by the Board was advanced to fishing as a whole, with a breakdown as follows:

(The private contributions of the recipients of assistance are also shown).

	<u>Grant</u>	<u>Loan/Shares</u>	<u>Private Contributions</u>
1 Boats	£ 170,530	£2,078,745	£1,210,473
2 Fish Processing, boatyards and ancillaries	£ 173,642	£ 460,110	£ 869,887
3 Fish farming and freshwater fisheries	£ 134,439	£ 189,450	£ 400,219

The Board operates a convention of regarding the advance of a loan or the taking of a share in an enterprise as one-fifth as valuable as a grant. If the loan/share value is reduced to one-fifth of its value for boats and fish processing and added to the figures for grants for these two categories, a 'subsidy' figure of £851,945 is obtained for grant and grant equivalent. The value of sea fishery landings in the Board region in 1979 was £38.2 million, so that the rate of this subsidy was 2.2%. The figure for fish-farming is excluded since it is not an aid to sea fisheries.

The ending of the Fisheries Development Scheme would appear to have its greatest effect on future demand for boats. In future an intending purchaser of a boat will be required to find 30% of its cost from his own resources, whereas in the past the figure has been as low as 10%.

The Board has made significant initiatives in several areas. Cumulative assistance to fish-farming totalled £4.3 million by 1979, of which £1.3 million was for research and development in 49 different projects covering such species as rainbow trout, salmonids, oysters, mussels, scallops, turbot and eels. The Board runs its own hatchery. Training courses have been provided at sea by skippers to instruct crews

of new boats. A one year course for 12 candidates is given in fish farming with the objective of providing skilled operatives.

The Board has carried out exploratory voyages in a boat which it purchased to establish the possibilities for the fishery of blue whiting, while in 1977 it entered into partnership with a Norwegian firm to build a fishdrying factory at Breasclete, which has still to prove its commercial viability.

(iii) Conservation measures

The conservation policies relevant to the fishing industry of Northern Britain have been those laid down by the UK government. Since 1970 policy can be divided into three time periods. Between 1971 and 1976 UK conservation policies were formed with the objective of implementing the recommendations of N.E.A.F.C. (North East Atlantic Fisheries Commission). In 1977, UK policy consisted in implementing interim conservation measures agreed by EEC and in supplementing these with national measures where deemed necessary. Since 1978 and the failure of the European Economic Community to agree on a Common Fisheries Policy and on conservation measures, the UK government has introduced national measures of conservation in accordance with the terms of the Hague Agreement.

Prior to 1977, N.E.A.F.C. recommendations adopted by the UK and of vital interest to Northern Britain, because they included the most important species fished e.g. herring, haddock, cod and whiting, consisted of:

- 1) A series of closed seasons for herring fishing in the North Sea, from 1971 to 1974;
- 2) Quotas for North Sea cod, haddock, whiting, sole and plaice from 1975, for North Sea herring from 1974 and North Sea sprat in 1976, for West of Scotland herring, Irish Sea sole and plaice and North East Arctic cod from 1975;
- 3) Banning of deliberate fishing of herring for industrial purposes in N.E.A.F.C. Region 2, (including North Sea and other waters surrounding the UK) (1976);
- 4) Minimum mesh sizes of 16mm for a number of (industrial) species fished with small nets (1975).

The UK also adopted certain other measures, including:

- 1) A series of closed seasons for herring fishing within 12 miles of the North Yorkshire coast, from 1972 to 1976, around the Isle of Man from 1973 to 1976, and off the Scottish West Coast in 1975 and 1976.
- 2) A restriction on the catching of herring in a form in which it would be fit only for reduction in 1972 and 1973.

The advent of the 200 mile exclusive economic zone in 1977 gave a greater opportunity for the application of conservation measures, but given the failure of the EEC countries to agree on a comprehensive set of measures, the UK government supplemented the restrictions imposed by the EEC with some of her own. The UK banned herring fishing within her two hundred mile limit in the North Sea during those periods when EEC policy did not ban it. Likewise the UK took measures to extend the EEC agreed closed season for Norway pout in the UK part of the 'box'.

The UK continued her national measures in 1978 by banning herring fishing in the North Sea throughout the year, by banning herring fishing to the West of Scotland except for the Clyde fishery from 6 July and by continuing the ban on Norway pout and extending the size of the 'box' in October 1978. A measure to reduce the permitted maximum by-catch of white fish in small mesh fisheries from 20% to 10% was also taken in 1978.

In 1979 the UK government continued the closure of the North Sea and the West of Scotland herring fisheries and introduced a measure to increase white fish mesh net sizes to 75mm single twine and 80mm double twine, and nephrops mesh net sizes to 70mm. A minimum legal landing size for nephrops was introduced, and that for whiting was increased.

Several of the UK measures (the pout box extension and management measures for the Mourne and Irish Sea herring fisheries in 1978, the measures on mesh size and the management of the Irish Sea fishery in 1979) have been thought by the European Commission to be against Community law and made the subject of litigation. The court judgements have gone against the UK in several cases.

(iv) Fisheries research

Fishermen clearly benefit from fisheries research which takes place outwith their region as well as that within its, since knowledge, unless it receives the protection of a patent, soon becomes a free good. A substantial amount of fisheries research is carried out in Northern Britain with the most important location being Aberdeen which has the Marine Laboratory of the Department of Agriculture and Fisheries for Scotland and the Torry Research Station of the Ministry of Agriculture, Fisheries and Food. In addition some part of the research effort of the White Fish Authority takes place in Northern Britain and the Highlands and Islands Development Board undertakes research and development in various fields. Some commercial firms also engage in basic research into fisheries problems.

The major research institution is the D.A.F.S. Marine Laboratory, which at the end of 1979 employed 227 staff and had an annual budget of £4.4 million. Research is carried out in the Laboratory in four major areas. There is first fishery resource investigations, i.e. the investigations of the biology, abundance, production and population dynamics of the main exploited marine fish and shellfish resources and of currently unexploited resources which might form the basis of new fisheries in the future. To a large extent this work is done by monitoring stocks by use of the five main research vessels which the Laboratory may use.

The Laboratory secondly carries out environmental studies to investigate the factors, including pollution, which govern the ecology of fishery resources. The programme in this field is organized under the related topics of food chain studies, experimental pollution and pollution monitoring.

The third area of research is into fish cultivation, especially the problems of fish diseases and parasites affecting farmed species and the control of sex and maturation in salmonids. The final area of research is into fishery gear technology and the behaviour of fish in relation to the efficiency of fish capture by commercial fishery gears.

The last mentioned area is also a concern of the Industrial Development Unit of the White Fish Authority at Hull with a staff of 75.



Of recent years it has carried out research into small rope trawls, electro-trawl systems, gill netting and long-lining. It also overlaps with the Torry Research Station in its research in processing developments. Most of the White Fish Authority's work in Northern Britain has been done by its Technical Unit in the field of marine farming and shellfish cultivation on the West Coast of Scotland, where the species under development include turbot and Dover sole as well as molluscs.

Expenditure on research and development at the Torry Research Station of M.A.F.F. amounted to £2.65 million in the year 1979-80. Research falls into four main areas. There is first work to improve the handling and processing of fish from the time of catch to the time of consumption and covers topics such as refrigeration techniques, gutting machinery, smoking and shellfish handling, processing and storage. Secondly there are investigations with the object of improving the quality of fish and fish products, by a study of fish spoilage including odour, flavour and decay, and by attempting to devise methods of quality measurement. Thirdly research is carried out into the development of new products from fish and other aquatic resources, especially underutilised species such as blue whiting. The fourth field of research is into improving the utilisation of fish unsuitable for direct human consumption by studying fish silage, the chemical preservation of industrial fish and animal feeding trials.

#### 1.4.2 Community Fisheries Policy

##### Resources and structural policy

The common fisheries policy deals with matters falling under four broad headings: access, conservation, structural policy and market policy. The fundamental precepts of the resources/structural side of this policy were first laid out in Regulation (EEC) No.2141/70. A slightly amended version, Regulation (EEC) No.101/76, replaced this on 19 January 1976.

## Access

The principle of free access to Community waters and equal conditions for fishing by all Community vessels is a cornerstone to EEC thinking on fisheries. However, right from the start, this principle has been qualified: exclusive access to coastal waters for locally-based vessels, first up to 3 miles from the shore but in 1973 extended generally to 6 miles and to 12 miles in some areas viz, (in the UK).

- The Shetlands and the Orkneys
- The North and East of Scotland, from Cape Wrath to Berwick
- The North-East of England, from the river Coquet to Flamborough Head
- The South-West from Lyme Regis to Hartland Point (including 12 miles around Lundy Island)
- County Down

These derogations contained in Article 102 of the Treaty of Accession were meant only to be temporary, the question of access to be reconsidered and a new regime worked out before 1983.

## Conservation

EEC took over from N.E.A.F.C. the task of setting TAC's in the "common fisheries pool" created by the joint extension of member states limits to 200 miles in 1976.<sup>1</sup> TAC's did not, however, get past the proposal stage until 1980, due to disagreement among member states. Member states' quotas still remain unresolved, although third country participation has largely been agreed.

The EEC has also been concerned with laying down certain technical measures of conservation, aimed at improving exploitation patterns, including limitations on mesh sizes, by-catches, fish landing sizes, gear and areas and periods of fishing. A first comprehensive Regulation on these matters was agreed in 1980. A package of surveillance measures has also been proposed in 1981.

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1 TAC's are detailed in Section 2.1

Despite the lack of an agreed comprehensive fisheries policy, there have been some interim EEC measures attempting to impose a minimum level of discipline on fishing since 1977.

Firstly, in the 'Hague Agreement' of 3 November 1976 it was accepted that until such time as conservation measures could be agreed at Community level, States could introduce their own conservation measures, so long as these were urgent, temporary and non-discriminatory as between Member States and had the approval of the EEC.

In 1977 and 1978, an interim measure was agreed whereby Member States would attempt to keep fishing effort at the previous year's level. Quotas for 1977 only, were agreed for herring in the Irish Sea and off the West Coast, the UK being allocated 11,900 tonnes and 39,000 tonnes respectively. For 1979 and 1980, Member States agreed to conduct their fisheries in such a way that account was taken of proposed and agreed TAC's respectively.

On the technical side, the EEC introduced a series of temporary measures in force during 1977 only. These consisted of:

- i) bans on herring fishing (a) in the North Sea, off the West Coast of Scotland, in the Celtic Sea and in the Mourne fishery;
- ii) industrial fishing for herring in EEC waters was banned from late September;
- iii) closure of an area off the Scottish Coast to industrial fishing for pout. An EEC regulation in early 1977 prohibited pout fishing in a 'box' in the North Sea:  
 $56^{\circ}\text{N} - 60^{\circ}\text{N}$  and  $4^{\circ}\text{W} - 0^{\circ}$ , from 21/2 to 31/3.  
 This ban was renewed for 1/9 to 15/10 and 16/10 to 31/10 but with an amended Western boundary of  $3^{\circ}\text{W}$ ;
- iv) a reduction in the maximum by-catch of white fish from 25% to 20%;
- and v) a ban on certain fish factory ship operations.

Of the package of technical conservation measures agreed in 1980, the more important ingredients were:

- i) an increase in the minimum white fish mesh size to 80mm as from 1 December 1980 and in the North Sea to 90mm as from 1 October '82.
- ii) an increase in the minimum nephrops mesh size to 70mm as from 1 December 1980 (except in the Irish Sea where it is 60mm).

- iii) the minimum mesh size in industrial fisheries is 16mm, except for North Sea mackerel for which it is 32mm.
- iv) the continuation of the ban on industrial fishing in the pout box, the shape of which was modified to the effect of opening a 'window' in the north-east quadrant of the 1978 box.
- v) by-catches of white fish must not exceed 10% in industrial fisheries and 60% in nephrops fisheries.
- and vi) small-mesh and purse-seine fishing for mackerel is prohibited each year from 1/3 to 15/11 in the seas to the south-west of England. All mackerel fishing by trawl, seine and purse-seine is prohibited in certain areas to the West of Scotland from 1/10 until 31/3 each year.

### Structural policy

Financial aid has been available from the Guidance Section of the European Agricultural Guarantee and Guidance Fund (F.E.O.G.A.) for the general aim of promoting "the rational development of the fishing industry". There are two broad avenues to such aid.

- 1 Regulation 17/64, the "individual project scheme" ran until 1978 and provided for the financing of projects, approved by and submitted through the Member State, and relating to the adaptation and improvement of agricultural production.

Grants consisted of capital subsidies paid in a lump sum or instalments, which would not exceed 25% of the investment involved. The beneficiary's contribution must be at least 30% and the Member State was also required to contribute (an unspecified sum).

- 2 "Common measures" may be agreed within the Community. Specific measures proposed by Member States within the scope of the agreed strategy will then be considered for FEOGA funding. So far, common measures adopted, applicable to the fisheries sector, have consisted of:

- i) those "to improve the conditions under which agricultural products are processed and marketed" (Regulation (EEC) No.355/77);
- ii) "an interim measure for restructuring the inshore fishing industry" (Regulation (EEC) No.1852/78).

i) Under 355/77 the fund contributes to projects involving investment in buildings and/or equipment for:

- a) rationalising or developing storage; market preparation, preservation, treatment or processing of products;
- b) improving marketing channels;
- and c) better knowledge of the facts relating to prices and to their formation.

Projects should form part of "programmes" drawn up by Member States and designed to improve processing and marketing in particular regions.

Funding is by means of capital grants paid in a lump-sum or instalments. The beneficiary must contribute at least 50%, the Member State 5% and FEOGA aid can be up to 25% and 30% in the case of projects in regions experiencing particular difficulty in adjusting to the conditions and economic consequences of the common agricultural policy.

Projects not forming part of approved programmes could receive a grant of up to 25% in 1978 and 1979, and up to 15% in 1980.

ii) Under 1852/78 which has run since 1978, funds are available for investment projects for:

- a) the development of inshore fishing in suitable regions;
- and b) the development of aquaculture in suitable regions;

where the projects consist in either (a) the construction or purchase of vessels of 40' - 80' or 25 - 130 GRT, or (b) the construction, purchase, equipping or modernisation of aquaculture facilities. Priority is given to projects in regions with particular difficulties in developing production and which improve market supply and/or employment and/or working conditions and/or diversification. The rate of EEC aid is 25%, with minimum required contributions by the beneficiary of 50%, and by the Member State of 5%.

An amendment in 1980, Regulation (EEC) No.1713/80, provides for aid for the modernisation or conversion of fishing vessels with

the aim of "rationalising fishing operations, better preserving catches or saving energy". Such work has to cost at least 65,000 ECU per project. The interim scheme has been renewed annually, in lieu of the introduction of longer term structural proposals, the last extension being for the year 1981.

Table A65 gives the total value of FEOGA grant-aid received for projects in Scotland under Regulation 17/64 and Regulation 1852/78. D.A.F.S. in September 1979 submitted to EEC a programme for improving processing and marketing of fish and fish products in Scotland, which was approved in 1980. Details of FEOGA grants received under Regulation 355/77 are shown in Table A66.

### Marketing policy

#### Outline of main features

The EEC's marketing policy has been rather more well-defined than its structural policy. Aiming "to encourage rational marketing.. and to ensure market stability" and thereby "to guarantee, as far as possible, a fair income to producers", it is concerned primarily with the marketing of domestically caught fish up to first hand sale (including exports), but also with ensuring that imports do not unduly disturb Community markets (at the same time considering the import needs of processors).

The main elements of the policy were initially laid out in Regulation (EEC) No.2140/70 of 20 October 1970, and subsequently restated in a slightly amended form, in Regulation (EEC) No.100/76 of 19 January 1976.

Apart from setting marketing standards for fish in terms of quality and presentation, the main thrust of marketing policy is diverted towards the maintenance of minimum prices for fish. The institution through which this is done is the producer organization (P.O.), established and run by vessel owners and/or fishermen. A P.O. maintains a minimum price for a grade or species of fish by operating either an "official" withdrawal price scheme (an OWP) or an autonomous withdrawal price scheme (an AWP).

Under both schemes, the members of a P.O. are obliged to offer the fish for sale, but if it fails to command the minimum price, the fish has to be withdrawn from the market and disposed of, e.g. by offer to a charity or use for fish meal. In the case of an OWP the price is set by the EEC and based on "guide" prices which are varied from year to year. Compensation for the fish withdrawn comes from Community funds. Where a PO operates an AWP for a grade or species of fish, this will normally involve setting a price higher than the OWP on the fish, which is of particular importance to the members of the PO. Compensation for the withdrawn fish has to be raised from among the members. POs can operate a mixture of OWPs and AWPs on different grades or species of fish.

A system of reference prices (R.Ps.), derived from guide prices, operates for imports of fish from third countries. If the entry price of imported fish is below the RP, then imports may be restricted or suspended or made subject to a counteracting charge.

Finally where EEC prices are higher than world prices and there are "economically important" exports to third countries, export refunds from Community funds may be made available to cover the difference between EEC prices and world prices

#### Community marketing policy in practice, with special reference to Northern Britain

##### 1. Producer organizations:

Marketing policy gives an important role to P.O.s, of which there are six currently operational in the area defined as "Northern Britain". They are all registered companies.

##### Scottish Fishermen's Organization

The S.F.O. was officially recognised by EEC in August 1974. Its economic area extends from Peterhead to Portpatrick (on the West Coast) inclusive and also covers the islands to the North and West. It received a formation grant of £96,000. At 31 December 1980 it had a total of 645 members. A breakdown of this membership by region is available for 1979:

	No. of vessels	Approximate % of vessels over 40 ft.
Clyde Area	105	80
Mallaig and North-West (excluding Clyde)	89	75
Moray Firth, East and North-East area	348	66
Shetland	63	91
Total	605	

In 1979 this membership covered 605 vessels. Members include both white fish, pelagic and prawn fishermen (in the following approximate percentages - 64%, 18% and 18%).

#### Aberdeen Fish Producers' Organization

This P.O. was set up to cater for all fishermen habitually using the port of Aberdeen. It received EEC recognition on 18 July 1974 and received a formation grant of £21,000.

Membership in its first year covered approximately 115 vessels of which 100 or so were trawlers, about a dozen seiners and 2 or 3 liners. These were all regular Aberdeen based vessels, except for the liners which were from Fife.

The decline of deep sea trawling opportunities after 1975 and the resultant shrinking of the deep sea fleet are reflected in the changes in the P.O.'s membership. Today the P.O. has 56 members representing all the Aberdeen based vessels. The P.O. accounts for approximately two-thirds of the weight and value of landings in Aberdeen. The remainder is landed by 35-40 seiners of under 80 ft., based in the North or in Fife or the Firth of Forth (Kirkcaldy registered), but regularly landing in Aberdeen. While more seiners than trawlers use the port today, the latter probably account for the larger proportion of the catch.



### Anglo-Scottish Fish Producers' Organization

Since its inception seven years ago, membership of the P.O., even with some resignations, has slowly increased to a figure of 252, with over 80% being vessels of 40 to 80 ft., at 31 December 1980. This represents approximately 80% of all vessels over 40 ft in the P.O.'s economic area which extends from Whitby in North-East England to Gourdon on the East Coast of Scotland. In 1979, members accounted for the following percentages of landings in the area:

	Demersal	Pelagic	Prawns and Shrimps	Other Shellfish	Total
By Quantity	76.52%	44.09%	59.39%	14.38%	63.01%
By Value	76.51%	43.87%	59.39%	14.38%	68.93%

### Scarborough and Bridlington Fish Producers' Organization

When it was officially recognised (14 April 1977) membership consisted of 34 vessels at Scarborough (all over 40ft) and 36 at Bridlington (8 under 40ft). Since then, membership has grown to include vessels based much further South, in the ports of King's Lynn, Lowestoft, Great Yarmouth and Southwold (22, 38, 3 and 2 vessels respectively). Current membership in the ports within Northern Britain is indicated below:

	P.O. MEMBERS			NON-P.O. MEMBERS		
	<40ft	>40ft	Total	<40ft	>40ft	Total
Scarborough	33	13	46	33	25	58
Bridlington	31	17	48	32	17	49
Filey	-	6	6	-	16	16

All the member vessels of over 40 ft., are less than 80 ft.

### Fife Fish Producers' Organization

This PO was recognized by the EEC on 1 May 1980 and received a formation grant of £11,000. It was formed by a group of Fife based fishermen who had earlier left the Anglo-Scottish PO as a result of internal conflicts over issues such as prices and levies.

Membership covers 53 vessels, all but one fishing regularly out of Pittenweem and having a "KY" registration. Only perhaps 3 vessels, which land regularly at Pittenweem, are not members.

### North East Fish Producers' Organization

The N.E.F.P.O. has about 90 members. Its economic area extends from Peterhead to the Cromarty Firth. 60% of the members land in Peterhead/Fraserburgh all year round, while the others will exploit seasonal fisheries in the Moray Firth, the West Coast and South-West grounds. About 25-30 members exploit the West Coast nephrops fishery in the late spring/summer (fishing for white fish the rest of the year) and may also fish for North Sea shrimps (sp. pandalus). 99% of the member vessels are over 40ft (a few being just below) and most of these are above 55ft. Of all vessels landing in Peterhead, the members account for about 20-22%. The rest are largely S.F.O. members or non-P.O. members with a few Fife F.P.O., Anglo-Scottish F.P.O. and occasionally Scarborough-Vridlington F.P.O. vessels also landing.

### Official and Autonomous Withdrawal Prices

P.O.s in North Britain have variously adopted O.W.P.s and A.W.P.s over the years. The adoption of A.W.P.s has been a relatively recent phenomenon, prompted by the collapse of prices since 1978. They have most consistently been operated on top quality, larger size fish, particularly haddock, cod and whiting. In 1979, A.W.P.s were on average some 50% higher than the corresponding O.W.P.s and the same appeared true of 1980.

P.O.s face a dilemma over the adoption of A.W.P.s or O.W.P.s. A.W.P.s give a higher price, but are more costly to sustain, for more compensation has to be paid for each fish withdrawn and funds have normally to be raised from members usually by means of a species support levy. A.W.P.s were most widely adopted in 1980 when the UK government

made money available for market support, while 1981 has seen a return to OWPs, because POs cannot meet the cost of operating AWP's without continued state support.

POs operating OWPs are eligible for compensation out of F.E.O.G.A. money. The rate of official compensation (net) is currently about 60-65% of the withdrawal price. Some POs "top up" the official compensation out of their own funds - up to 100% in some cases. Compensation on withdrawals under AWP's varies between POs from 75% to 100%. However, both the extent of topping-up and of autonomous compensation may be varied by a PO according to market conditions and the state of the POs finances.

Regional withdrawal prices (i.e. lower prices applicable in certain specific areas of the community) currently exist for mackerel in Scotland from Portpatrick in the south-west to Peterhead in the north-east and the islands to the north and west of Scotland, and for hake in Scotland from Portpatrick to Wick and the islands to the north and west of Scotland.

OWPs have in general been increased from year to year. The overall annual percentage increases in the UK were approximately:

1976/5	12%	1979/8	9%
1977/6	7%		
1978/7	10%		

These figures take into account all devaluations of the green pound.

#### Scottish Fishermen's Organization

OWPs were adopted on all species up until 1979 when a mixture of OWPs and AWP's on haddock, cod, whiting, saithe and mackerel were introduced. In 1980, the S.F.O. was fully autonomous on cod, while for haddock, whiting and plaice a mixed set of official and autonomous prices was adopted. Currently, in 1981, the PO is operating OWPs on all designated species.

Aberdeen F.P.O.

The AFPO initially adopted OWPs on all eligible species and grades. However, since 1978, AWP s on cod, haddock, whiting, saithe and plaice have been variously adopted. In 1980, the AFPO was fully autonomous in cod, haddock, whiting, saithe and plaice. In 1981, only cod is fully autonomous.

Anglo-Scottish F.P.O.

Until 1978, the A.S.F.P.O. operated OWPs on all designated species. Between 1978 and 1980 AWP s were adopted for an increasing number of grades and species of fish. This policy was reversed in 1981 when AWP s were adopted for a reduced number of categories, namely top quality gutted cod of all size grades, haddock of grades 1 to 3 and whiting of grades 1 and 2. OWPs applied to all other categories.

Scarborough-Bridlington F.P.O.

This PO operated AWP s on "designated species" until 31 December 1980. OWPs have been adopted for these species in 1981. For other, non-designated species, the PO has continued to operate autonomous schemes. Species covered in 1981 include lemon sole, monkfish, catfish, ling, sprats, dover sole, turbot, brill and dogfish.

Fife F.P.O.

AWP s on cod, haddock, whiting, saithe and plaice were operated from April to December 1980. In 1981 the FFPO has opted for OWPs on all designated species and all grades.

North-East F.P.O.

The NEFPO has operated OWPs on all designated species since its inception although it was unable to claim FEOGA compensation until 1981, as it was only officially recognised by the EEC in August 1980.

In 1980, a sum of £1.06m was distributed amongst POs in Northern Britain by the UK government. The bulk of this grant-aid was specifically intended for market support: effectively, 80% of the value of withdrawals in any month could be financed from the POs allocated grant, with 20% being contributed by the PO itself. This scheme ran from April to September inclusive and enabled all POs to finance their various autonomous schemes during this period. Some POs in this period even expanded the range of their AWPs and/or raised the levels of existing AWPs in view of the availability of these funds.

The composition of withdrawals varies from PO to PO. Overall, the main species withdrawn are mackerel and small haddock, whiting and cod. Mackerel withdrawals are particularly significant in the SFO's and NEFPO's economic areas, and at certain times of the year only. White fish make up the bulk of the other POs' withdrawals.

#### Tariffs

Since 1977 there have been various tariff concessions on fish products imported from third countries. These have arisen because of the need of processors to obtain certain varieties of fish which are scarce within the Community e.g. herring, and tariff rates have from time to time been reduced on demersal fish for processing. Tariffs have also been reduced as a result of longer term agreements between the EEC and Iceland, the Faroes and Norway, while under the Tokyo Round of GATT talks, the EEC takes certain quantities of white fish at reduced tariffs: this affects mostly the import of cod from Canada.

#### Reference Prices

The suspension of low-priced imports as a result of the reference price scheme has had little effect on Northern Britain since it applied to species which are either unimportant or irrelevant. The one exception was the suspension of frozen, chilled or fresh cod in 1976.

#### Export refunds

Since 1975 export refunds have been available on a varying list of species. Data are not available for Northern Britain since refunds are paid directly to firms by the Intervention Board and these are considered confidential.

SECTION 2 - Analysis of the Structure of the Fishing Industry

## 2.1 INTRODUCTION

### The general scene

#### Constraints affecting the Northern British fishing industry over the last decade

The fishing sector in Northern Britain has operated subject to many constraints in the past decade. At the end of the decade the resource base was narrower than at the outset and the mix of species caught had changed. This can be attributed to three factors.

First, there is excess capacity in whichever way one looks at it, whether physical or in terms of profit, in the fleets of Western Europe which meant that species were overfished in what were international waters prior to 1977. This had made necessary the introduction of Total Allowable Catches from which in the British case have been worked out catch quotas for vessels on a catch per man per day basis for the main species. Indeed in the case of herring there was a total ban from 1977 until the end of the decade.

Secondly, as a result of the creation of exclusive economic zones by a number of coastal states in the North Atlantic in 1977, Northern British vessels have found themselves excluded from or with only restricted access to important demersal fishery grounds in the waters around Faroe, Iceland and Norway.

Thirdly, because of the UK's membership of the EEC the UK has had to share with other EEC members the waters of her exclusive economic zone, which by themselves would have been adequate to sustain the UK fleet with the exception of deep water vessels.

As well as seeing a declining resource base, the Northern British fleet has been subject to other difficulties. Given the uncertainty associated with fishing in the absence of an agreed EEC policy, the excess capacity in the industry and the lack of profitability, there has been little new investment in the industry, so that by the end of the decade the fleet was older than at the beginning. There have been a few notable exceptions, e.g. purse seiners, which have had difficulty in getting access to resources to generate the earnings to service the

debts incurred in their construction. The fleet had also been afflicted by rising costs for its inputs. The most significant has been the rising cost of fuel and products derived from oil, like nets etc., but the fleet has also suffered from the general high level of UK inflation.

The industry has also been selling in a UK market which has been contracting over the decade, especially for wet fish. This may be due to the bad consumer image which fish has, but is also no doubt partly due to the relative rise in the price of fish in relation to its major competitors such as meat. The latter years of the decade also witnessed a changing pattern in international trade in fish. With the advent of exclusive economic zones, some countries e.g. the USA, became more self-sufficient, so that their former suppliers, e.g. Canada, Iceland, Norway etc., have had to look elsewhere for markets, a tendency reinforced by a low parity for the \$ until 1981. UK producers thus found themselves in stiffer competition with these countries as well as with other members of the EEC.

The difficulties of markets and competition were compounded from summer 1979 to summer 1981 by the sharp rise in the value of sterling, which resulted partly from sterling's status as a petro-currency and partly from a policy of high interest rates pursued by the UK government. This increased the difficulties of exporting for UK producers and encouraged imports. The divergence between the foreign exchange value of the £ and the green pound rate made it profitable for other EEC members to sell their fish in the UK at the withdrawal price and still make a profit. High interest rates also made it difficult for processors to hold stocks until markets improved. UK prices collapsed and led to two strikes in August 1980 and February 1981 by Northern British fishermen, in that they refused to go to sea. The general economic recession in Europe in 1980-81 has also caused a sharp decline in the demand for high value fish products like shellfish.

The Northern British fishing industry has also suffered from a lack of liaison if not open conflict between its different sections. Catchers and processors have been in conflict over imports of "raw" fish. To be competitive processors have naturally wished to buy the cheapest possible supplies, which have often been imported fish. These imports,



in turn, have tended to keep down quayside prices, which have depressed the earnings of catchers. At other times both catcher and processor have suffered from imports of frozen fillets. The non-availability of some species e.g. herring, made imports essential, if the taste for the product was to be maintained. The loss of some species and their replacement by others (mackerel for herring) had a greater impact on processing facilities than on catching facilities. The 1981 reopening of the West Coast of Scotland herring fisheries has found a shortage of processing capacity and of a market for human consumption.

There is also a latent dispute between the nomadic fleets of the East Coast and the sedentary fleets of the Highlands and Islands, the outward manifestation of which is seen in the proposals for fishing plans to give preference to the sedentary fleets of the Highlands and Islands. The static gear fishermen (mainly shellfish and salmon catchers) are also at odds with inshore fishermen, whose activities often damage the static gear.

North Sea oil, in addition to its indirect effects on the industry via the exchange rate for the £, has also had some direct effects by removing some fishing grounds, causing damage to gear and by raising the costs of inputs to the fishing industry.

Finally UK national policy towards fishing has in the absence of EEC agreement also been ad hoc in nature, so that fishermen are unsure of the framework within which they operate.

#### Strategies adopted by Northern British fishing industry

Faced with a declining resource base, the loss of a whole species (herring) and exclusion from distant water demersal grounds and restricted access to Norwegian grounds, the Northern British fleet has developed a new pattern of fishing effort. Cod landings are down over the decade because of the loss of grounds, while haddock landings have fallen, because of a declining resource base. In demersal fishing more effort has been devoted to the capture of whiting, while in pelagic species with the ban on herring fishing after 1977, mackerel has taken

not only the role of first pelagic species by volume but also that of the largest species of all kinds by volume.

Despite declining volumes of landings from 1973 onwards the price of fish rose sufficiently to increase money earnings, though not always real earnings, in all years apart from 1975, 1979 and 1980. The costs of inputs were rising even faster than the earnings so that the pressure on profits led fishermen to refuse to go to sea in the late summer of 1980 and in February 1981. In response to the fishermen's pleas and in the absence of an agreed EEC policy the UK government dispensed aid to the industry in autumn 1980 and spring 1981 to tide the fleet over its difficulties. The response of the government represents an ad hoc policy to deal with temporary difficulties rather than the considered execution of long-run strategy, for to the extent that the government has a policy towards the fleet, as prosecuted by agencies such as the WFA and HIB and their successor, the SFIA, it is to contain the fleet rather than to allow for an expansion. The justification for government policy is that it is difficult to pursue coherent re-structuring, as it does not wish to pre-empt any EEC initiative in this area.

Both the government and the fishing industry have positively supported EEC and NEAFC measures to conserve species, though at times the industry has been at odds with the government, for instance over the need for a limited opening of the herring fishery in 1981. As well as agreeing to the international measures the UK government has taken conservation measures on its own initiative e.g. the pout box, in which it has had the support of the industry.

In the negotiations over the Common Fisheries Policy the catching side of the industry has as its objectives a 12 mile limit exclusive to UK vessels, conservation measures to be determined by the local state between the 12 mile limit and the median line and quotas of at least 45% for most species of fish. The UK government is pressing for an exclusive 12 mile zone and a substantial area of preference beyond 12 miles. Fish dependent communities on the periphery of Northern Britain have taken advantage of the Commission's proposals on fishing plans to argue for their introduction in their areas.

1981 has seen a variety of initiatives additional to the "strike" on the part of catchers. They have argued for the price of fuel to be subsidised, since fuel is subsidised for many competitors. The five POs in Scotland have pressed the government for money to finance a national minimum prices scheme for Scotland and the Scottish Fishermen's Federation has lent its support to the banning of vessels of more than 80 feet from demersal fish catching in certain areas around the UK.

1981 has also seen some dialogue between processors interested in steady supplies of fish and catchers interested in stability of prices. In summer 1981 two processors organizations made representation to the government for aid; the Herring Buyers Association is seeking aid to rebuild capacity for herring processing, which has almost disappeared since 1977 along with the supplies of herring, while the Aberdeen Fish Curers' and Merchants' Association is seeking aid for the processing industry in North East Scotland.

The constraints and strategies, which have been operative in the Northern British fishing sector, will be the subject of further discussion in the following sections.

#### Resources - Trends in North British landings, 1970-1980

The catches of individual species over the 1970s have been subject to an involved and interrelated series of factors such as the recruitment of good or bad year-classes to the fishery, loss of grounds, escalating costs after 1973, improved fishing techniques, changed fishing patterns after the advent of exclusive economic zones in 1977, quotas based on recommended total allowable catches and a variety of conservation measures.

#### Demersal landings

In the early seventies, demersal catches were made primarily in the North Sea and the high landings of the period were due to exceptionally good year-classes of fish. The decline which started in

1972/3 reflected the high level of international effort and the fishing out of the prolific year classes. To the lower recruitment levels of the early to mid seventies was added the problem of escalating operating costs, particularly for fuel which caused some decline in the deep sea fleet.

In contrast to the declining volumes of edible demersals being landed, the catches of industrial species increased. Until 1975 they were Norway pout catches, but in 1975 a sandeel fishery was developed mainly in Shetland waters.

In 1976 the volume of all major demersal fish landed increased due to better catch rates because of improved recruitment. Good quayside prices also helped to relieve the cost squeeze on catchers of the two previous years.

Demersal landings declined from 1977 to 1979. This resulted from the progressive loss of access to traditional grounds like the Faroes, Iceland and Norwegian waters resulting from the shift to the 200 mile limit and from the overfished condition of stocks in the North Sea and off the West Coast of Scotland. The latter phenomenon had come about as a result of excessive fishing effort and improved techniques over ten to fifteen years, which regularly saw the NEAFC agreed TACs, themselves the subject of upward inflation as a result of political compromise, being grossly exceeded.

In 1978 ICES recommended gradual reductions in mortality rates on cod, haddock and whiting (10% per annum) and on saithe and set appropriate TACs (see Tables A67 and A68) although EEC countries did not agree on TACs until 1980 and still cannot agree on their allocation among member states, the UK authorities in setting quotas for vessels for several species of fish on a weight of catch per man per day basis have been guided by TACs and their view of the UK's share of past catches of the species, so that British catches have tended to reflect the TAC levels.

The nature of industrial fishing has also changed as a result of the concern of scientists at ICES about the excessive by-catch of edible demersal fish in industrial small-mesh industrial fisheries. This has led to restrictions on industrial fishing in the pout box and on permitted by-catches of edible species, so that effort has been diverted from pout to sandeels.

### Pelagic landings

The increasing volumes of pelagic fish landed up to 1973 were largely a result of greater catches of herring off the West Coast and in the North Sea attributable in the main to more efficient fishing methods such as pair trawlers and purse seiners. The decline in pelagic landings in 1974 and 1975 was due primarily to a marked fall off in herring landings from the North Sea because of the overfishing there, which had followed the transfer of effort after the rundown of the Atlanto-Scandian herring stock in the late '60s. Heavier industrial fishing also resulted in the catch of immature herring. Declining herring stocks led to the settings of TACs for the North Sea and West Coast catches in 1974 and 1975 and the consequent imposition of quotas for British vessels.

Pelagic landings rose in 1976 despite the continued decline in herring landings, where the reduced stocks rather than the quotas were the effective constraint. The increased landings of mackerel offset the fall in herring. Excess pelagic fishing capacity, keen export markets in France, Holland and Germany and the advent of klondyking all contributed to the growth of mackerel landings. Mackerel landings continued to increase dramatically in 1977 and 1978. The eastern (North Sea) mackerel stock began to come under pressure with TACs being recommended since 1977, and the UK adopted a restrictive licensing scheme for the implementation of her quota. Effort was then transferred to the Western mackerel stock, where TACs had also been recommended by ICES since 1975. The UK operates a restrictive licensing scheme for this fishery too.

In 1979 pelagic landings fell. With only the Clyde fishery open for herring and with mackerel landings constrained to about their 1978 level by restrictive licensing, a sharp drop in sprat landings, because of the inherent biological instability of the stocks, caused overall pelagic landings to drop. Tables A69, A70 and A71 give details of the recommended TACs and actual catches for the North Sea mackerel stock, the Western mackerel stock and for sprats.

### Shellfish Landings

Shellfish landings in Northern Britain have generally been increasing steadily over the decade, as a result of the application of

more effort, some diverted from other overfished species so that, for instance, more full-time vessels began exploiting nephrops. In nephrops fishing there appears to be evidence of overfishing in the Clyde Estuary and the Sound of Jura, though in the Minches there is no apparent evidence of overfishing. The higher lobster catches of the late seventies compared to earlier in the decade appear to have resulted from increased effort. In the case of crabs, trends appear to reflect marketing conditions and effort applied rather than the state of the stocks.

### Short term and long term resource prospects

While it is not possible to estimate long run yields of sprats and mackerel, and considerable doubt remains about the speed of recovery of herring in the North Sea, the estimated long run yields of the major species, which would follow from the adoption of conservation measures, suggest that there are the physical resources to sustain a prosperous fishing industry in Northern Britain in the medium term.

### North Sea

#### 1 Demersal Stocks

##### Cod

In 1979 84% of the Scottish catch of cod came from the North Sea, where the Scottish catch accounted for 19% of the total cod catch.

In the short term stocks are expected to decline as the strong 1976 year class becomes progressively fished out and the more recent broods, of lower yield, recruit to the adult stock. Indeed, the possibility exists that recruitment may return to its pre-sixties level. The TACs recommended for 1980 and for the current year, 1981, are therefore lower, and aim to reduce F by 20%. Adherence to TACs in the future, together with the adoption and effective enforcement of technical conservation measures, particularly the 90mm minimum mesh size, are expected to enable a long term yield of 300,000 tonnes to be achieved. For comparison it may be noted that the 1980 agreed TAC was 200,000 tonnes.

##### Haddock

In 1979 86% of the Scottish haddock catch came from the North Sea and represented 64% of the total haddock catch in these waters.

Short term prospects appear bright. The year classes of 1977 and 1978 were about average and the 1979 brood was above average. By 1980, the already improved recruitment rate had brought the spawning stock back up to its early 70's level. As the stock improves, reductions in the still

excessive F, crucial for long term improvement in yields, can be achieved with higher TACs. Thus, in July 1980, the TAC for that year was revised upwards and that for 1981 further increased, though still aiming for a 10% reduction in the mortality rate. A long term yield of 90-95,000 tonnes is expected. The agreed TAC for 1980 was 69,000 tonnes.

#### Whiting

81% of the 1979 Scottish whiting catch came from the North Sea and accounted for 34% of the catch of the species.

The stock biomass currently presents no cause for concern. The 1981 TAC is set at the same level as the revised TAC for 1980, and envisages a 10% cutback in F. Further conservation measures, are expected to increase the long term yield to 180,000 metric tonnes within 2 to 3 years, compared with a revised, agreed 1980 TAC of 150,000 tonnes.

#### Saithe

70% of the Scottish catch of saithe in 1979 came from the North Sea and accounted for 7% of the saithe catch.

In response to the recent stock decline evidenced by poor catch rates, the TAC recommended for 1980 was some 30% below the previous years. That for 1981 is set at a similar level and incorporates a cutback of 14% in the mortality rate. Further reductions in mortality will be required, and TAC's are likely to remain smaller for the immediate future. The long term yield is estimated at 190-200,000 tonnes, compared with a 1980 agreed TAC of 129,000.

#### Conservation Measures and Demersal Stocks

In its 1980 report, ACFM concludes that little progress has been made in improving mortality rates. It suggests three main reasons for this:



- (1) Lack of adequate enforcement of TACs: this is evidenced by those cases where the TAC has been seriously exceeded (e.g. North Sea cod, West Coast cod and haddock). In the case of cod, a dangerously low stock situation has developed as a result, while western haddock stocks have been saved to some extent by the timely occurrence of some good year-classes.
- (2) Often landings are poor indicators of catches, given the occurrence of large-scale discards. Thus, the accuracy of assessments on which TACs are based is impaired. It was estimated that in 1980 discards of North Sea haddock and whiting would amount to more than half the expected landings, and are likely to be considerable in many other fisheries as well. Moreover, discards, being largely small fish, tend to aggravate losses in long term yields. ACFM consider that "an increase in mesh sizes of 5mm in the North Sea would not be expected to have any appreciable effect" (on reducing the present incentives to discard). "An increase to 90mm, as advocated... for several years, would be expected to reduce the problem to a rather low level". ACFM are therefore disappointed that little progress has been made in putting their advice into practice.
- (3) Over-optimistic estimates of the TAC which could be taken at given mortality rates (e.g. saithe).

Finally, ACFM has come to the following conclusions relating to the effectiveness of the "pout box" restriction in improving yields of haddock and whiting:

"It would seem quite clear that any restrictions on the Norway pout fishery, either by box closures or by effort reduction, will produce little gain to the human consumption landings commensurate to the loss of industrial catch, if the fisheries for these species continue to operate with the current minimum mesh sizes. In that situation any reduction in the by-catch of the Norway pout fishery will be largely dissipated by an increase in the discard rates by the human consumption fishery, with little gain in its landings. On the other hand, the effects of box or effort restrictions on the Norway pout fishery, coupled with an increase in the mesh size of the human fishery, can result in real gains in the yields of haddock and whiting." (1)

## 2 Pelagic stocks

### Herring

Herring stocks have been slow to recover, particularly in the middle North Sea where there has been no new recruitment and indeed, no signs of recovery. In the extreme south, where there is a separate population, the situation is brighter, with stocks recovering well in 1980.<sup>1</sup> However, the general hesitancy of recovery has been in part because the spawning stock has been reduced to critically low levels, in part because substantial quantities of juvenile herring continued to be caught in industrial fisheries, and in part, it has been suggested, because there may have been an ecological change in the North Sea, the new balance featuring smaller herring stocks, their "ecological niche" having been filled by stocks of Norway pout, sandeel and sprat.<sup>2</sup>

Thus in May 1980, ICES recommended the continuation of the North Sea herring ban in 1980, and has since extended it for 1981 also. ICES also suggested that allowable by-catches of herring in sprat fisheries be reduced to 3% and that monitoring of by-catches be intensified. At present by-catches (mostly taken in the Danish, and to a lesser extent the British industrial sprat fisheries) are in some areas, on average 10%, with evidence suggesting that "highest by-catches are taken in areas well known as nursery areas for herring". A.C.F.M. conclude that "the present fishing mortalities generated on juvenile herring by sprat fisheries are unacceptably high".<sup>3</sup> Should the various North Sea stocks thus be allowed to rebuild, a long term annual sustainable yield of 700-800,000 tonnes could be achieved.

Attitudes towards re-opening the fishery vary - biologists preferring to wait until stocks have fully recovered. It has been argued however, that the fishery should be re-opened

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1 Verbal information from Mr. A. Saville, Torry Marine Laboratory.

2 Verbal information from Mr. A. Saville presented in "The Fisheries in the Shetland area" by J.R. Coull, J.H. Goodlad and G.T. Sheves.

3 A.C.F.M. Report 1980.

before full recovery is achieved, on the grounds that "if 700,000 or more tonnes of herring were taken in any one year, human consumption markets would be flooded and much of the catches would be sold for reduction, bearing in mind also that the overfished west coast of Scotland and Atlanto-Scandian stocks are also recovering and significant quantities of Canadian herring are now being imported into Europe."<sup>1</sup> ICES has adopted a cautious attitude, but is likely to recommend a gradual resumption of fishing, strictly controlled by TACs, beginning perhaps in 1982 with the reopening of the north North Sea fishery on a low TAC.<sup>2</sup> The decision, however, is the EEC's.

#### Mackerel

The spawning stock biomass of the eastern mackerel stock has fallen to a critically low level. ICES recommended a ban on fishing in 1980, but with the proviso that if this proved politically unacceptable, the catch should not exceed 50,000 tonnes. Recent evidence points to a still declining spawning stock and suggests that the 1977 year-class is very weak. Improved recruitment is not therefore apparent and recommendations for 1981 are similar to those for 1980.

As recruitment to the mackerel fishery is highly variable, predictions of long term yield are not possible, as these assume stable recruitment. 5% of the Scottish mackerel catch was taken from North Sea waters and represented 4% of the total catch.

#### Sprats

Due to the inherent biological instability in sprat stocks, it is not possible to estimate potential future yields.

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- 1 W.F.A. Report on "The Fisheries in the Highland Region. A Study in Conservation and Development."
  - 2 Verbal information from Mr. Saville, Torry Marine Laboratory.

### Conservation and pelagic stocks

Mackerel TAC's in the North Sea have been exceeded every year although catches have declined, particularly in 1978. Moreover, the attempt to shift effort to the western stock failed, with only 20% of the 1979 catch being taken from this stock. Conservation measures have thus achieved little, if any, improvement and the spawning stock continues to decline.

### West of Scotland

#### 1) Demersal Stocks

Although catches have declined since TACs were initially recommended in 1976, they have still exceeded these TACs, quite considerably in some cases. Thus, by July 1980, mortality rates were still well above  $F_{max}$ .

Cod 13% of the Scottish catch in 1979 came from West Coast waters, with Scotland taking 43% of the catch. It was estimated that if  $F$  remained at its current level in 1980, spawning stock biomass would decline, reaching half its 1979 level by January 1982. Thus, the TAC recommended for 1981 of 9,500 tonnes envisaged a 20% reduction in  $F$  from the 1979 level, bringing spawning stock size to its long term average in 1982. The estimated long term yield is about 12,500-13,400 tonnes.

Haddock 12% of the Scottish haddock catch comes from these waters and represents 51% of the total. A 10% reduction of 1980 fishing mortality is required to achieve the 1981 TAC of 15,500 tonnes. The recent increases in haddock TACs have been feasible due to upward revisions in  $F_{max}$  because of changes in the exploitation pattern. The long term yield potential is estimated to be at about the level of the 1979/80 TACs i.e. between 8,400 and 9,200 tonnes.

Whiting 19% of the Scottish whiting catch comes from West Coast waters and represents 65% of the total whiting catch. Improved stock

conditions have meant that TACs could be increased, at the same time permitting greater reductions in F. Thus, the 1981 TAC of 14,000 tonnes is based on a 10% reduction in F bringing F to 27% less than in 1979. These measures should result in long term average yields of about 10-11,000 tonnes.

#### Saithe

24% of the Scottish saithe catch comes from West Coast waters and represents 17% of the total catch. This stock does not appear to have been seriously over-exploited in the past. The estimated long term potential is thought to be just under the 1978 catch (approximately 30,000 tonnes); the 1981 TAC is 27,000 tonnes. It is not felt that any improvement in the exploitation pattern will significantly improve the long term yield. The proposed increase in minimum mesh size is not thought likely to have much effect on the exploitation pattern.

#### Other Demersal

Ling and dogfish are the only other two species caught in any significant quantity and they are usually taken as by-catches. Little is known of the abundance of these stocks, and future yields have not been estimated. They are unlikely to come under direct management measures, although yields may be to some extent affected by measures introduced for the major species.

### 2) Pelagic stocks

#### Herring

In its 1980 report, A.C.F.M. advised continuation of the ban in 1980 and stated that "it would be premature to make any prediction of the prospects of a limited re-opening of these herring fisheries during 1981". However, it is now apparent that the stock has recovered considerably and is very nearly back at its 1960-76 mean level. As a result a limited fishery with a TAC of 65,000 tonnes was opened in July 1981. A carefully

monitored resumption of the fishery could allow annual yields of around 125,000 tonnes to be achieved once the stock is stabilised, perhaps by 1983 or 1984.<sup>1</sup> These results would also depend on there being stricter control over by-catches and some effort to reduce discards of undersized herring, induced by TAC controls and minimum landing size regulations - perhaps, as suggested by ACFM by closing certain areas during periods when catches of these small fish are high.

### Mackerel

TACs have been greatly exceeded in all years, but strong year classes prevented any deterioration in stock size up until 1978. Between 1978 and 1980, however, there is evidence of a considerable reduction in stock size, due to a weak 1977 year class and an overshoot TAC. The mortality rates for 1979 and 1980 are expected to have been well above  $F_{max}$ . Nevertheless, the stocks are not yet considered to be in serious danger of collapse, but adherence to the 1981 TAC requiring fishing mortality to be restricted to the  $F_{max}$  level, is strongly urged by ACFM.

### Sprats

No estimates of future yields have been made. It does not appear likely, however, that catches could significantly increase to a level such as that of the North Sea catch. On a smaller scale, in the Clyde Fishermen's Association Fisheries Plan for the Clyde Estuary and the West of Scotland, it is estimated that "the catch could be increased considerably, to an average sustainable yield of the order of 15,000 tonnes". It is recognised that this might aggravate the problem of by-catches of juvenile herring. The Clyde sprat resource is estimated to be relatively small, and little is known about the stock's distribution. Moreover, a Clyde sprat fishery would incur a serious herring by-catch problem.

## 3) Shellfish stocks

### Nephrops

It has been estimated that "the current exploitation rate is close to the optimum" and that stocks "can sustain a

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<sup>1</sup> Verbal information from Mr. A. Saville, Torry Marine Laboratory.

fishery of about the average of the past few years provided that prescribed conservation measures (70mm minimum mesh size and a minimum landing size) are observed".<sup>1</sup> Recruitment in 1979 was at a good level, so that immediate prospects are fairly bright. In the Clyde, where over-fishing has reduced the yield and mean size of the population, it is suggested that a reduction in fishing effort and an increase in mesh size would bring some improvement in yield.

### Lobsters

The Western Isles Report<sup>2</sup> points out that "although there is considerable concern at the level of exploitation, the size composition of the catch is not discouraging. Because of the changing nature of the fishery, the overall catch per unit effort data are difficult to interpret but the catch is maintained at a high level, particularly in comparison with other parts of the country". However, in the Highland Report,<sup>3</sup> it is estimated that "prospects for expansion of the Highland fishery do not appear to be good". On the West Coast of the Western Isles, exposure and long-distances to grounds are prohibitive to greater prosecution, and "efforts to encourage the use of larger boats have invariably not proved to be worthwhile".<sup>4</sup> Yields could perhaps be increased by a small increase in the minimum landing size to 85mm carapace length.

### Crabs

There is general consensus that West Coast crab stocks are currently underexploited and offer considerable prospects for expansion. Thus, in the Highland Report, "it seems certain that if the marketing problems could be solved and greater fishing effort was employed, catches could be increased perhaps two to three times".

Other Shellfish Stocks of periwinkles, cockles and mussels appear to be abundant along the West Coast. Crawfish stocks to the

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- 1 Clyde Fishermen's Association; Fisheries Plan for the Clyde Estuary and the West of Scotland.
  - 2 White Fish Authority Report "The Fisheries in the Western Isles Area: A Study in Conservation and Development". 1980.
  - 3 White Fish Authority Report on "The Fisheries in the Highlands Region: A Study in Conservation and Development". 1980.
  - 4 White Fish Authority Report on "The Fisheries in the Western Isles Area: A Study in Conservation and Development". 1980.

west of the Hebrides may also be sufficiently abundant to support a commercial tangle-net fishery. Currently, scallop beds in the Minches are exploited by divers. Should commercial dredging commence, annual sustainable yields could be greatly increased - and more queen scallops would also be caught.

#### Other Fish

Squids occur all around North-West Scotland and could perhaps sustain a commercial fishery during periods of special abundance.

#### Aquaculture

The section on aquaculture in part 1 gave details of the growth in the output of salmon and trout in Northern Britain in recent years.

In the case of trout in Scotland over the next few years it would appear that there will be little increase in production for two reasons. On the demand side the market appears stagnant in the face of a depressed UK economy, while on the supply side most farms appear to be working near capacity, and the number of new farms added each year, since 1978 has been declining.

On the other hand the outlook for salmon on the supply side at least is extremely good. The constraint in recent years has been an inadequate supply of smolt. Smolt production in 1980 was 1,418,000 compared with 834,000 in 1979, an increase of 70%. While there are no published figures relating smolt numbers to salmon tonnage, Munro and Waddell in their 1981 report on The Growth of Scottish Salmon and Trout Farming, 1969-1980 (DAFS Marine Laboratory, Aberdeen) suggest that the 1979 numbers could result in a salmon tonnage of some 1000-1500 tonnes in 1981 and 1700-2500 tonnes in 1982. Salmon tonnage in 1980, it may be recalled, was 598 tonnes. Beyond 1982 the expansion may be even more dramatic since capacity for smolt production built or under production is some 2 or 3 times the 1980 capacity. Once again it is possible that the market could act as a constraint as is currently the case with trout.



## Resource Management policy

### Fishing plans

The draft resolution of the Council on the introduction of fishing plans in 1978 has been used by fishermen's associations or regional councils to promote fishing plans for their areas of interest. The plans have appeared in studies in conservation and development of fisheries. There have been such studies for Shetland, Orkney, Western Isles and the Highland Region.<sup>1</sup> The studies on Shetland and Orkney led subsequently to proposals for a fisheries management scheme in the Orkney and Shetland area agreed by the two islands councils.<sup>2</sup> The one plan which has openly called itself a plan is that produced by the Clyde Fishermen's Association and Mallaig and North-West Fishermen's Association.<sup>3</sup>

These proposals can be seen as a strategy to improve the relative position of fishermen in these areas, which have a high dependence on fish, little alternative employment and, typically, rates of unemployment much above the Scottish and UK average. They have been regarded with some suspicion by national fishery organizations like the Scottish Fishing Federation, which would prefer to see management schemes for fisheries rather than for regions, and by fishermen of the nomadic (East Coast) fleets, who fear exclusion from these grounds.

The regions are on the whole heavily fish-dependent, though none would approach the dependency rates in Fraserburgh where over thirty per cent of the working population is directly connected with the fishing industry. At one time (1971) fishing provided 28% of employment in

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- 1 The Fisheries in the Shetland Area: A Study in Conservation and Development. Department of Geography, University of Aberdeen 1979. The Fisheries of the Orkney Area: A Study in Conservation and Development. Department of Geography, University of Aberdeen 1979. The Fisheries in the Western Isles Area: A Study in Conservation and Development, WFA 1980. The Fisheries in the Highland Region: A Study in Conservation and Development, WFA 1980.
  - 2 Proposals for a Fisheries Management Scheme in the Orkney and Shetland Areas. Orkney Island Council and Shetland Islands Council 1980.
  - 3 Proposals for a Fisheries Plan for the Clyde Estuary and the West of Scotland. Clyde Fishermen's Association and North-West Fishermen's Association 1980.

Shetland and 25% of income. Because of oil related activities employment provided by fishing in Shetland fell to 18% by 1976 and income generated in fishing amounted to 14% of the total. However, the peak in oil related activities in Shetland is over. It is estimated that the number of jobs in Shetland will decline by 1400-1800 over the next few years as a result of the run-down of work at the Sullom Voe oil terminal and reductions in air services, road and sea transport, quarrying and in non-oil construction.<sup>1</sup> With the labour force also expected to grow unemployment may rise from 5% in 1981 to over 12% in the next few years.<sup>2</sup>

A somewhat similar position pertains in Orkney. In 1976 fishing provided 9.3% of all employment. Oil related employment, now around 600, is expected soon to decline to 400 and the unemployment rate is currently around the 9% mark.

In the Western Isles one person in thirty is directly employed in the fishing industry, while in extreme cases such as the island of Scalpay 62% of males of working age were engaged in fishing in 1971. Apart from an oil platform construction yard near Stornoway oil exploration has had little impact on the Western Isles so that in mid 1980 its unemployment rate was just over 20% and this despite continued emigration.

The Highland Region is a very heterogeneous area with a sparsely populated west coast and a more cultivated and urbanized eastern side. Employment in fishing and fish processing amounted to some 2½% of all employment in 1980 while the rate of unemployment was 10.7%.

In 1980 the Firth of Clyde had 560 full-time fishermen and the West Coast area 800, who had no alternative employment. Perhaps one quarter of the Firth of Clyde men might obtain alternative employment but they are in an area (Strathclyde) where the unemployment rate in mid 1981 was 16.8%.

The plans for these regions have similar elements, since they all involve proposals for the licensing of vessels as a means of reducing

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1 S. McDowall and H. Begg "The Industrial Performance and Prospects in Areas Affected by Oil Development". Report to Scottish Economic Planning Department, Edinburgh, 1981.

2 The unemployment rate for Scotland in mid 1981 was 14.1%.

effort and as a means of giving preference to the local fishermen. Freedom of access would be abandoned in all cases.

The Shetland/Orkney Plan proposes a large conservation area and within this two smaller areas inside the 12 mile limits around the islands to safeguard the interests of inshore fishermen. All fishing would be by licence and the licensing scheme would be coupled with a system of regional TACs and catch quotas. Licences would be issued free to vessels on the criterion of fishing power. All Shetland/Orkney boats would receive a licence with the remainder being dispensed according to sustained historic fishing patterns, selective fishing gear techniques and EEC regional policy. Some vessels would not receive a licence, if the total catch could be taken before their claims were considered. Orkney/Shetland vessels would be expected to take around 20% of most species. It also recommended that all vessels over 80 feet be prohibited from fishing demersal species within 12 miles of Orkney and Shetland. Local vessels should also have an exclusive right to sandeels and shellfish stocks within 12 miles of Orkney and Shetland.

Since 93% of the weeks spent fishing in the Western Isles is spent on catching nephrops and shellfish, the Western Isles report recommends the licensing of boats to catch nephrops, crab and lobster. The allocation of licences is not to depend solely on historical performance but is to allow for expansion of the Western Isles fleet.

The Highland Region report, dealing as it does with large, heterogeneous area and a heterogeneous fleet, does not propose a plan as such. It argues for management schemes for the various fisheries in which fishermen of the region participate and for entry to these fisheries by licence. Regional preference could be given by the issue of a disproportionate number of licences to fishermen from the region.

The Clyde Estuary and West of Scotland Plan proposes a licensing system which would give first preference to local fishermen, who would be followed by those who have traditionally fished the inshore West Coast grounds, with any balance to the rest. The licensing scheme would also include restrictions on the size and horse-power of vessels exploiting the stocks within the area covered by the plans.

It is natural that communities should take the opportunity of proposing fishing plans to safeguard and promote their interests. Except, however, where stocks are static (shellfish) or fairly discrete (Clyde herring) conservation measures applied to only parts of stocks are unlikely to be successful. Conservation measures need to be carried out on a scale corresponding to the area in which the stock occurs to be successful. The argument ought in most cases, therefore, to be for international measures of conservation, which would benefit everyone. Secondly, the fleets of the communities proposing plans are usually though not always less efficient than the nomadic fleets, so that preference for such fleets would reduce the overall level of efficiency and impose a cost in the form of higher prices to consumers and lower incomes to other fishermen. If the plans are accepted, while it is probable that it would increase the incomes of the local fishermen and communities in the short run, the fishermen may nevertheless find themselves in difficulties in the longer term in competition with a more efficient fleet elsewhere, especially if the efficient fleet is fishing stocks which have increased because of international measures of conservation. The arguments about fishing plans are ultimately about income distribution and the consequent viability of communities.

Of the fishing plans proposed for the peripheral areas of Northern Britain, direct evidence is available on what proportion of catches is taken within the 12 mile limit only for the Orkney/Shetland Region, and even here our catch data are for an area which is slightly greater than that of the proposed area of management. The results show that in 1979 boats from Shetland and Orkney took 47.5% of their demersal catch, 59.5% of their pelagic catch, 75% of their industrial catch and 97.3% of their shellfish catch within 12 miles of their shores. Boats from Orkney and Shetland in 1979 were responsible for 68% of the total catch by weight taken inside a 12 mile limit around Shetland, for they took 19,829 tonnes out of 29,136 tonnes. The vessels which would suffer most from any restriction on access would be vessels from the East Coast between Aberdeen and Wick, which took 9,280 tonnes. The data made it difficult to say what the relevant proportions are in Orkney waters.

Our data do not allow us to say what proportions of catches within 12 miles are taken by local vessels in the other proposed areas

of local preference, namely the Clyde Estuary and West of Scotland, Western Isles and finally Highland Region. Since, however, all these areas are either parts of ICES area VIa or have a fair proportion of it in their region (e.g. Highland Region), the figures for the proportion of catches taken by West Coast vessels inside 12 miles in that area may provide a useful benchmark. The figures show that almost all the catch of vessels on the West Coast come from within the 12 mile limit, for they run as follows: demersal - 89%, pelagic - 92%, industrial species - 100% and shellfish - 99%.<sup>1</sup> The resources for these regions would be effectively safeguarded, but at the cost of restricting vessels from other areas.

#### The administration of fishing plans

Besides the difficulties of principle referred to above, the administration of fishing plans, which confer benefits on fishermen of particular regions, bristles with difficulties.

It has been suggested that they be administered by producers' organizations. The problem in Northern Britain is that the producers' organizations which exist do not have a membership which corresponds to the regions for which plans are proposed. The fishermen in Shetland/Orkney, Western Isles and the Clyde Estuary and the West of Scotland, are mostly members of the Scottish Fishermen's Organization, which also has members throughout the rest of Scotland. A producers' organization would find itself in an intolerable position if it had to administer schemes whose very *raison d'être* consists in giving preference and therefore higher incomes to some of its members. Not only might a PO have to administer a scheme whose rules were laid down elsewhere, but it might even be directly involved in decisions affecting the income of individual members if, for example, it had to decide whether a vessel possessed 'historic' fishing rights, often a criterion for the right to fish. In the context of Northern Britain, POs seem unsuitable for this role.

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1 These very high figures arise because the Minches, a large fisheries area, are within the UK 12 mile limit, since they are bounded on the east by the mainland of Scotland and on the west by the Outer Hebrides.

Fishermen's associations, which are usually organized on a regional basis, seem administratively better suited to run the plans, since the associations often coincide with the area of the fishing plan as is the case in Shetland/Orkney and Clyde Estuary and West of Scotland. Indeed the Clyde Estuary and West of Scotland plan, in which administration has been more thoroughly explored than in any other plan, proposes interlocking committees of local fishermen for the three geographical sub-areas which the plan covers.

#### National fishermen's Organizations

National fishermen's organizations do not look with favour on fishing plans since their function is to represent the views of fishermen of a much wider constituency. Thus the Scottish Fishermen's Federation prefers plans for fisheries rather than regions. It would regard the interests of Scottish fishermen as being better served by obtaining a satisfactory outcome to the negotiations on a Common Fisheries Policy, in which it would like to see the following elements.

Firstly it would wish to see a 12 mile exclusive zone for UK fishermen with a system of licensing within the zone. Secondly, in the zone from the 12 mile limit to the median line it would like to see the conservation measures determined by the local state and agreement on the percentages of the TACs for different species that the local fishermen might take. A figure of 80% has been mentioned for haddock, for instance, as it represents the backbone of Scottish fisheries. Thirdly it would like to see the restrictions administered through a system of licensing.

The National Federation of Fishermen's Organizations, representing inshore fishermen in England, including those in Northern Britain, not only object to plans but to the whole notion of Hague preference zones, of which Northern Britain is one, on the grounds that such regional preference will create unfair competition among British fishermen. Fishermen from areas with preference will have access to their own areas and to open areas, whereas those without preference will have access to only open areas. The Federation also points out that

localities such as Hull and Grimsby are as fish dependent as any locality in Northern Britain and have been extremely hard hit by the exclusion of the deep water fleet from third countries, with consequent high levels of unemployment.

In a booklet published by the Transport and General Workers' Union (Fishing: The Way Forward, by N.A. Godman and J.M. Keenan, 1980) the authors argue on resources for a 12 mile exclusive zone, local preference based on forward fishing plans and for the conservation of stocks. They propose that local social and economic circumstances should shape the development of fishing plans, which should be sufficiently flexible to meet the needs of mobile fishermen pursuing migratory species.

#### Statutory bodies and government departments

The view of the UK government is that the UK is to press for an exclusive 12 mile zone and a substantial area of preference beyond 12 miles. When it comes to fishing opportunities (catch allocations) the UK government is concerned that the UK quotas should reflect the fact that some two-thirds of the fish are taken in UK waters, that the fleet has lost considerable fishing opportunities in third country waters and that there are fish dependent communities whose needs must be met. The government regards discussion of fishing plans as premature at this stage, since they are only a proposal by the Community and their implementation would require agreement on a Common Fisheries Policy.

On the question of regional preference the view of the Highlands and Islands Development Board is that there should be an exclusive coastal zone of 12 miles within which only the vessels of the contiguous national state would be permitted to operate. Outside the 12 mile line the remaining areas of the EEC's 200 mile fisheries zone should be divided geographically into zones which accord by and large with fishing activity patterns. Within these sub-zones (and within the 12 mile limit) a licensing system should operate giving first preference to vessels based in the coastal zone contiguous to the sea area in question. Second preference would go to other vessels of the same nation traditionally fishing the area and any EEC vessels which had historically fished the area. All others would go into a third category of preference.

## SECTION 2.2    INFRASTRUCTURE

### Ports

In Section 1.2.2 Table A18 showed how the ranking of ports in Northern Britain varied as the criterion of importance used was vessels registered at the port, landings at the port by volume or landings by value. It is important to understand the differences which arise by using these three criteria of size because they illustrate some of the fundamental features of the industry in Northern Britain. There are essentially two different fleets operating, one working from and landing at home ports, and comprising mainly the smaller seine netters and the shellfishers. Most of these are only at sea for one day at a time, returning to land either in the evening or early morning. The other is the more mobile seine and purse netter and trawler fleet, which is at sea for longer periods and often lands catches at ports other than the registered home ports. This is particularly true for the pelagic species, of course, which are themselves much more mobile than the demersal species.

It is possible to make a fairly clear distinction between herring/mackerel ports and white fish ports, and ports have traditionally been regarded in Northern Britain as one or the other. To the extent that different facilities are required for the landing and onshore treatment of different species, and that to a lesser extent the types of vessel differ, ports have tended to specialise and therefore many of the changes in the role and importance of ports are a consequence of changes in the nature and volume of landings.

If we take the pelagic sector first, as shown in the preceding section there has been a very sharp fall in herring catches, particularly since 1977, although the volumes in 1970 already were a small proportion of those caught earlier in the century. Thus traditional herring ports such as Mallaig, Kyle of Lochalsh, Oban and, in earlier times, Wick have declined. To some extent the more modest increases in mackerel catches have compensated for the collapse of the herring and have allowed Ullapool (the centre of the West Coast mackerel fishery) to become the largest port by way of volume of landings in 1980 (although a high percentage of the catch is merely transhipped but registered as being landed). Overall,



though, there has been a marked restructuring of port activities on the West Coast.

The changes on the East Coast are more attributable to changes in the pattern of demersal fishing. As explained earlier, the changes in the stocks and composition of catches have not been as great as for pelagic species, and the onshore implications have been relatively less evident. The most noticeable feature has been the decline of the middle and distant water trawler ports of Aberdeen and Granton. The latter has virtually disappeared as a fishing port and no trawlers now fish from it on a regular basis. The decline in the Aberdeen trawler fleet has been even greater in actual numbers, although the port remains one of the leaders in Northern Britain.

Some of Aberdeen's problems relate to the movement of many seiners to Peterhead because of the high landing costs in Aberdeen imposed by the obligatory use of dock labour to land catches (Aberdeen is the only fishing port in Northern Britain which is a registered dock labour port and this creates problems for the fishing fleet). Attempts have been made on a number of occasions to exclude fishing vessels from this scheme and it may well be that a solution will be found in the near future through deregistration for the fishing fleet, in which case it is likely that a number of vessels will revert to landing in Aberdeen.

Some of the other changes are attributable to the now common pattern of certain East Coast boats, particularly those from the Moray Firth ports, fishing permanently off the West Coast and landing their catches in Kinlochbervie and Lochinver, although retaining their registration in the East Coast ports. This has resulted in a significant switch in landings despite little change in vessel registrations.

During the 1970s there have also been periods when "tripping" has been popular, i.e. the practice of boats travelling to relatively distant ports to land catches in order to obtain higher prices. This has been particularly true of the Shetland fleet fishing in the waters around Shetland but travelling to Aberdeen or Peterhead to land there before returning home to continue fishing. The extra fuel, time and other costs are more than offset by the higher prices available in the distant ports.

On to this pattern of fundamental reorganization with the pelagic and demersal sectors has been added the almost uninterrupted growth in the shell fisheries which by their nature are very local and have brought a modest but widespread increase in activity to many small ports. This is also true, although to a much smaller extent, of the growth in fish farming on the West Coast of Scotland, which in some cases has been introduced in areas with no fishing traditions. The trout, salmon and other farmed fish are occasionally sold at the local markets and processed locally.

Mention should be made of the new port at Breasclete in the Western Isles. Developments there are closely linked with the processing plant set up with financial assistance from the HIDB, but more generally Breasclete represents an attempt to set up a major new fishing port on the West Coast of Lewis. Although growth there has not been up to the expectations of the Board and other interested parties, it may occur in the long run if the marketing of new species such as blue whiting becomes commercially worthwhile.

Finally, changes in the ports need to be seen in the wider context of other port users. Although shipping traffic in Northern Britain has declined for many years, recent changes in relative transport costs suggest that there may be a resurgence in waterborne traffic. In addition, many fishing ports have other functions, and these may also have changed over the last decade.

The main change has undoubtedly been the advent of North Sea oil and gas. Quite a few East Coast ports have become important oil supply bases, notably Aberdeen, Peterhead, Lerwick, Montrose and Dundee. This has brought both benefits and costs. The benefits include increases in traffic and income for the harbour authorities. The costs include competition for facilities, such as quay space and repair facilities, and higher running costs. It is probably fair to conclude that most of the problems have diminished with time and in particular the construction of purpose-built facilities for the oil industry. For example, in both Aberdeen and Peterhead there are now separate areas for oil vessels and the fishing industry, although in the smaller ports the necessary investment for such separation has not been justified.

Ullapool, the main port in terms of the volume of landings, is the mainland terminal for the ferry service to and from the Western Isles (Stornoway being the island terminal). Aberdeen and Lerwick are the terminals for the Shetland ferry service, and other ports on the West Coast have similar functions. Montrose and Inverness have important timber export trades, Ayr is a major general cargo port and those in North East England are heavily involved in trade with Scandinavia, West Germany and the Netherlands. In some cases these other activities are more important than the fishing industry.

#### Port facilities

The changes mentioned above have had obvious parallels in terms of facilities, although because of timelags in the provision of buildings and such like they do not match up exactly. Indeed, the gap between the supply of facilities and the demand for them, whether it be excess demand or excess supply, is the main problem in this aspect of the fisheries.

As a generalisation it would probably be fair to say that there has been insufficient investment in onshore facilities, particularly in the ports, to support the fishing industry in Northern Britain. This is a view which has been put to us, with varying degrees of force, by most of the bodies whom we have consulted, particularly the regional authorities (local government). It is argued, for example, that the decline of ports such as Aberdeen, Mallaig and Pittenweem is a direct consequence of the lack or deteriorating quality of facilities, the outcome being vessels transferring to other ports where better facilities are available. With respect to the pelagic ports, a related argument is that they have not been able to adjust to the changing demands because of the inflexibility of the fixed infrastructure.

In the North of Scotland most of the subregions have recently produced local fishing plans: i.e. Shetland, Orkney, the Western Isles, Highland region, the Clyde Estuary/West of Scotland and the Fife region. Only the Grampian and Tayside regions have not followed this pattern, although that is not a reflection of lack of interest, and Grampian is

now undertaking a similar exercise. All these plans deal with support infrastructure and facilities, and all recommend greater investment. Thus, for example, in the plan for the Clyde Estuary and West of Scotland (page 6)

"Harbours are generally adequate for the home based fleet in terms of the protection which they offer from the elements. However, years of neglect in terms of capital expenditure have wrought extensive problems and there is no doubt that for the future high expenditure is required both on the harbours of refuge and on landing harbours... It has been forgotten in the past that a harbour is more than a place to berth vessels and the facilities onshore both in terms of the marketing of fish and the servicing of fishing vessels themselves have been sorely neglected."

And in the Western Isles (page iv)

"In particular there is a lack of harbour facilities in the Uists and a number of piers and jetties are inadequate."

And (page 89)

"Lack of repair facilities in the Southern Isles means that owners of smaller vessels must beach their craft and work on them between tides."

It is difficult to assess the validity of these claims because of the absence of a common method of evaluation. Indeed, the major drawback of the local fishing plans produced to date is that they have been produced largely in isolation from what is happening elsewhere in Northern Britain and take little or no account of the effect of their own proposals on other areas. Thus on the ports and harbours side, if all the separate proposals in the local plans were added up, they would imply a substantial overcapacity, particularly in the North of Scotland.

From our survey of port facilities, and our discussions with the main fisheries bodies, two main problems stand out: the difficulties in maintaining the large number of harbours to adequate standards and the location and structure of marketing. Dealing with the first, it is evident that, taking Northern Britain as a whole, there are too many harbours for the number and type of vessels currently in the fleet. Future needs are obviously crucial in this respect but it is difficult to

envisage any significant increase in vessel numbers, although there may be some geographical shifts. Many of the ports have experienced sharp falls in non-fishing traffic over the last decade and with rising costs and cuts in public expenditure, more and more of the burden of maintaining harbours is being placed on the fishing fleet through increased harbour dues.

Most ports and harbours are publicly owned, so that subsidies or other forms of financial assistance are possible, but most authorities endeavour to make the operations self-financing, particularly in the light of constraints on public expenditure. Regarding operating costs and revenues, we estimate that in 1980 the ports and harbours in Northern Britain had an aggregate operating loss of between £1 million and £1.25 million. The main revenue sources are charged on the landing of fish and other cargo, berthing fees, rents for premises and land.

The proportion of dues paid by the fishing industry varies substantially according to its importance in the different ports. In Lerwick in 1980, for example, it was only 4%, compared with 35% in 1970. Offshore oil traffic now accounts for about 80% of the operating revenue of the Lerwick Harbour Trust. In Aberdeen direct income from fishing vessels is about 10% of annual income and if the rent of relevant premises and land is included the share would rise to about 12%. That figure is less than a third of what it was in 1970. In Peterhead, the oil and fishing harbours are run by separate authorities and for the latter the industry provides about 75% of annual income. In the smaller ports the fishing industry's share will be relatively larger: in Wick, for example, in 1980 it was 70% (of the income of £65,000) and in Buckie 68%.

For the non-oil ports, as income from general cargo traffic declines, the authorities are forced to increase fish landing dues disproportionately. Because of the fall in the real value of landings the industry is understandably reluctant to agree to higher dues. A consequence has been a diversion of landings to the 'cheaper' ports. However, the cheaper ports tend to be those with substantial incomes from oil-related traffic, notably Peterhead and Aberdeen. Aberdeen is in a less favourable position because of its dock labour scheme but Peterhead has been able to compete successfully with Moray Firth ports such as Fraserburgh, Macduff and Buckie.

The distinction between rich and poor is probably more evident for capital investment because only the oil-related ports have been able to finance substantial improvements from their own resources. Thus Aberdeen has recently completed a major upgrading of the fish market and work is underway on the reconstruction of the western end of the Commercial Quay, which is used by fishing vessels, at an estimated cost of £5.3 million. Lerwick Harbour Trust is spending £3.3 million on improved berthing facilities and a £2 million new quay is under construction at Scalloway (Blacksness), also in the Shetlands. Orkney's oil revenues are also providing most of the finance for the £1.7 million improvements to the harbour in Westray.

Central government can provide assistance for such improvements under the 1955 Fisheries Act. In Scotland this is done through DAFS and in the financial year 1979-80 assistance totalling just over £1.5 million was offered towards the construction, improvement and repair of fishing harbours. Of the total assistance £1.4 million was by way of grant and £100,000 by way of loan. Nearly half of this was for the works at Scalloway and the other major schemes were at Westray, Fraserburgh and Port Ellen (Islay), so that it appears that DAFS is discriminating in favour of the non-oil ports.

However, the harbour authorities are not dependent on central government finance and, if legislation permits, can raise the necessary money from other sources, including the Community. Since the oil-related ports are in a much better position to do that, the influence of DAFS and MAFF is correspondingly reduced. In any case it is clear that ports like Aberdeen and Lerwick are pursuing cross-subsidisation policies with oil revenues paying for fisheries investment. If it is felt that a better geographical balance is desirable, some influence can be imposed through financial provision on the part of the Community and other bodies, but it cannot be a direct influence.

It may be possible for authorities like the Community to do more about the second major problem which concerns the structure of marketing. Purchasing, selling and distribution arrangements were described in Section 1. Daily markets are held in only 12 ports in Scotland and two in North East England. Fish landed elsewhere is either sold

under contract - which is quite common for shellfish but not for demersal and pelagic - or consigned to the marts. Indeed, a large proportion of fish landed in ports like Kinlochbervie, Lochinver and Wick, which have their own mart sales, is in fact consigned to the larger marts in Aberdeen and Peterhead.

The economic aspects of marketing problems are discussed below in Section 2.5 but there also is a physical dimension to them in the form of non-existent or dilapidated buildings. For example, in Aberdeen it has taken considerable time to bring the mart facilities up to a standard that allows efficient operation and the same is true, but to a lesser extent, in Peterhead, Pittenweem and Wick.

Our surveys included an assessment of port facilities and the opinions of the authorities on what needed to be done. The main concern was with lack of buyers and hence marketing power, and these problems are discussed below in Section 2.5. Our concern in this Section is with the physical infrastructure and Table A72 lists the relevant comments received. The letter (F) before a comment denotes the view of fishermen or their representative body; (P) a buyer or processor's view. The nature of the survey was such that all the comments refer to deficiencies but it would be unwise to conclude that the ports for which no comments were received are perfect.

## SECTION 2.3    FLEET STRUCTURE

### Profitability of the fleet

The changing structure of the fleet can largely be explained in terms of the age of the trawling fleet and of the profitability of different sectors of the fleet.

It is not possible to obtain figures for costs and earnings for the deep sea fleet. Given the dramatic decline in the numbers in this fleet in North Britain, however, in line with what has happened in the rest of the UK it is safe to conclude that this sector has been unprofitable.

Some figures on net earnings are available for the UK deep sea fleet between 1973 and 1977. These were specially prepared as part of a case for aid put to the UK government. These figures show that while for all three classes of the fleet the sum of net earnings before depreciation over the run of five years was positive being £14,700 for the 80 to 100 feet group, £80,000 for the 110 to 140 feet group and £205,500 for the vessels greater than 140 feet, in no single case in any year did any sector of the fleet cover all costs including depreciation. (See Table A73). Indeed over the five years the losses increased not only in money terms but in real terms as well. Between 1973 and 1977 the loss in real terms increased by 24% for boats in the 80-110 feet class, by 45% in the 110-140 feet class and by 39% for vessels greater than 140 feet.

Until 1973 the submission of cost and earnings data was a prerequisite for the payment of operating subsidy. Since that time a substantial number of Scottish inshore vessel owners has continued to provide information and recent years have seen an increase in the participation rate of vessels in the larger groups (see Table A74). These Scottish figures are thought to be representative of the inshore fleet of Northern Britain as a whole.

Table A75 gives some indication of how the various vessel categories have fared in recent years with regard to earnings, costs and insured value. In all cases the absolute value for each category in



1977 was taken as 100 and the values for 1978 and 1979 expressed as a percentage of this. The insured value figures show how vessel construction costs have risen appreciably, while earnings figures are in some cases lower than in 1977. In some cases earnings have decreased (boats in the 30-50 feet category), and where this has happened costs have declined by less. In all other cases costs have risen by more than earnings.

Table A74 gives the available data in money terms for groups between 30 feet and 80 feet. Table A76 reworks these raw data for three group sizes to examine the structure of costs. In all cases labour accounted for a smaller proportion of costs in 1979 than in 1970, markedly so in vessels of the 70-79.9 feet size. In all cases other variable costs were proportionately higher in 1979 than in 1970, as was depreciation. Given the fluctuations in the figures, however, it would seem possible to draw firm conclusions only for the 70-79.9 feet group in which labour costs as a proportion seem definitely to have fallen and depreciation costs definitely to have increased. The latter feature is to be explained in terms of the escalating costs of new vessels.

Table A77 which is derived from the data of Table A74 works out profit as a fraction of earnings, since there are no figures for capital employed to make it possible to work out the rate of return on capital. These figures show that the highest rate of profit on this measure was reached in 1976 in the case of the two largest categories of vessel and in 1977 for the others. Since then the rate of profit has declined sharply and was negative for two categories in 1979.

As part of a submission to the UK Government for a subsidy in early 1981 the Scottish Fishermen's Federation provided a sample of costs for 89 vessels in the Scottish Inshore Fleet, incorporating a cross section by size, type and geographical location and method of fishing for the years 1979 and 1980. The averages per vessel are given in the table below.

Average Earnings and Costs for 89 Vessels of the Scottish  
Inshore Fleet, 1979 and 1980

	1979		1980	
	Average	Per Cent	Average	Per Cent
Gross Earnings	145,438	100	138,260	100
Fishing Expenses	41,990	29	51,896	38
(of which oil)	(18,667)	(13)	(26,197)	(19)
Crew's Share	48,854	34	46,888	29
Owner's Expenses	37,945	26	41,725	30
Trading Profit	16,650	11	3,949	3

The most striking features are the 5% drop in earnings in money terms, which would imply a decline of over 20% in real terms, and a sharp increase in fishing expenses mainly due to the higher cost of oil and products derived from crude oil like nets and ropes. The crew's share declined in absolute terms and as a percentage of total costs, while trading profit as a percentage of earnings declined from 11 to 3%.

In short these figures continue to show profits under threat.

Prices and earnings

The table below sets out the figures for the volume of fish landed by UK vessels in Scotland, the value of the fish and the average price per tonne for the years 1977 to 1980.

UK Landings of Fish in Scotland 1977-1980

	1977	1978	1979	1980
Volume (tonnes)	412,209	426,152	354,973	371,355
Value (£s millions)	117.1	122.2	122.2	113.6
Average Price per Tonne (£s)	284.1	286.8	344.3	305.9

Source: Scottish Sea Fisheries Statistical Tables 1980.

This table summarises part of the plight in which the Scottish (and the Northern British fleet) has found itself. It shows the failure of earnings (the value of fish landed) to rise since 1978 even in nominal terms and indeed for the 1980 figure to be below the 1977 figure. Indeed real earnings in 1980 at constant 1977 prices amounted to only £77.7 million. It is partial, however, in that the performance of costs is not considered.

While the standstill in earnings between 1978 and 1979 is to be explained by the decline in volume landed given that average price rose, the further fall in 1980 is due to the collapse of prices, since the 1980 volume was up compared to 1979. The collapse in prices has twice led the Scottish inshore fleet to refuse to go to sea, in the early autumn of 1980 and in February 1981.

The major factors in the collapse of prices have been the changing pattern of international trade in fish and the appreciation of the £ sterling against most world currencies between June 1979 and May 1981. Subsidiary factors have been the world economic recession and the EEC marketing arrangements.

The advent of exclusive economic zones in 1977 considerably altered the world pattern of supply and demand in fish. The USA which is a major importer became more self-sufficient and her former suppliers, Canada, Iceland and Norway have found their US outlets shrinking. At the same time the extension of their fisheries limits has given them secure access to greater supplies of fish. For the UK on the other hand the advent of exclusive economic zones has meant the loss of important demersal (especially cod) fisheries in Iceland, Norway and Faroe. With suppliers looking for markets and the UK short of supplies the result has been a sharp rise in imports as a percentage of total UK supplies. This can be illustrated with reference to white fish which amount to approximately one half of imported fish for human consumption. Between 1970 and 1976 imported white fish averaged 20% of UK supplies, while for the four years 1977 to 1980 the average has risen to 40%. The major sources of imported fish to the UK are, in declining order of importance, Norway, Iceland, Denmark and the Netherlands.

Against the background of these long run forces, there were forces of a short run nature which greatly increased competition in the UK market for fish. As a result of the Iranian crisis and worries about the world supplies of oil, OPEC was able to raise oil prices substantially in 1979 and 1980. The £ sterling, which now enjoys the status of a petro-currency, rose dramatically against all the major currencies of the world, including those of many of the suppliers of its fish. At the beginning of 1981 the £ had appreciated by 24% against the Norwegian Kroner compared to the beginning of 1979. Over the same time period it was up by 133% on the Icelandic Kroner, 44% against the Danish Kroner and 31% against the Dutch Guilder. This gave a stimulus to imports while holding back exports. In 1980 imports of fish for human consumption rose by 8% in volume over the 1979 figure, while exports of fish for human consumption fell off 2% by volume. The high value of sterling meant that foreign suppliers of fish were content to accept lower sterling prices for their fish than reigned in the previous year, because when they converted their earnings into their own currencies, receipts per tonne would be substantially higher than those of 1979.

The world recession has also had some impact on the price of fish. In 1980 the recession in the USA caused the demand for demersal fish to fall off, so that suppliers had to look elsewhere, which in many cases meant the UK. The recession in the UK also had an impact on the demand for luxury products such as nephrops, whose prices fell substantially. High rates of interest also made it difficult for processors to retain or increase stocks of such products.

A further problem has arisen from the appreciation of sterling: this is the divergence between the rate for the "green pound", the rate used for converting agreed Community prices such as official withdrawal prices into their sterling equivalent, and the free market rate for the pound. If the pound has appreciated converting any given OWP into sterling at the green rate will give a higher sterling price than will the free market rate. If in another Member State the green currency rate and the market rate for the currency is the same, and a surplus of fish makes it likely that only the OWP will be reached in that country, it may make commercial sense for a fisherman to send his catch to the UK,

since, even if it attained only the OWP, as converted at the green pound rate in the UK, when these sterling receipts are converted into fisherman's own currency at the market rate for the pound, he would gain by a percentage equal to the appreciation of the free pound over the green pound minus his transaction costs. There have been instances where such a manoeuvre was profitable. Indeed if in the foreign fisherman's home country the green currency rate is above the market rate, he would be given a double incentive to sell abroad rather than at home, since the OWP at home would be below its true market rate just as that in the UK is above its true market rate. This problem has been overcome in trade in agricultural products by the use of monetary compensatory amounts, which are not applied to trade in fisheries products.

### Costs

While earnings of the Northern British fleet were lower in 1980 than in 1978, costs have continued to rise sharply over this period largely because of the rise in the world price of crude oil, which not only directly raised the cost of fuel used on vessels but also raised the prices of products made from oil like nets, ropes and plastic boxes or products which are energy intensive, e.g. steel used in vessels etc. In September 1978 the price of marine gas oil per litre in the Grampian Region was just over 6p while by the end of September 1981 the price was 16.3p, an increase of 170% in three years. Northern British fishermen have complained about cheap fuel enjoyed by competitors, either because of a cheap energy policy as in Canada or because of subsidies as in France or Belgium.

Another cost which has risen substantially has been the cost of borrowing. It has been estimated by the Scottish Fishermen's Federation that the Scottish inshore fleet had an outstanding total of borrowings of some £70 million at the end of 1980, of which about 70% was due to banks. The annual interest charges amounted to nearly £11 million. British interest rates were at all time highs in 1979 and 1980, and much above levels elsewhere in the world.

For these reasons and others such as the uncertainty associated with the Common Fisheries Policy negotiations the UK fishing fleet approached the UK government for aid in the spring and autumn of 1980 and in the spring of 1981. The UK government has on each occasion given aid. In 1980 the Scottish section of the fleet received £8.5 million, some of which was earmarked for exploratory voyages in search of new species, while in 1981 £13 million has been made available to the Scottish fleet. Figures are not available for the fleet outwith Scotland. The criterion for distribution of the aid has been vessel length. Sections of the fleet which have done badly on this criterion have naturally been critical. Small vessel owners who get least have argued for the use of insurance values as the basis for aid, while others have argued for registered horsepower. The effect of the present policies has been to favour very large vessels, whose continued existence it is hard to justify given the loss of their grounds.

The policy of the government is presumably to be explained as a holding operation, simply endeavouring to keep the fleet at its present size, until the outcome of a Common Fisheries Policy is known. The money might have been more sensibly used to restructure the fleet by buying out some of the excess capacity, but such a policy might be thought to weaken the UK's bargaining position in EEC negotiations.

Some other examples of the increased costs of inputs for the fishing fleet in Eastern Scotland are the following:

	1976	1980	Percentage Increase
Complete Fishing Gear for			
(i) Inshore White Fish			
Vessel	£2430	£4638	91%
(ii) Middle Water Trawler	£9373	£20748	121%
One ton of ice	£4.14	£8.95	116%
Lubricating Oil (1 gallon)	£1.75	£2.40	37%
Diesel (per tonne)	£66.95	£153.20	128%
Index of Retail Prices	-	-	68%

SECTION 2.4    EMPLOYMENT

In Section 1.2.3 (b) detailed employment data were presented for Scotland and the constituent fishery districts. Unfortunately such data are not available for the English parts of the region so that attention is concentrated on Scotland. The position in the Isle of Man is discussed in Appendix 1.

Regarding fishermen, it was shown in Section 1 that over the last decade there had been a slow but steady fall in numbers and that this fall had been particularly marked since 1978. The recorded number of fishermen in that year was 9241, compared with 9279 in 1970 and the latest (1980) figure is 8699.

In our view there are three main reasons for this decline: the fall in fish stocks and therefore, landings; relatively low incomes, such that alternative employment in North Sea Oil and other industries has become more attractive; and a relative switch in the type of fishing away from trawling. These changes have had different effects in different parts of the country, as discussed below.

The declines in stocks and landings have been considered in detail above. There is a clear, direct relationship with onshore employment in processing, transport and the like, and the employment changes shown in Section 1.2.3 (b) mirror closely the changes in the volume and type of landings. Thus there has been a particular decline in the pelagic ports and processing centres but a contrasting growth in shellfish employment.

Similarly, one effect of reduced landings and other factors such as imports and higher fuel costs has been a reduction in earnings, as shown in Section 2.3. Although the UK is currently in the midst of a severe economic recession, in the mid 1970's in some areas there was considerable competition for labour with the result that many onshore employees (and, to a lesser extent, fishermen) left the industry to take up more lucrative employment. This was particularly true in those areas affected by the North Sea oil and gas developments. In some respects

these developments have affected the whole of the East Coast of Scotland but given the predilection of the oil industry to agglomerate the main centres affected have been Aberdeen, Peterhead and Shetland.

Thirdly, there has been a marked decline in trawling. Apart from static gear shellfish and salmon fishers, fishermen can be divided into those who work on trawlers and those who work on seiners. There has been a dramatic decline in employment in mid-water trawlers. The number of trawlers over 80 ft. in length has fallen from 78 in 1976 to 43 in 1979 and 34 in 1980, and employment on the trawlers has fallen by a similar proportion, i.e. by more than half. As discussed in Section 1.2.3 (b) the crews of trawlers are usually in paid employment with a guaranteed minimum income per trip plus a bonus related to the value of the catch. In contrast the incomes of share fishermen - on the seiners and smaller trawlers - are directly related to landings and many share fishermen have a capital stake in the boat and gear. It is therefore not surprising that trawler employment has fallen more rapidly than other employment groups, since share fishermen and shell fishermen are to a large extent 'locked in' to the industry. Their normal response in periods of depression (like the present) is to suffer lower real incomes rather than leave the industry. Of course, trawlermen may have no choice if the companies involved decide to lay up their vessels - as has happened in Aberdeen and Granton.

The Aberdeen trawler fleet has been badly hit by the loss of Faroese, Icelandic and Norwegian fishing grounds. The vessels are not well equipped for fishing in UK and EEC waters and their efficiency has therefore declined during a period of rapidly rising fuel costs, with the consequence that many have been making heavy losses and have been laid up. A loss of employment has resulted.

In contrast we believe that there has been a substantial increase in the number of part-time shell fishermen which probably disguises the true size of the reduction in full-time fishermen. Limited data are available which distinguishes between regularly employed and partially employed fishermen. For Scotland in 1980 the respective figures were 7561 and 1138, giving the total employment that year of 8699. This 87%/13% split in 1979 compares with 85%/15% in 1975 so that overall the balance of full-time and part-time effort has changed very little in recent years.



One group of part-time fishermen who merit particular attention in our study are the crofter/fishermen. Crofting is a form of land tenure peculiar to the North of Scotland; although a croft is difficult to describe briefly, it can normally be regarded as an agricultural holding worked part-time. Consequently most crofters have to rely on other activities to bring their incomes up to an acceptable level and in the more rural parts of the North of Scotland, particularly on the West Coast and in the islands, there are quite a few crofter/fishermen. In 1979 the registered number was 115, a substantial fall from 244 in 1975, but the official figures substantially underestimate the scale of part-time involvement. Although there are probably many others who are not registered, it is obvious that there has been a sharp contraction which is giving considerable concern to public bodies such as the Crofters Commission and the Highlands and Islands Development Board which are involved in the economic development of this part of the region.

Of the three constituent employment groups, according to the published statistics those working on the seiners have managed to maintain their employment levels over the decade, apart from a few areas like Wick. It is certainly true that this section of the fleet has been the most profitable but, as mentioned above, we believe that over the last three or four years the employment levels have been maintained through markedly lower incomes, a practice which is unlikely to continue much longer.

In Section 1.2.3 the geographical shifts in activity which had occurred during the 1970's were highlighted and these were mirrored by the employment changes. Apart from Peterhead the districts with the main growth in employment were all on the West Coast, reflecting a significant geographical move and a resurgence of interest in the herring and mackerel fisheries. As was pointed out earlier, Peterhead is now the premier Scottish port for landings and there are a number of reasons for its growth, including a marked improvement in facilities and an increasing practice in the Moray Firth ports to concentrate activity. Another important factor has been the move of many seiners from Aberdeen to Peterhead because of the higher landing dues in the former.

This move, coupled with the virtual collapse of the Scottish trawling fleet based on Aberdeen, has meant a sharp reduction in the

number of fishermen in the city with a fall from 1365 in 1970 to 556 in 1980. The two other districts experiencing sharp reductions are Leith, because of the disappearance of the Granton trawling fleet, and Wick where a number of boats have been laid up in recent years and not replaced. Other districts have also declined, particularly since 1978, but not at the drastic rate of these three.

Regarding fish processing and other onshore employment, the pattern has been similar. In Section 1 we showed a decline from 22,100 in 1972 to just under 17,100 in 1979, a 23% fall over the seven years. The key factor was the decline in landings which reduced the volume of fish to be processed and transported. There have also been substantial improvements in productivity such that more fish can be processed with smaller labour forces and the disappearance of small merchants and processors has been particularly noticeable in Aberdeen.

Within the framework of overall decline, the geographical changes in onshore employment have been slightly different from those involving fishermen. The main growth districts over the decade have been Eyemouth, Stornoway and Lossiemouth and the main declining districts Wick, Leith, Aberdeen and Mallaig. In most of the cases the key factor has been the opening or closure of processing plants, although with the latter group the falls in landings and fishermen have led to general reductions in related activities like transport and boat repair.

The ratio of fishermen to onshore employment is currently 1:1.97 or 1:2.26, depending on whether all fishermen or all full-time fishermen are used in the calculation. Roughly, there are two onshore jobs for each fisherman. The evidence suggests that the ratio of onshore to off-shore has fallen steadily over the last decade. As mentioned earlier, there are marked geographical variations caused by the concentration of, for example, processing in Aberdeen and Fraserburgh and boat building in Arbroath, Buckie and Campbeltown. Hauliers and related transport activities are inevitably concentrated in the larger processing centres although there is some dispersion generated by the transport of landings (unprocessed) from the smaller ports to the main marketing centres. The differences can be seen clearly from the fact that in 1979 there was one related job for every £11,600 of fish landings in Wick, £52,700 in Mallaig and £90,300 in Ullapool.

A study undertaken in 1972, although now out-of-date, provides useful evidence on the links with related industries.<sup>1</sup> This examined the multiplier effects of Highlands and Islands Development Board (HIDB) investment in the fisheries. Taking income from and employment in the fisheries ('on the boats') as the multiplicand, the study estimated income and employment multipliers of between 2.07 and 2.27 (income) and between 1.85 and 2.55 (employment). These estimates are compatible with the DAFS 'related' employment estimates. The study suggested that the bulk of the multiplier employment (up to 80%) was in processing, with about 15% in boatbuilding and repair and 5% in transport.

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1 M.A. Greig: The Economic impact of the HIDB investment in fisheries, HIDB, Inverness, 1972.

## SECTION 2.5    PROCESSING AND MARKETING

### Recent trends in processing

Whether one looks at trends in output or at trends in employment the figures for the Scottish section of Northern Britain<sup>1</sup> show that the processing sector has been in a fairly steady decline since 1972. In that year processing and ancillary industries employed 22,100 people whereas by 1979 the figure was down to 17,098. Processors have seen their profitability decline and closures have been a common feature in the late seventies. One sample of fish processors in Grampian region found about three quarters making a loss between 1975 and 1979.<sup>2</sup>

Several reasons can be advanced for this. There is a trend which can be traced back to at least 1960 for per capita fish consumption in the UK to fall. In 1960 weekly household consumption per head was 5.86 ozs., while in 1979 it was 4.51 ozs. Two reasons have been for this. The first is the rise in the price of fish relative to many of its main competitors like chicken and meat (see Table A45) and the second is the poor image which fish, especially wet fish, has in the eyes of housewives. Thus between 1973 and 1978 it has been estimated by a major food producer that UK household consumption of meat excluding poultry increased by 6% while the consumption of fish declined by 10%. Within this decline, however, the consumption of quick frozen fish actually rose by 11%. Indeed the decline in fish consumption over the last twenty years is attributable to fresh fish, with the demand for frozen fish products growing fairly steadily. It is estimated that frozen fish products including shellfish account for just under one third of the frozen food market, but the growth in demand for frozen fish products is lower than that for other frozen products. Though the current recession may bring the growth in frozen fish to a halt and even cause some reversal of the growth, in the long run it is to be expected that frozen fish sales will continue to grow, taking a larger fraction of fish sales, given in particular the tendency to put more value added into the preparation of the fish, for instance by adding sauce and so on.

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1 No data are available for North East England.

2 S. McDowall and H. Begg, "The Industrial Performance and Prospects in Areas Affected by Oil Development". 1981.

A second reason for the decline in processing has been the difficulty of obtaining supplies. It is estimated, for example, that the closure of the herring fisheries in 1977 caused the number of herring processors in Scotland to decline in number from fifty to twenty-three between January 1977 and July 1978. The situation has now turned around completely. The sudden opening of the West Coast herring fisheries in the late summer of 1981 has demonstrated a severe shortage of processing capacity in preparing herring for consumer demand and lack of consumer demand itself after a period of four years. Thus in the first two weeks of the reopened fishery, of 10,000 tonnes of herring landed by British vessels in Scotland about 70% went for reduction to fish meal. The fishery was subsequently restricted to boats of under 40 feet but even then processors were incapable of dealing with the landings, much of which went for meal.

Another reason for the decline in processing capacity stemmed from the conduct of the processors themselves. The price of fish rose sharply between 1975 and 1978 partly as a result of cut-throat competition among processors for supplies which were inadequate. At the resulting price there was a shortage of consumer demand, as consumers bought substitutes. This affected both retail outlets and processors. It is estimated that the number of fish shops in the UK declined from some 4680 in 1971 to around 3000 in 1980. Processors in turn were hit as outlets disappeared.

The White Fish Authority estimated that 1978 sales of fresh and frozen fish by retail outlet were as follows: fishmongers 22%, fish-friers 20%, supermarkets 13%, freezer centres 6%, other retail cabinets 3% and other outlets including catering 36%. With superstores and hypermarkets accounting for an increasing proportion of food sales, especially frozen foods, a higher proportion of fish is likely to be sold through them in the future.

Processors have also been affected by the high interest rate policy of the UK government since 1979. This has made it extremely expensive to hold or build up stocks and has also along with North Sea oil caused the exchange rate for the pound sterling to rise against most other currencies between 1979 and mid 1981. This made exporting

difficult and encouraged imports. Processors suffered in competition with imported finished fish products but benefited from the lower price of imported raw fish. The position of individual processors, therefore, depended upon whether they took imported raw materials and whether they were heavily engaged in export markets. A processor using substantial quantities of imports and selling to the UK market was not adversely affected by the high exchange rate, while processors like those in the Shetlands, who exported much of their output and bought local supplies, could be badly squeezed, if they paid the local catchers prices which would keep catchers viable.

Processors have also been affected by the world recession and the even severer recession in the UK. Luxury items have been hardest hit. Thus 1980 saw a collapse in the first hand sale price of nephrops, which resulted from a variety of factors. One was the decline in demand for shrimps and prawns because of the recession. This fed back to processors and then to catchers. At the same time the supply of nephrops was increasing because larger white fish vessels diversified to nephrops after taking their weekly catch of white fish. There was also a decline in demand from Spain, the main market for nephrops.

A major complaint made by processors has been of the great rise over the last decade in the price of their raw material, fish, for fish may account for some 60% of total costs. They have, therefore, been in favour of imports, but even this is qualified, for imports of fish tend not to come in steadily over the year but to be heavier in the early months of the year, so that the price of fish is likely to slump then. Processors are limited in the quantity they can hold in stock, so the benefit of low prices is less than might be expected. On the whole what processors most want are steady supplies of fish rather than rock bottom prices, so that there is a potential harmony of interest between catcher and processor.

#### Industry structure and technology

The most obvious change in technology of the last decade has been the move to preparing the retail pack on the part of the medium sized processor employing 20 to 100 people. The preparation of the

individual quick frozen pack has been made possible by the introduction of a continuous blast freezer, which enables the medium sized processor to compete with the large plants.

The very small processors with simple equipment act as sub-contractors for the larger firms by supplying processed fish for freezing. There are a surprising number of such processors though their numbers are decreasing. Of an estimated 236 processors operating in Aberdeen in 1980, 182 employed fewer than 10 workers. The great variety of fish size landed by an inshore fleet, which is what the Northern British fleet now is, provides a continuing need for the small processor, since the fish tend to be too varied for extensive machine processing. There is, however, a considerable need for the upgrading of the average premises of small processor (and of some of the larger ones also). This could best be done by a dual approach, incorporating the introduction of better quality standards for icing, packing and hygiene, and by the provision of assistance towards the meeting of such standards. One possibility is that local authorities might build and let out such premises as has occurred at North Shields and Peterhead.

No information exists about the changing structure of the processing industry, though the reported closures of processing firms in 1979-81 suggest that it is the larger firms which are leaving the industry. This is not surprising in the light of the information gathered by McDowall and Begg<sup>1</sup> in their study of the Grampian, Highland and Orkney and Shetland regions.

Included in their sample of industrial firms were 11 fish processing firms, which, since they employed over 2000 people in 1979, were not representative of the industry because of their large size. The results which they obtained often appear contradictory. Between 1975 and 1979 two-thirds of the companies experienced increased real turnover, and one-third less. Over the same period three-quarters of the firms were running at a loss, while the profitable one quarter made less than 10%. Despite this, half the firms expected to expand sales and employment over the following five years and one tenth expected sales and employment to fall. Given the low or non-existent profitability, it is not surprising

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1 S. McDowall and H. Begg. Industrial Performance and Prospects in Areas Affected by Oil Development. Scottish Economic Planning Department 1981.

that large firms have closed.

#### Processors and aid

Unlike the catching side of the industry the processing side is much less well organized for making a 'political' impact on government or public opinion. While the case of the catching side is put over regularly and obtains wide coverage on the media, the problems of the processing sector are less well projected. The processing sector, depending on its location, has been able to obtain UK regional aid and FEOGA aid and there have been ad hoc requests to the UK government for aid, for example, that of the UK Association of Frozen Food Producers in 1978.

In the summer of 1981 the Herring Buyers Association and the Aberdeen Fish Curers' and Merchants' Association both made submissions to the UK government for aid. The Herring Buyers Association was seeking a sum of around £4 million for replacing and renovating machinery and for the modernization of buildings and freezing and cold store facilities to give this sector of the industry the capacity to deal with 50,000 tonnes of herring per year. It argued that loss of capacity had not been due to bad management or militant workforce but because of conservation policy and that most of the processing factories were now located in areas which no longer qualify for UK regional aid.

The same point is made in the submission by the Aberdeen Fish Curers' and Merchants' Association. Because of the development of North Sea oil the Grampian region, with the bulk of Northern Britain's processing factories, will by mid 1982 lose its right to any form of governmental regional assistance. This will put it at a disadvantage compared to all other processing centres in the UK. The economic development associated with the development of North Sea oil has raised costs to the processing industry in terms of labour and rents. The Association has asked for a one off injection of £20 million of which £5 million would go on advertising. Of processing firms interviewed by McDowall and Begg 36% thought regional aid had played a crucial role in their investment decisions and 55% that it was important.



The need for the projection of a better image for fish by an extensive advertising campaign was also one of the recommendations of a group of consultants who reported to the Minister of Agriculture, Fisheries and Food in the late summer of 1981. They appeared to be arguing for a generic type campaign on behalf of all types of fish analagous to the advertising of milk in the UK. Such a campaign would probably be worth mounting, since similar campaigns have been successful for milk and potatoes. The White Fish Authority was empowered to advertise on behalf of the industry but was constrained by limited resources. Some processors are of the view that advertising is better left to companies, which can then project their brand image. Given, however, that many firms are small, an individual approach is not likely to stimulate demand for the whole industry but merely promote the advertiser's product at the expense of others in the industry.

### Marketing policy

While fish prices were high the marketing policy of the Community was not given much consideration. The decline in prices over the last two years has meant that OWPs and AWP's have become relevant and have drawn criticism from fishermen.

#### (i) Price support policy

##### The level of official withdrawal prices

One of the catching sector's major complaints is that official withdrawal prices are set far too low to provide adequate market support and to ensure a "fair basic income" to producers. In Britain, OWPs have generally shown much smaller annual increases than has the retail price index (between 1975 and 1980, an average of 11.5% as against 13.8% per annum). Thus, the minimum price guaranteed to fishermen has failed to keep pace with the rising costs of fishing, eroding the fisherman's guaranteed basic real net income. While North British fish price increases until 1979 has been outstripping general inflation, a rise in fish prices of 422% against 202% for retail prices, so that the inadequacy of OWPs could be ignored by fishermen, with the collapse of prices since then, fishermen have been made to feel the full effects of this situation.

Increases in OWPs in 1981 were in general a little higher than in previous years, and were regarded as a step in the correct direction in North Britain, but producer organizations (POs) are asking for yet bigger increases. POs have different views about the size of increase needed, some arguing for 10-12% rises but others calling for up to 50%. These differences indicate not only varying concern over the impact of higher prices on consumer demand, but also the varied severity of recent market collapses felt by each PO.

(ii) The Calculation of official withdrawal prices

In this context, the method of calculating OWPs is widely criticised. Determined as they are, on the basis of average prices recorded throughout the Community over the preceding three year period, they merely reflect an arithmetical compromise between a wide variety of market conditions. As such they suit no individual market ideally, only an "average" market, which does not exist.

Once fish prices fail to rise as fast as other prices, particularly those of the inputs to fishing, OWPs will, in their turn, fail to keep up with other prices. Fishermen are therefore concerned that some specific mechanism for taking account of inflation should be built into the OWP calculation process. On the other hand it is acknowledged that the fish must find a market, so that the position of processors and consumers needs to be considered in fixing OWPs.

While it is generally accepted that withdrawal prices should be based on some 'concrete' evidence of prices, i.e. historic prices - and in this respect, using a three year average is probably safer than using just the previous year's prices - it is felt that the application of unrealistic coefficients to this base has contributed to OWPs being too low. Indeed in its latest marketing proposals, the Commission states (Com (80) 724 final) that "the guide price level cannot be considered as representative of a satisfactory average price ensuring a fair income to producers, but as a floor level above which this income must be constituted and developed". As one PO points out (and this is a common view) "...when conversion factors etc. are applied (to the

guide price) then the resultant OWP is much less than required to ensure viability".

The method of calculating OWPs is further criticised for the sometimes anomalous price relativities which it throws up as between both species and grades of fish. To many, they appear illogical and quite unrelated to marketing trends. Indeed, this is borne out in a comparison of 1980 autonomous withdrawal prices (AWPs) in Northern Britain with the corresponding OWPs. AWPs are never a constant percentage above OWPs: in some cases AWPs are actually less than OWPs (some B quality fish). The relationships of AWPs to OWPs cannot be taken as an accurate reflection of market situations, since whether AWPs or OWPs are adopted will usually reflect other influences besides the need for more realistic price levels and differentials, for example, what the PO thinks it can afford to support and how high a price it thinks the market will bear. Thus AWPs are often adopted on prime fish, which tend to be fairly regular in supply and will usually find buyers, and OWPs kept for small fish, the supply of which is generally more volatile and demand not so buoyant, so that it would be financially risky for a PO to over-reach on AWPs on small fish.

Nevertheless, it is clear that anomalies are to some extent inevitable due to the way OWPs are calculated. It is the view of the Department of Agriculture and Fisheries for Scotland (DAFS) that in some cases not enough distinction is made between size and quality, particularly at the lower end of the size grade spectrum. Thus, there should be a greater premium on prime quality fish of grades 3 and 4, while there should be a clear disincentive to the landing of excessive supplies of ungutted fish. Moreover, DAFS is concerned by the current grouping together of certain size and quality grades (e.g. E and A grades) under the same OWP when in reality there can be significant differences in their market prices. POs enjoy a degree of flexibility in that they can adopt a mix of OWPs and AWPs within a grouping of grades which all come under the same OWP. DAFS points out, that such flexibility is crucial in the UK where a much wider variety of marketing conditions exists compared to other member states. The grade groupings, DAFS stress, are after all merely "accidents of arithmetic".

Small varieties of fish, especially haddock and whiting, constitute the bulk of Northern Britain's white fish withdrawals, which shows the wisdom of the 'bias' in OWPs against landings of poor quality smaller fish. The fishing industry does not in general disagree with this principle. However it does feel that small fish are too heavily discriminated against. The industry would argue for a modest increase, about 10%, on small fish OWPs, compared with the 15% to 75% increases mooted for larger, better quality fish.

A related point raised by POs is that as mesh sizes continue to increase the size grades for each species of fish should also be increased, especially the smaller ones. Not only would this serve as a worthwhile conservation measure, but it would also produce a better quality of fish for the market.

(iii) Lack of flexibility in official withdrawal prices during the year

As current policy stands, a PO must adopt OWPs for a full year in order to receive official compensation. During the year if marketing conditions change, and a PO abandons an OWP in favour of more realistic AWP, it is no longer able to claim compensation, even for the period when it operated the OWP. Neither can the PO decide halfway through the year to adopt an OWP and expect to get official compensation. Marketing conditions do not remain fixed throughout the year, just as they are not identical in every region of the Community. The Community's position in this is understandable and sensible, for otherwise POs would always be able to change to the better option without risk to themselves but at considerable cost to Community funds. However, some flexibility to cope with the problem is now to be introduced. During the year POs will be allowed to adjust their OWPs in line with market developments within a bracket of 10% below and 5% above the OWP without losing entitlement to financial compensation for withdrawal. This development is generally considered to be a step in the right direction. However it is aimed rather more at allowing OWPs to be lowered than raised, and does not therefore appear to answer the demands of the industry in Northern Britain.

(iv) Official Withdrawal Prices and Exchange Rates

The use of fixed exchange rates to convert the ECU withdrawal prices into each member state's currency has tended to distort the common price level supposed to prevail throughout the Community and hence to distort intra-Community trade. (See pp.158-159).

Some POs would like to see Monetary Compensatory Amounts (MCAs) used to restore the parity of prices throughout the Community. In Britain, where the "green pound" rate is lower than the market exchange rate, the MCA, which would cover the difference, would act in effect as a tax on imports and a subsidy on exports. Such a system already operates in respect of agricultural products and should be introduced for fish to complete the logic of the market support system and to equalize the conditions of competition among fisheries of different countries.

(v) Compensation

Some examples of official gross compensation in 1980, as a rough percentage of the OWPs, were: cod 70%, haddock 69% and whiting 69%. Such rates are considered too low, especially in view of the inadequacy of OWPs, and would seem not to offer any incentive to fishermen to join POs, but despite this membership has been growing.

Gross compensation is not however what the fisherman receives. From this is deducted a certain sum calculated by the Commission and the Member State to be roughly equal to the amount received by a PO for sales of withdrawn fish to recognised outlets such as fish meal or pet food factories. Some examples of net compensation expected in 1982 as a % of the OWP, are shown below.

Fish for Fishmeal:

Cod: from 54.9% to 72.1%, increasing with size/quality  
Haddock: from 59.0% to 71.4%, increasing with size/quality  
Whiting: from 51.9% to 64.1%, increasing with size/quality

Fish for Petfood:

Cod: from 32.5% to 67.4%, increasing with size/quality  
Haddock: from 44.4% to 65.3%, increasing with size/quality  
Whiting: from 26.5% to 56.7%, increasing with size/quality

Compensation rates have been improved in the latest set of basic marketing rules recently agreed in Brussels.

The new system envisages degressive financial compensation related to the quantities withdrawn, as a means of discouraging heavy withdrawals. The degressive rates are applied on a "tranche by tranche" basis viz:

Compensation as a % of OWP	Quantity withdrawn per annum as % of total quantity sold per annum
85%	0- 5 %
70%	5-10 %
55%	10-15 %
40%	15-20 %
0%	over 20 %

The point is made that the new scheme will only be of real help if POs are able effectively to control landings in order to keep withdrawals within the 10% limit when compensation would still be higher than it is at present. Seasonal fisheries, such as mackerel and herring present particular problems: for example one PO's annual withdrawals of mackerel can amount to as much as 30% (the same POs white fish withdrawals are only about 1 to 1.5%). The tranche system of applying degressive compensation rates does ensure that some compensation will be received in these cases.

(vi) Reference prices (RPs)

The level of reference prices

As RPs are effectively identical to OWPs for fresh and chilled fish fishermen criticise them for being too low, arguing that imports are allowed in too cheaply, with the effect of depressing domestic market prices to a level considered to provide fishermen with an inadequate basic income.

### Activation of the reference price

Under the present RP system, action can only be taken against cheap imports from third countries once (a) it has been established that their prices are less than the RPs and (b) the Commission has been informed and has agreed that action is needed on the basis of damage to markets. The procedure is obviously slow, and subject to delays while evidence is collected, communicated and debated. Even if it is agreed that the situation warrants some import control, by the time it takes effect, markets will probably already have suffered serious damage.

### (vii) Producers' organizations and non-members

Evidently, all perceived weaknesses in the EEC's marketing policy combine to discourage more fishermen from joining POs. If the market support activities of POs fail to guarantee what the fisherman considers a "fair income", there is little incentive for him to join one. Apart from not being subject to PO levies, he may find that with withdrawal prices pitched so low and compensation of only 60% of these prices available, he would be better off in times of depressed prices to be able to sell his fish on the market, at or even below the OWP, but receive 100% of the price. This would generally remain the case even if a PO either 'tops up' the official compensation, or operates AWP's, since compensation rates would vary according to the PO's financial position and anyway would usually be financed by the fishermen through levies.

The existence of non-members presents a serious obstacle to a PO's success in providing market support, where PO members and non-members operate in the same markets. For non-members can both undercut the PO's minimum prices and destroy the effectiveness of any PO plan to control landings. Control of supply is recognised by EEC - and indeed by all Northern British POs - as being crucial to successful price support. No PO will penalise its members by limiting their landings when others' landings continue unchecked. In North Britain the problem of non-members affects all except perhaps the Fife PO.

Current marketing policy provides for POs to be granted "exclusive recognition" within their economic area, that is, no other PO may operate therein and all non-members have to comply with the PO's production and marketing rules ("extension of discipline"). In Britain, the granting of exclusive recognition has been avoided as it would doubtless evoke serious political controversy.

Nevertheless some POs see exclusive recognition as the only answer to the non-member problem. Others, however, would prefer to see the incentives to join POs improved. According to this view, with all fishermen members of a PO, it becomes conceivable that co-operation between POs on prices and supply regulation might be achieved. Co-ordination could perhaps be achieved through further development of the functions of the UK Association of Fish Producer Organizations. Moreover, the grading system could be rationalised through this body: only one grader would need to operate at each market instead of a grader from each PO, as now happens.

Apart from the obvious incentives of a realistic schedule of OWPs, adequate compensation and an effective imports policy, the following are some other suggestions made by PO representatives:

- (i) On species not designated OWPs by EEC, but considered important in the UK, WPs should be fixed nationally and supported by a fund fed by contributions from all fishermen. Those who are not PO members would not be eligible for compensation.
- (ii) Applications for grants for vessel construction should only be accepted if made by a PO member.
- (iii) Non-members should also pay levies to support designated species, but should receive no compensation.

The latest marketing regulations include measures aimed at solving the non-member problem, for at the discretion of the member state but subject to the Commission's approval a PO may be granted "extended discipline" with regard to marketing rules. That is, for specified products, the member state could oblige non-PO members to comply with the PO's marketing rules (especially WPs) when operating in its economic area, so long as the PO had adopted OWPs for the products in question. The member state may further decide to oblige



non-members to pay an administrative levy to the PO, and it may also compensate non-members for withdrawal at a rate of up to 80% of the OWP. It has further been suggested that AWP's operated by the PO should be respected by fishermen from that member state only.

The regulations are generally welcomed as constituting a step in the right direction but DAFS stress that further work is necessary to establish a clear and workable definition of what constitutes 'marketing rules' (as opposed to 'production rules'). At least one PO anticipates that the disciplining of non-members could be fraught with difficulties. Without specific legislation from the member state a PO would be powerless to force non-members to pay the necessary levies. Furthermore, the availability of compensation direct from the member state to non-members is seen as a potential incentive for remaining a non PO member - and indeed as detracting from the PO's *raison d'être*. However, it has more recently been suggested in Brussels that non-PO members should receive only 60% (rather than 80%) maximum compensation. DAFS feels that at this rate, the incentive to remain a non PO member will be much reduced.

#### Marketing Policy and the Interests of Processors and Consumers

The discussion on marketing above has examined the weaknesses in the current system as perceived by fishermen, who would wish to see the system guarantee them a satisfactory income, but it has not questioned the justification for the system itself.

If one accepts the philosophy of the Common Agricultural Policy, which we do not, then compared to their agricultural counterparts fishermen can naturally feel aggrieved by the incomplete nature of the common marketing regime for fish, for the level of withdrawal prices does not offer such an adequate income as do the prices fixed for agricultural products, withdrawal prices fail to exclude imports and there is no system of monetary compensatory amounts to deal with divergences between 'green' or official currency rates and market rates.

When examined from first principles the system has little to recommend it from any other point of view than the fisherman's.

If withdrawal prices come into operation, price does not fall as far as it would, so that the processor and consumer are denied a lower price and some part of the output, which is diverted to an alternative user, e.g. the fish meal plant. To make matters worse, if it is an OWP, the consumer as taxpayer will have to pay part of the price of the withdrawn fish. In stark terms community policy is aimed at conferring the powers of a monopolist on POs. Non-members it is true make the power less than absolute but the objective is a strange policy goal. A PO would in fact be given the powers of a discriminating monopolist selling in two markets, the market for human consumption and a market for the residual supplies.

There appears to be no offsetting benefit for the processor or consumer. High prices, when supply fails e.g. because of adverse weather, will not be avoided, since ensuring regularity of supply is outweighed by the power of a PO. The processor suffers, since consumer demand is less at higher prices than lower prices, so that his output and employment will be less.

To the extent that prices and the incomes of catchers are higher than they would otherwise be, more resources will be kept in the industry, when they could be producing a product that is valued more highly elsewhere in the economy.

The present policy pays insufficient regard to the interests of processors and consumers and if it were made more generous towards the catching sector, it would be at the expense of the former.

#### The Consignment of Fish for Processing Outside Northern Britain

An odd feature of the marketing situation in Northern Britain is that a high proportion (guessed at about one-third to a half) is transported out of the region for processing, with most going to Humberside. Since fish loses bulk in being processed, it seems odd that the location of the processing plant should not be near the point of landing. If one were designing a fishing industry from scratch, landings and processing capacity would naturally be located together. In the Northern British case, however, there are historical reasons for the present pattern.

The demise of the landings by deep water vessels has left spare processing capacity and a skilled labour force on Humberside. This is used to process imports and fish from Northern Britain. The cost of transporting fish from the Grampian region, where most is landed, to Humberside is relatively cheap. The fish which is transported tends to be large, standardized fish suitable for machine processing and Humberside, having development status unlike Grampian region, is eligible for UK regional aid towards new plant and machinery. The acquired advantages, lower labour costs and state help, which Humberside enjoys, are sufficient to offset the additional cost of transporting unprocessed fish over processed fish.

For these reasons it is unlikely that the consignment of fish for processing at Humberside will show much change in the foreseeable future. The costs of establishing large scale processing operations in the Grampian region in competition with the oil industry for sites and labour are such as to make the present arrangement an economically rational one.

## SECTION 2.6      SUMMARY AND CONCLUSIONS

### Resources

- 1                Two essential features predominate in the changes in fishing patterns and catches. The first has been the loss of mid-water fishing grounds such as the Faroes and Iceland, which have led to the great decline in the mid-water trawling fleet and to a corresponding decline of processing in the ports of these fleets. The second is that while the stocks of many species declined over the seventies, the decline in the herring stocks was so severe that a total ban had to be imposed (with the exception of minor catches from the Clyde and the Isle of Man). Mackerel largely took the place of herring on the catching side, but since so much of it was transhipped at sea, it failed to replace herring on the processing side and the capacity to deal with herring fell sharply.
- 2                The conservation measures which have been adopted both by NEAFC and the EEC have been less successful than anticipated because they have been so often broken or evaded.
- 3                The estimates which scientists can make about yields from various species of fish suggest that with proper short run conservation there could be a physical basis for a prosperous long run fishing industry in Northern Britain.
- 4                The fishing plans, which have been proposed by several fish dependent communities, would be in their short-run interests, but they would harm fishermen from elsewhere and in a final analysis they make neither biological nor economic sense.

### Infrastructure

Northern Britain is in the position of having a very large number of ports but with inadequate onshore facilities. The solution to this problem would appear to lie in a process of port rationalisation with fewer ports with better facilities.

### Fleet structure

- 1           The major change in the structure of the fleet has been the decline in vessels over 110 feet, through loss of fishing grounds and a growth in the numbers of vessels of 60-80 feet.
  
- 2           Profitability was declining in all classes of vessel at the end of the seventies as nominal and real earnings fell in 1979 and 1980, while costs continued to rise sharply because of the increased world price of oil in 1979 and 1980. The collapse of earnings was due to a variety of factors e.g. in 1979 to a decline in volume, but in 1980 to a decline in prices. The decline in prices in turn was subject to long run influences, e.g. switch away from wet fish, and to short-run ones, of which the sharp rise in the foreign exchange value of the pound was most important. Fishermen suffered in a manner similar to other producers in the UK through increased competition from imports and difficulties in exporting.
  
- 3           The government response to the plight of the industry has been to offer grant aid on three occasions since the beginning of 1980. This aid appears to represent a holding operation to maintain the fleet despite its excess capacity as Section 3 demonstrates until the advent of an agreed Common Fisheries Policy. The absence of such a policy is the major source of uncertainty and indecision in deriving strategies for the future on the part of fishermen and processors.

### Employment

- 1           Employment, both in aggregate and in geographical distribution, has broadly followed the fortunes of the fleet in size and by distribution of registration.
  
- 2           The most 'fish dependent' communities tend not to have the largest absolute numbers of workers, while the largest absolute numbers of workers are not to be found in the most 'fish dependent' communities.
  
- 3           Fishermen as a whole lack formal training, a situation which is now being remedied.

### Processing

The processing industry has had an uneasy time trapped on occasions between a shortage of supplies e.g. herring and a shortage of markets especially for luxury products as at present. The major current problem is a shortage of capacity to deal with the landings from the reopened herring fisheries. There also seems to be a case for the upgrading of many processing establishments, an operation which would require some public assistance.

### Marketing

When the first hand sales price of fish collapsed, OWPs, which had hitherto been irrelevant, were found to be inadequate on a variety of counts, but mostly that they were too low. The same was found to be true of reference prices, which were cumbersome to activate and whose level was too low. The recent Commission proposals on reference prices should improve the speed of their application, though POs still regard their level as too low. A system of guaranteed prices, which satisfied catchers, would by the same token upset processors and consumers. The present machinery is designed too heavily to benefit producers, who, however, have failed to benefit as much as expected because of the levels of prices inherent in the system. If both the prices and machinery were correct from the point of view of the producer, there might be something of a consumer revolt. Fish must ultimately find a consumer. Fish is underadvertized in relation to other products and would benefit from a generic advertizing campaign.

SECTION 3 - Perspectives and Recommendations

### SECTION 3 : PERSPECTIVES AND RECOMMENDATIONS

#### 3.1 Perspectives

##### (i) Resources

Section 2.1 contained information about long run sustainable yields of various species. These are reproduced in Table 3 below. The species of vital interest to the Northern British fleet, haddock, cod, whiting and herring all appear capable of yields which would probably be adequate to sustain a prosperous fishing industry. Less is known about mackerel. The evidence, though mixed, does suggest that the biomass of species will recover, if conservation measures are observed. The herring stock off the West Coast is sufficiently prolific to provide landings which cannot be absorbed by current processing capacity. Despite the chaos associated with its sudden opening some degree of fishing before full recovery of the stock is probably justified, both to encourage the development of new processing capacity and to reawaken a taste for herring.

The North Sea haddock stock has also recovered sufficiently to permit an ending of UK government import quotas in autumn 1981, and the problem as with herring is whether the human consumption market is large enough to absorb any increase in landings. On the other hand the North Sea herring stock is recovering slowly.

It has been suggested that other species should be fished, to offset the decline in recent landings of the staple fish. A major problem is consumer taste in the UK and Scotland in particular, which shows a marked reluctance to substitute saithe for the stock demersal fish. The same goes for blue whiting. It has recently been argued that blue whiting may not even have a promising future as an industrial species in Northern Britain.<sup>1</sup> While the timing of their appearance is good (March-April off West Scotland and Ireland) in that not many other industrial species are then available for reduction, their fat content is at its minimum, so that little fish oil will be derived. It is

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1 P.O. Johnson and R.S. Bailey - Prospects for Further Utilization of UK Fish Meal Capacity, MAFF Laboratory Leaflet No.53, 1981.



also not clear that such an industrial fishing would be profitable. Large vessels are required for the exposed offshore waters, the season is brief and the price for fish for reduction is low. In our view the future is likely to lie with traditional species.

The decline of species may be reversible, but other problems experienced by the fishing industry may not be. It is hard to see where a future might lie for company owned deep sea trawlers, since EEC waters do not provide suitable fisheries and no owner is likely to continue in operation or reinvest in vessels on the basis of short term agreements between the EEC and third countries.

It is argued below in the section on fleet requirements that successful conservation policies and a 'traditional' Northern British share of resources could remove resources as a constraint and substitute in its place lack of consumer market, given both the long run trends on fish sales and the competition of imports.

It has been argued by the HADB that the 1980s may see some reorientation of fishing effort towards the seas off the West of Scotland, the argument being that these are the least exploited waters. Given also rising fuel costs, vessels are likely to operate from West Coast harbours. Already at least one French trawling company has been seeking a base on the west, but meeting intense opposition from local fishermen, who regard such intrusions as a threat to their livelihood.

Such a move may exacerbate a problem which has arisen in 1981. As a result of a legal judgement, inshore vessels are now fishing in Scottish sea lochs and causing damage to the equipment of static gear fishermen, e.g. lobster pots. Some modus vivendi needs to be agreed between the two sets of fishermen.

(ii) The fleet

Fleet requirements on the basis of assumed quotas and TACs are calculated below. Section 1.2.3 (a) provided evidence of the aging of the Northern British fleet. Given that it is predominantly an in-shore fleet, vessel age is of less significance. More disturbing is

the excess capacity which will exist for the next few years at least. Opinion in the industry locates excess capacity in the mid water trawler fleet, which is elderly and diminishing rapidly, and in purse seiners, most of which are new and represent a vast increase in capacity, which will be grossly underused until herring stocks make a substantial recovery. These are judgements with which we concur.

Given the excess capacity which exists in the fleet in the UK as a whole and in fleets of other countries, the wisdom of giving grants for the building of new vessels must be questioned. Grants have been available from UK bodies and from the EEC, and of the total dispensed in 1978 about two-thirds came from the national government and one-third from the EEC. (See Sections 1.4.1 and 1.4.2). The arguments which can be made for the policy of grants are the following. Fish competes with other forms of protein and the producers of foodstuffs in the EEC are massively subsidised (and consequently also have excess capacity) so that equity calls for some parity of treatment. Secondly grants are given for capital expenditure under UK and EEC regional policy for plant and machinery on land, so that equity again calls for some parity of treatment for the fishing industry. Thirdly if one government aids its fishing industry, others are forced into doing so, for fear of loss of competitiveness on the part of its industry.

The EEC has made proposals<sup>1</sup> for the giving of aid on a uniform basis through the Community and has declared its intention of applying stringent scrutiny after agreement of a Common Fisheries Policy.

To obey the calls of equity on the first two grounds would still lead to the generation of excess capacity, which benefits neither fishermen nor nations in the long term. It would be more sensible to use the finance to offer more generous scrapping terms. Those who leave the industry would be more favourably treated, and those who remain would benefit from the departure of some capacity provided entry was limited thereafter.

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1 COM(80) 420 final

(ii) a Fleet requirements and the existing fleet

We have been fortunate to have been allowed access to output from the Lowestoft Mark II (Non Linear) Fleet Operation Model.<sup>1</sup> The purpose of the model is to calculate the pattern of fishing effort required to catch, as closely as possible, any given set of UK allocations of fish while departing no more than necessary from the historic pattern of effort and taking due account, if required, of economic efficiency and profitability. Although the output relates to the UK as a whole, the data are sufficiently disaggregated to enable us to combine together the landing districts which comprise Northern Britain.

Two computer runs have been made available to us. The first uses the model to analyse the actual data for 1979 in terms of days absent from port (the measure of effort) by fishing districts by quarters of the year and the types of vessels by length and major method of fishing. Since the supply of effort is not even throughout the year, because of the seasonal nature of many fisheries and because of the weather, it is important to have quarterly data, since the fleet needs to be large enough to meet the greatest demand upon it in any given quarter. Annual data fail to indicate whether 365 days of effort represents at one extreme the absence of one vessel on every day of the year or at the other the absence of 365 vessels on one particular day in the year. Quarterly data do not entirely overcome this problem but they do alert us to the problem of peaks in demand for effort. In what follows excess capacity in the fleet is defined with reference to the excess numbers of vessels over peak quarterly demand, so that the excess would be greater at other times.

Table I below compares the actual fleet in Northern Britain with the numbers which would have been adequate to take the 1979<sup>2</sup> quantity landed in Northern Britain.

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1 The Lowestoft Mark II (Non Linear) Fleet Operation Model, MAFF Fisheries Laboratory, Lowestoft.

2 The 1979 catch was below the average for the years 1975-79 by about 14%.

Table I:

1979 Catch in Northern Britain:  
Fleet Requirements and Actual Fleet

<u>Vessel Length</u>	<u>&lt;40 ft</u>	<u>40-64.9 ft</u>	<u>65-79.9 ft</u>	<u>80-109.9 ft</u>	<u>110-139.9 ft</u>
Fleet Required	223 <sup>x</sup>	555	280	32	21
Actual Fleet	1412 <sup>x</sup>	808	393	61	32
Vessels Excess to Requirements	1189 <sup>x</sup>	253	113	29	11

Note: x The figures for vessels of under 40 feet relate only to Scotland.

In the above table and the subsequent one for 1981 requirements, we ignore vessels under 40 feet. With respect to Scotland three-quarters of these small boats are of less than 30 feet and many are for part-time use. Vessels under 40 feet account only for some 9% of landings by value and a much lower percentage by volume. 85% of their earnings come from shellfish, so that they are not affected significantly by the size of the quota agreed by the EEC for major fish species. The provisions on access are of much greater significance for these vessels, in that the more vessels that have access to grounds inside the 12 mile limit, the more likely is it that damage may be done to small-boat static fishing gear.

Table I suggests that the 1979 catch could have been taken with 253 fewer vessels than existed in the 40-64.9 feet class, 113 in the 65-79.9 feet class, 29 in the 80-109.9 feet class and 11 in the 110-139.9 feet class. A summary figure for this excess capacity can be devised in the following manner. Assuming the average gross registered tonnage of a vessel in the 40-64.9 feet class to be 25 tons, 75 tons in the 65-79.9 feet class, 190 tons in the 80-109.9 feet vessel class and 370 tons in the 110-139.9 feet class, then the total tonnage of fleet over 40 feet would be 73,105 tons and the excess capacity 24,380.<sup>1</sup> Excess capacity would then represent some 33% of the tonnage.

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1 These are the coefficients in the Lowestoft model relating tonnage and length.

Another measure of excess capacity can be devised as follows. If it is assumed that vessels in the 40-64.9 and 65-79.9 foot classes can fish for 200 days per year, those in the 80-109.9 foot class for 270 days and those in the 110-139.9 foot classes for 275 days per year, the Northern British fleet of over 40 feet has a capacity measured in days fishing of 265,470 days, while in fact this fleet fished for 181,415 days.<sup>1</sup> Its excess capacity on this measure is about 32%.

An estimate of excess capacity of this magnitude does not seem unreasonable in view of the fact that between 1970 and 1979 the capacity of the fleet greater than 40 feet rose by slightly more than 1% as measured by days of potential fishing while landings were down over this period by nearly 18%. About half the excess capacity is explained before account is taken of the likelihood that some degree of excess capacity would already have existed in 1970 and that technical innovations during the decade would also have added to capacity, by enabling fewer vessels to take any given catch.

The second computer run endeavours to ascertain how many days of fishing effort would have been necessary for the UK fleet to have caught the fish provisionally allocated to the UK in the EEC fishery negotiations of December 1980, i.e. the proposed overall quota of 36% of the major species. Applying this percentage to total allowable catches gives a figure of fish to be taken by UK vessels in 1981. Northern British vessels account for about two-thirds of UK vessel capacity and fishing effort and it is essential that they would take two-thirds of the 1981 UK catch. It is then possible to compare how many Northern British vessels would be required to take this catch with the actual number of vessels over 40 feet in 1980.

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1 These are the coefficients in the Lowestoft model relating days at sea to vessel length.

Table 2:

1981 Catch<sup>x</sup> in Northern Britain:  
1981 Fleet Requirements and Actual Fleet in 1980

<u>Vessel Length</u>	<u>40-64.9 ft</u>	<u>65-79.9 ft</u>	<u>80-109.9 ft</u>	<u>110-139.9 ft</u>
Fleet Required	527	328	28	20
Actual Fleet	806	393	61	26
Vessels Excess to Requirements	279	65	33	6

x Estimated on basis of EEC proposed UK overall quota of 36% of major species and TACs for 1981.

Approximate measures of excess capacity in terms of tonnage and days of fishing effort can be calculated in the manner explained for Table 1. Excess capacity is then 29% in terms of tonnage and 30% in terms of days of fishing effort. The reduction in excess capacity compared to 1979 is due partly to a decline in the fleet among vessels over 110 feet.

There are two ways of dealing with redundant capacity. One way is to create a demand upon its services, i.e. to increase the catch possibilities by increasing the assumed 1981 UK overall quota. To bring all North British vessels into full-capacity use would require an increase in the UK overall quota to 49% of EEC fisheries resources, if all the extra fish were to be reserved for Northern British vessels. If, as is likely, it would not be possible to reserve the additional fish just for Northern British boats, and if the rest of the UK fleet had similar excess capacity and Northern British vessels are to take only two-thirds of the total catch, the UK quota would need to be increased to nearly 54%.

This hardly seems a politically viable solution in that other EEC members would then have only 46% of the EEC fisheries resources to share among themselves, though UK fishermen rightly make the point that the UK contribute about 60% to total EEC waters. It is also unlikely to be an economically valid solution given the constraint of markets and

low prices for fish in the UK, though again with a 54% share UK fishermen would have the resources to expand into the markets of other Member States, which would correspondingly find themselves short of fish, since these countries would be sharing the 46% quota. Though in an frictionless economic world such changes are conceivable, the frictions and inertia in actual economic systems rule out large, sudden changes of this nature.

An alternative to a larger UK quota would be larger TACs as and when the fisheries would permit this. Larger TACs could only follow from larger fish populations, in which case any given level of effort would result in larger catches. If market outlets for fish proved to be a constraint, then the quantities which could find markets could be taken by even fewer vessels than take present catches, at present fish population levels, so that excess capacity is unlikely to be eliminated by this possibility, which is considered further below.

The solution must lie elsewhere. The other method of reducing redundant capacity is to dispose of it by inducements for scrapping vessels. If the estimated excess capacity in 1981 were to be bought out at 300 EUA per GRT as proposed in COM (80) 787 final, the cost would be 20,340 tons at 300 EUA = 6,102,000 EUA, which converted into sterling at a rate of 1 EUA = £0.55 (Aug.1981) would give a figure of £3,356,100. In reality the expenditure would be less than this, as vessels of more than 80 feet and 200 tonnes and over are in any event not expected to have economic lives beyond 20 years, when surveys to obtain fishing certificates become very expensive. 38 vessels might, therefore, leave the fleet naturally by 1985 (see Section 1.2.3 on the fleet). This might account for as much as 10,000 GRT by 1985, so that 6,102,000 EUA would be an upper limit.

If the estimated excess capacity were to be bought out at 450 EUA per GRT, a figure currently under consideration by the Commission, the costs involved would be 9,153,000 EUA which amounts to £5,034,150.

Doubts must be expressed as to whether the size of inducement for scrapping even at the proposed higher rate will be sufficient to attract many owners. Assuming an average weight of 25 GRT for a vessel in the 40-65 feet class, this would produce a sum for scrapping of about

£6,200 per vessel at 450 EUA per GRT. As Table A74 of Section 2.3 shows the insured values for vessels in this class in 1979 were £42,800 for 40-50 feet and £77,800 for 50-60 feet vessels. The disparity between scrapping value and insurance value is equally great for larger vessels. This being so we are forced to conclude that the scrapping policy is unlikely to have much impact. It would appear that only those vessels which would leave the fleet in any case would be likely to apply for scrapping grants. To make an impact on the fleet the scrapping grant would need to be two to three times the higher figure proposed by the Community.

(ii)b An apparently optimistic scenario

It is possible using some of the data given in Section 1.2.1 and in Section 2.1 to devise an apparently optimistic scenario as follows.

Table 3:

1979 Catches and Estimated Maximum Sustainable Yields  
from the North Sea and the West of Scotland -  
(ICES IV and VIA) - 000s tonnes

	(1)	(2)	(3)
	<u>Total Catch in</u> <u>North Sea +</u> <u>West of Scotland</u>	<u>Scottish Catch from</u> <u>North Sea and West</u> <u>of Scotland</u>	<u>Estimated Maximum</u> <u>Sustainable Yield</u> <u>from North Sea and</u> <u>West of Scotland</u>
Cod	244	43	310
Haddock	100	55.5	100
Whiting	149	49.5	190
Saithe	137	10.2	220
Herring	29	2	800?
Mackerel	759	108	?
	<u>1418</u>	<u>268</u>	

(1) and (3) from the ACFM report for 1980 and the ICES Cooperative Research Report, 1979.

(2) Defined as landings in Scotland by UK vessels, from SSFST 1979.



The six species listed above with a combined landed weight of 268,000 tonnes accounted for three-quarters of all fish landings of 355,000 tonnes in Scotland in 1979. Among these species scientists have most faith in their estimates of maximum sustainable yields for the demersal species of cod, haddock, whiting and saithe, which account for about 45% of Scottish landings by volume. For these four species the aggregate weight of the estimated maximum sustainable yield exceeds the aggregate 1979 weight of the catch by some 30%. Hence if a strict regime of conservation could be effected, then after 5-6 years of its commencement, the stocks of fish which in 1979 accounted for 45% of landings by weight might have grown by 30%. If the guess, that herring could also return to some 800,000 tonnes, were realised then the resources available to the Northern British fleet would seem likely to make a call on most of capacity. Scientists are not prepared to guess at a sustainable figure for mackerel, so that there is still a considerable area of doubt about total resources.

In short if scientists are correct in their estimates of possible fish stocks and if a regime of conservation could be introduced and enforced (a proposition about which Northern British fishermen are sceptical), the fleet at present capacity might be in reasonable balance with resources by the late '80's.

While such a policy might represent a biological success, economic success is less certain for it depends upon the existence of a market for the greater volume of fish. This would require a reversal of past trends in fish consumption, in which a generic advertizing campaign might have a part to play.

The larger fish populations would lead to larger landings not only in Northern Britain but in the whole of the Community, so that markets and probably low prices appear to be major constraints. Larger fish populations would also have the paradoxical effect of increasing fleet excess capacity, since less effort (and capacity) would be required to take any given catch.

The relationships among resources, fleet size and markets

A prosperous fishing industry depends upon getting the relationship among resources, fleet size and markets correct.

Policies of conservation towards resources are almost always likely to make economic sense. Some catches will be foregone, while the stocks are allowed to recover, but when this has occurred, a catch of any given size can be taken with fewer inputs in terms of vessels and men, thereby keeping down costs, so that fish can be competitive with other foodstuffs. Individual vessels can be profitable by having low costs and large landings at moderate prices.

For its continued viability any industry depends on finding a market for its product at prices which cover costs. In Northern Britain markets are presently a constraint on the profitability and continued success of the industry. Two policies appear desirable to create larger markets for fish. One is to reverse the trend, operative for most of the seventies, for fish prices to rise relatively to those of other foodstuffs. A larger resource base, because of conservation, could play a part in this. Secondly it appears desirable to endeavour to extend the market by promoting fish by means of an advertizing campaign, stressing for example the merits of fish as a fitness food.

We have shown above that the Northern British fleet has excess capacity in relation to present catches. In a situation where markets present a constraint on profitable landings, successful conservation policies will paradoxically increase the excess capacity, for a catch of any given size can be taken with less effort and fewer vessels than in a situation where fish populations are smaller. This argument reinforces the wisdom of adopting a policy of scrapping vessels, since excess capacity will exist on most scenarios.

In the present context the relationships between resources, fleet and market suggest the pursuit of a tripartite policy of resource conservation, fleet reduction and market development.

(iii) Employment considerations

The current excess capacity in the Northern British fleet is likely to be associated with a similar excess supply of labour given the ownership pattern of the fleet. While the deep-sea fishermen are employed casually and can, therefore, be released as resources contract, the bulk of fishermen are on inshore boats of which most are part owners, so that they are to some extent locked into the industry. There is still the incentive to go to sea in the hope of making a bumper catch, even though recent experience has been poor, rather than seek employment on land, which may be hard to find in a time of recession.

Assuming that 40-64.9 feet boats carry on average a crew of 5, 65-79.9 feet a crew of 7, 80-109.9 feet a crew of 10 and 110-139.9 feet a crew of 11, then if the redundant capacity projected in Table 2 were removed from the industry some 2250 jobs, or about one quarter of the total, would be lost.<sup>1</sup> This is likely to be the upper limit, since some non-share fishermen would probably have been released in any case.

In the 1970's for every job at sea there was on average in Scotland (for which figures are available) 2.12 jobs in fish processing and related onshore employment. It would be wrong to conclude, however, that a loss at maximum of 2250 jobs at sea would automatically lead to a loss of 4770 jobs in processing, because the ratio between jobs at sea and on land has been declining steadily as the following table shows.

Table 4: Ratio between Number of Fishermen and Workers Employed in Fish Processing and Related Onshore Employment in Scotland, 1970-1979

1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
2.12	2.27	2.3	2.2	2.13	2.12	2.12	2.07	1.93	1.93

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1 These coefficients relating vessel length to crew size are derived from a sample made from the list of Scottish Fishery Vessels 1980 DAFS.

Onshore employment seems more dependent on volume of landings than upon the number of fishermen. The correlation coefficient between landings and onshore employment is 0.83. Between 1973 when Scottish landings were at their peak and 1979, landings declined by 29% by volume, onshore employment declined by 20% and the number of fishermen by only 8.7%. On the basis of the downward trends since 1973 one might guess that onshore employment would decline by some 2,500 by 1985, but this will ultimately be determined by future landings and the market for fish rather than past trends.

(iv) Measures to obtain regional preference

Regional preference, in terms of privileged conditions of access, has been argued for by the UK Government in the negotiations over a common fisheries policy in terms of an exclusive 12 mile coastal zone plus restricted access in certain areas extending in particular around the Orkneys and Shetlands and the Irish Sea beyond 12 miles, and it has been argued for by the fishermen in particular areas of Northern Britain in terms of the introduction of fishing plans. The regional fishing plans typically seek preference or exclusive access within a 12 mile limit for vessels of the immediately adjacent coast together with conservation policies including licensing for the fish resources of the surrounding area in which the fishing community has a major interest.

(iv)a National preference

Arguments in favour of guaranteeing national preference through limits on access for fishing can be made under three different hypotheses. The first is that resources are scarce and that quotas either have not been agreed or are not being properly policed or enforced. Where there are no quotas any area of preference will clearly make it easier for the

state with preference in the form of exclusive access to catch a higher proportion of any available species, since its vessels will have access to its own 'closed' zone and to the 'open' sea. Likewise where there are quotas, but they are inadequately enforced, a zone of preference will give the fishermen of the state with preference a better chance of obtaining their quota, if the fishermen of other states flout the quotas.

The second assumption would be where the TAC is accurately set and quotas agreed and enforced. In this case the size of the quota is the relevant constraint. Once it has been caught, fishing must stop. What a zone of preference would do in this case is possibly to enable the fishermen of the state to attain the quota with a lower level of effort and costs, since they have their own reserved waters. All countries may be able to attain their quotas, but with different levels of effort and costs.

The third situation would be where there are no shortages of resources. A preferential zone would still have a *raison d'être* if it reserved for a country some prolific fishing ground, which enables costs to be lower than would be involved in taking a given catch elsewhere. The fishing industry could then enjoy a competitive advantage in its domestic market and in foreign markets.

From a national viewpoint it is therefore rational for a state to seek as large a zone of preference as possible, where the objective is to maximise the welfare enjoyed by the citizens of the state.<sup>1</sup> The argument for zones of preference on grounds of conservation is not well founded unless the zone is extremely large, for given the mobility of fish success in such a policy can be only partial unless the entire fishery is included.

The data in Section 1.2.1 give some indication of what a 12 mile preference zone would mean for Northern Britain. Admittedly the data applies only to Scottish vessels but the North-East England experience is unlikely to differ much. In 1979 52.6% of all fish caught by Scottish vessels was caught within the 12 mile zone, while the figure

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1 With the proviso that other states are less well placed to retaliate because of less extensive or less prolific grounds.

for 1975 was 54.7%. While such a zone gives considerable preference and protection in the case of pelagic fish, shellfish and industrial fish, at least two-thirds of the more valuable demersal fin fish are taken outside the zone. Our data are not capable of saying at which distance from the shore the bulk of the demersal catch is taken.

The arguments about fishing plans are ultimately about income distribution and the viability of communities. A preference for local fishermen redistributes income in their favour at the expense of other fishermen in particular, and of the nation and the international community at large. If this is the only objective it may be better done by fiscal measures. If, on the other hand, the argument is based upon the need to ensure the continuation of a particular way of life and the viability of communities, this is a decision which goes beyond economics, but whose economic consequences should be delineated. There may be better economic methods of attaining the viability of these communities, a topic to which we return below.<sup>1</sup>

(V) Producers' Organizations

Community fisheries policy in its development to date has been oriented towards the catching side of the industry and to the first hand sale of fish in particular. This is an area where the concept of a producers' organization could be expected to work, since fishermen are working together with the object of maintaining or raising prices and, as a possible consequence, incomes.

Even in this area they have not been very successful. As has been argued earlier (see Section 2.5) a producers' organization is an incipient monopoly and like any organization with monopolistic potential its power is diminished by the existence of substitutes from rival producers. A PO has to deal with three: imports, non-members and other POs.

Imports into the UK have been rising since the mid seventies, but the strength of the pound sterling since 1979 has contributed to

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1 See Appendix 2.

these imports. Markets have collapsed in Northern Britain because of the irregular but large inflows of imports, especially in the first quarter of the year. The result has been that fishermen have often had to rely on OWPs, which are inadequate to maintain the fleet at its present size.

Landings by non-members have also been a source of trouble from time to time. Non-members are 'free-riders' in that they benefit from the existence of POs without incurring any of the costs, for if POs withdraw fish, this action will ensure a higher price for a non-member's fish. To compel all fishermen to join POs would cause a considerable political controversy, which no UK government would be keen to arouse, so that this problem is likely to remain.

Thirdly, POs have from time to time spoilt each other's market by adopting different price strategies with regard to AWP and OWPs. Since buyers will normally buy where fish is cheap, a PO with a lower withdrawal price for some species or grade may see its fish sold, while another PO to maintain a higher price has to withdraw fish. Problems of this nature could only be overcome if all POs adopted nothing but OWPs, which is likely to be the case in Northern Britain in 1982, or if there were only one PO for Northern Britain or if there were a highly co-ordinated association of POs. On the basis of recent evidence, where the number of POs has been increasing because fishermen on a regional basis feel that their interests are neglected by POs which are national in scale, there would seem no likelihood of the emergence of just one PO for the region. Given the diversity of interests of fishermen even a co-ordinating association might prove difficult, unless agreement were limited to the uniform adoption of OWPs or AWP. A suggestion of this nature was made by the five POs operating in Scotland in Spring 1981 when they sought money from the UK Government for an agreed minimum prices scheme. Had money been forthcoming, which it was not, the POs would have been involved in jointly operating a national scheme for Scotland, which was to have had provisions for consulting buyers and also for benefitting non-members of POs. Likewise the removal of quotas on haddock in Autumn 1981 has seen a flurry of activity among POs to find some scheme for limiting landings to prevent oversupply to the market and the collapse of prices. Agreement is difficult to

obtain because at least one PO is unwilling to co-operate in such a scheme.

POs are even more likely to be found inadequate outside the areas of marketing where the interests of fishermen are likely to diverge. They are not for example an appropriate institution for dealing with the problem of overcapacity. If they were to be given the task of allocating the quotas of fish among members, they will tend to spread quotas out thinly, for any other policy would involve a loss of members. Such a policy will do nothing to remove excess fleet capacity, for the efficient will be allowed to land no more than the inefficient, so that all may hang on in the industry, whereas a policy for, for example, auctioning the rights would mean that unsuccessful boats did not fish and would probably soon be forced from the industry.

### 3.2 RECOMMENDATIONS

#### General

To have a viable long run future a fishing industry requires to be profitable without resort to official aid. To attain this objective an industry needs a market for the final product, an adequate resource base for the supply of the raw material, and a fleet without excess capacity, operating on this base. It would be possible to make suggestions which could improve the lot of the catching side of the Northern British industry in the short-run e.g. by recommending substantial increases in official withdrawal prices, but it has to be remembered that the industry ultimately operates within the constraint of demand for the product, which could fall sharply if prices rise sharply. A balance needs to be struck in the medium term between resources, fleet and market and our recommendations focus on this problem. It should be recognized, however, that neither UK nor EEC policy presently has any mechanism for preventing the renewed development of excess capacity if this balance were to be achieved. A rise in profitability resulting from a more decisive structural policy may simply attract more resources to the industry, so that the long run state may once again be one of excess capacity and low profitability. Thought needs to be given



in the not too distant future to a long run fisheries regime, perhaps involving limitations on entry in the fishing industry. (See Appendix 2).

### Resources

1. To secure a healthy resource base for the future we recommend that the Commission should institute on scientific advice a continuous policy for conservation of species beginning currently with mackerel and sprat which are both now under threat.
2. Policies of conservation need to be backed up with effective measures of surveillance. The effectiveness of past measures has been weakened by numerous breaches of regulations. This has been bad not only for the species but for the relations between fishermen. We recommend that consideration be given to a substantial increase in resources devoted to enforcement, using such techniques as observers, satellite surveillance, computer monitoring of vessels, licensing etc.
3. Our arguments lead us to the conclusion that given an overall effective conservation regime quota size is a more relevant consideration than is preferential access for the well-being of a fleet, since the size of the catch is the ultimate constraint, whether an industry enjoys a preferential zone or not. If an immediate balance were to be struck between resources and fleet, with the fleet remaining at its present level, it would be necessary to recommend that the Northern British industry press for a substantial increase in quota over the best offer yet made in the Common Fisheries Policy discussions.
4. We have reservations about the economic and biological validity of regional fishing plans. If they are to be adopted for social reasons we recommend that they be administered by government departments and that they be operated by means of licences, which could give preference to fishermen from the plan region.

### Infrastructure

1. Northern Britain has a large number of ports, most of which lack one facility or another. We recommend that there be some rational-

isation of ports to provide a system of regional centres with a wide range of onshore facilities. Such a result could be promoted by using national policy measures for the provision of port improvements.

2. The decline in the fortunes of the port of Aberdeen has been due primarily to two factors, the rundown of the trawler fleet and the high cost of landing fish due to the 1967 Dock Labour Scheme. While little can be done to reverse the former, we recommend that the UK government should examine the possibilities of relieving the port of Aberdeen from the burdens of the Dock Labour Scheme.

### Fleet

1. On most scenarios for the future the Northern British fleet, like those elsewhere in the EEC, is likely to be characterised by excess capacity. We therefore recommend that the UK and EEC authorities undertake a vigorous campaign of buying out excess capacity. The current EEC rate per tonne proposal by the Commission represents an inadequate inducement for owners to take vessels out of the fleet. We recommend that the rate be increased by diverting finance from sums set aside for grants for new vessels and modernisation.

2. If, through policies of conservation and scrapping, a balance is struck between resources and fleet in the near future, we see nothing in present policies that would prevent the entry of new catching capacity in the future and a return to excess capacity. We recommend that consideration be given to devising a long run regime for fisheries which would limit input to the industry e.g. by devices of restrictive licensing.

### Employment

1. Total employment in the industry will depend on profitability and technical change in the industry. The former will be determined largely by the share of resources available to the Northern British fleet

and the size of the fleet, tempered by competition from other suppliers. We expect total employment to continue to decline. We have made recommendations about resources and fleet above. We recommend that the skills of fishermen be increased by proper courses of induction to the industry and by short courses organized for serving fishermen. A vehicle for such training already exists in the Sea Fisheries Training Council, which would benefit from an increase in the resources at its disposal.

#### Processing and marketing

1. We are of the view that the processing sector is inadequately organized for stating its case. Its lack of 'political' impact has meant that its interests have often been ignored in policy decisions. We recommend that it take seriously the question of organizing itself so that its interests are adequately represented. The industry in Northern Britain needs more consultation and co-operation between processors and catchers. Too often they have been at loggerheads with each other.

2. We consider that many processing establishments have inadequate facilities e.g. in terms of hygiene, that this may be a factor in the bad image which fish has with consumers and that standards could be raised by regulations from the EEC. The implementation of higher standards would be at a cost but we recommend that it would be appropriate for help to be provided by the EEC, and by central and local government in the UK, for about two-thirds of the industry will cease to be eligible for UK aid by 1982, while suffering from rising costs especially of labour, because of North Sea oil development.

3. One pressing current problem is the inadequacy of pelagic processing capacity. This is of concern not only to processors but also to catchers, who see much of their catch go for fish meal rather than human consumption. Given that the loss of capacity was not of the processors' making but resulted from the ban on catching herring, we recommend that aid should be given by the UK government or by EEC or both, partially on grounds of equity to the processor but also to help develop markets for the revived herring catches.

4. In our view the collapse of first hand sales prices has much to do with the high value of sterling, which encourages imports. We expect the £ to decline in value against other currencies, thereby diminishing competition, though the changed nature of international trade in fish makes it likely that imports will not return to their level in the early seventies. We think the issue of OWPs and RPs are secondary to obtaining a more realistic rate for the pound. To recommend higher prices would be to ignore the constraints of the market and to ignore the interests of processors and consumers. Indeed one of the problems in the UK is the declining market for fish and we would recommend that a generic advertizing campaign be mounted on behalf of the industry by the new Sea Fisheries Industry Authority.

5. We think that producers' organizations could improve their position within the constraints of the present arrangements if, as we recommend, they form a coordinating association to ensure consistency of their plans and objectives.

## Appendix 1    THE ISLE OF MAN

### Introduction

#### 1.    A Socio-economic Survey of the Isle of Man

##### 1.1    Geographical location

The Isle of Man is located in the Northern Irish Sea, equidistant from England, Ireland, Scotland and Wales. It has an area of 588 square kilometres, measuring 55 kilometres from the Point of Ayre in the north to Spanish Head in the south. The maximum width is 20 kilometres. To the south of the main island is a small island, the Calf of Man, separated from the main island by a tidal channel, The Sound. South of The Sound is the Chicken Rock lighthouse.

As no place in the Isle of Man is more than approximately 20 kilometres from the sea, it goes without saying that the climate is mild, and that snow and frost are rare, although in the winter the island may be severely affected by gales, particularly from the south-west. These gales may, on occasion, severely affect the herring-fishing during late August and September.

The population of the Isle of Man is 60,500 persons. The population is concentrated in the principal towns of Douglas (the capital), Ramsey, Peel and Castletown.

##### 1.2    Occupational structure

Of the population of 60,500, the total labour force is 23,300, or 39 per cent. The principal industry is the seasonal tourist industry. Visitors to the island total more than 500,000 per year, primarily from Lancashire, south-west Scotland, the West Midlands and Northern Ireland. The second industry is agriculture, with the primary emphasis being on livestock breeding and export.

##### 1.3    Administrative Organisation

Since 1828, the Isle of Man has been a Crown Possession of the

United Kingdom, with a considerable degree of self-government. It is not a member of the European Community, and therefore not bound by the Community's conventions, or by the Treaty of Accession signed by the United Kingdom, Ireland and Denmark in 1972. The government consists of a lieutenant governor, appointed by the Queen; a council (upper house) and the House of Keys (lower house). The two houses act as separate legislative bodies but, as the Court of Tynwald, come together for certain business. The ability of the Manx Government to levy its own taxes, and the fact that the tax rates are established significantly lower than in the United Kingdom, have resulted in a significant number of individuals and companies becoming established on the island to take full advantage of the lower tax rates.

#### 1.4 The importance of the fish-catching and fish-processing industry to the Isle of Man

There are, in the Isle of Man, 250 fishermen employed full-time, and fish processing and ancillary trades (excluding those employed in fish-transportation and fish-processing) employ a further 250 Manx people.<sup>1</sup> The 500 people employed in all represents 2.1 per cent of the island's labour force.

These aggregate figures tend to hide the regional importance of the industry, however. The fishing industry is particularly important outside the main town, Douglas, in the towns of Ramsey, Port Erin, Castle-town and Peel. For the three years 1977-1979, the average weight of fish landed in the Isle of Man was 7,730 tonnes, and the average 'first-hand' value was £5,307,634, or £686.63 per tonne (69p per kilogramme).

#### 1.5 Conclusion

The sea-fishing industry is a small industry on a small island in the middle of the north Irish Sea. It has a fleet of 80 inshore

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1 This equality between jobs in the catching sector and on-shore jobs is seen also in Northern Ireland, but is significantly lower than the employment multiplier of 7 rumoured to have existed in deepsea ports.

boats, varying from 25 feet to 80 feet in length. The industry, although small, assumes a particular importance in the towns outside of the capital, Douglas. The importance of the Isle of Man is the proximity to the island of one of the two major herring stocks in the north Irish sea, the Manx stock, and the contribution of the government on the island to the overall management of that stock during an era of increasing pressure on the stocks. (The other herring stock, the Mourne stock, has been closed to fishing for the past two years, and closed to the larger vessels for two years prior to that, until the selective exclusion was successfully challenged in the European Court). We shall have cause to discuss these matters in greater detail below.

## 2. The Manx Fishing Industry

### 2.1 Stocks exploited and areas fished

The Island is surrounded by good fishing grounds, stocked by numerous species of demersal and pelagic fish and by shellfish, providing fishing for one species or another throughout the year. The island is located in the International Council for the Exploration of the Seas (ICES) Division VIIa, the North Irish Sea. The ICES Advisory Council on Fisheries Management (ACFM) meets once per year to make recommendations on Total Allowable Catches (TAC's) for each stock thought to be under excessive fishing pressure, in the North-east Atlantic. Recommended TAC's have been made for all the major demersal and pelagic stocks in the North Irish Sea, outside the waters within 12 miles of the Isle of Man. The Isle of Man is not a member of the European Community, but has a special relationship with it. This relationship is, however, limited to that deemed necessary 'to ensure free movement of goods and the observance of normal conditions of competition in trade'. The waters to within three miles of the Isle of Man are the sole jurisdiction of the Isle of Man's Government; the waters from 3 to 12 miles are the responsibility of the United Kingdom Government 'in consultation with' the Isle of Man Government. Non-British fishing vessels do not have right of access to the water's within 3 to 12 miles, except for historic rights awarded to France, Belgium and Ireland before the United Kingdom acceded to the European Community.

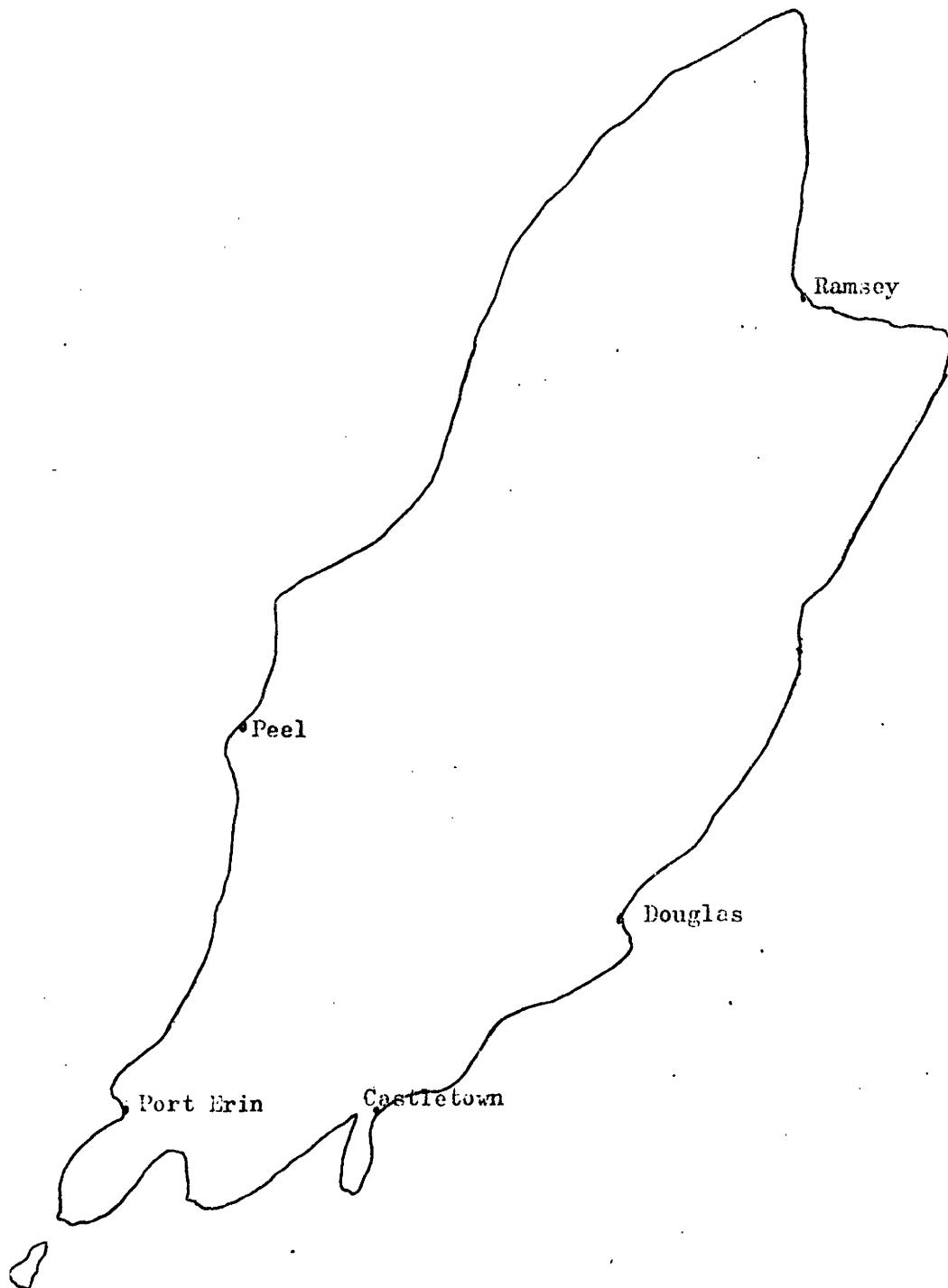


Figure 1: The Isle of Man and Principal Ports



The Manx fleet tends to concentrate on the shellfisheries on the escallop and queenie beds surrounding the Island, although during the 1970's the fleet diversified its catch somewhat. This can be seen from the information in Table 1 below. Since 1974, prawns and lobster landings have contributed to the quantity of fish processed in the Island. Quantities of lobsters have been landed in the Isle of Man prior to 1974, although they were not formally recorded. Concern about the lobster stocks being over-fished had been expressed by the Isle of Man Board of Agriculture and Fisheries in 1973, and the consequent two-thirds reduction in the catch from 1975 to 1979 appears both to justify the previous concern, and to lament the absence of effective measures to manage this small fishery. The increase in the nominal price per pound to the fisherman, from £1.05 to £2.64, which on an inflation-adjusted basis still leaves an increase in real prices of approximately 75 per cent over the six-year period, may go some way towards explaining these two related factors.

The herring stocks around the Island have always attracted a large fleet of boats, some from the Island, but mostly from Scotland, Ireland and, particularly, Northern Ireland. The Isle of Man has always issued licences, available to any vessel wishing to fish in the Island's waters. We will discuss the Island's policy towards the herring fishery in greater detail below.

As stated above, the escallop and queenie beds form the primary focus of the Isle of Man fleet. The escallops and queenies are fished on the sandy and muddy gravel beds that are found all round the Island and into the North Irish Sea. The prawn (more properly Nephrops) grounds in the North Irish Sea are fished extensively by the Northern Ireland fleet, and, to a lesser extent, by the Scottish, Irish Republic and Manx fleets. The demersal fish catch in the North Irish Sea tends to arise primarily as a by-catch from the directed Nephrops fishery with the exception of a six-week to two-month cod fishery beginning in March. The herring season begins in June, and continues off the south-west coast until mid-August. This period is known as the 'low season'. The fishery then follows the shoals to the south-east coast, off the Douglas Banks down to the Chicken Rocks, and usually closes at the end of September. The catch during the 'high' season is significantly greater

Table 1: Weight of Fish Landed to Processors in the Isle of Man,  
1969-1979

Species Year	Queenies	Escallops <sup>a</sup>	Prawns	Lobsters	Herring (units) <sup>b</sup>
	<u>lbs</u>	<u>lbs</u>	<u>lbs</u>	<u>lbs</u>	
1969	1,000,101	431,899	-	-	50,220
1970	1,267,136	212,129	-	-	97,402
1971	1,433,895	279,664	-	-	105,817
1972	1,683,676	148,952	-	-	115,609
1973	1,265,754	305,890	-	-	101,146
1974	827,940	288,646	14,296	15,299	109,758
1975	722,266	508,022	45,384	19,096	111,135
1976	679,733	554,470	79,140	13,277	76,638
1977	484,019	481,972	169,459	9,386	87,290
1978	523,488	568,914	185,112	8,045	67,329
1979	569,349	529,759	821,288	6,432	77,301

a. Quantity of meat landed

b. 1 unit 1 100 kilogrammes

Source: private communication, J.L.H. Corlett, Secretary,  
Isle of Man Board of Agriculture and Fisheries.

than that during the low season, and it is during the month-to-six-weeks of this season that most licences are issued.

## 2.2 Isle of Man: Fishery infrastructure

As has been noted above, there are four fishing ports in the Isle of Man: Castletown, Peel, Douglas and Ramsey. The facilities available for fishing vessels in these ports is limited. There is only one port with an ice-plant: Peel has recently had a new ice plant built by the Isle of Man Board of Agriculture at a cost of £80,000. The capacity of the new Peel ice-plant is 24 tons of ice per day.

There is only one slipway in the Isle of Man, at the port of Ramsey. The Ramsey slipway has, on occasion, taken 400 ton coastal vessels, depending on the state of the tides at the time of year when the vessel was 'slipped'. It is more usual, however, for 100-120 ton vessels to use the slipway, including vessels from the Island, Cumbria, south-west Scotland, Northern Ireland, and the Irish Republic

There are no fish market buildings in any of the Isle of Man ports. With the exception of the herring catch, the fish that is landed is sold under contract to one of the Island's processors, and, on landing, is transported directly to that processor. The herring, when in season, is auctioned on the basis of a sample landed from the vessel. The catch is then either landed on to one of the Manx kippering companies; landed to be 'klondyked'<sup>1</sup>; or, less frequently, landed and pickled in a particular way, primarily for the Dutch, Belgian and German markets. A significant portion of the catch is also transferred directly from the fishing vessels to 'luggers', usually from Holland or Belgium, which lie off the major ports in the Isle of Man during the herring season. Regardless of where the catch is unloaded, the method of unloading is via the vessel's own winch, usually in fish boxes which hold approximately 44.5 kilogrammes (7 stone) each.

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1 That is, loaded into barrels, with layers of salt between the layers of herrings.

During the course of this study we found that detailed information on the Island's harbours was difficult to obtain, as there appears to have been no major survey of them in recent years. The one harbour for which we were able to obtain detailed information was Douglas harbour (the information probably being available because of plans to make a major extension to the harbour). The total quayage, or quay space, in Douglas is recorded as 615 feet: the inner harbour has 195 feet; the outer harbour has 220 feet; and the so-called Battery Pier has 200 feet. However, only the inner harbour is really safe during adverse weather conditions. Also, during the harbour improvements, all berthing at the Battery Pier will be suspended.<sup>1</sup>

## 2.3 The Isle of Man Fishing Fleet

### 2.3.1 The vessels and methods of fishing

The Isle of Man fleet is quite clearly an inshore fleet, rarely spending more than a day away from home port. Table 2 shows the structure of the fleet in 1973, and Table 3 the structure in 1980. It can be seen that the fleet of vessels in excess of 15 tons has almost doubled during the intervening 8 years, from 48 to 92 vessels. The chief port, by number of vessels, has always been Castletown, followed by Peel, Douglas and Ramsey. Although not being a port of registration, Port St. Mary (to the south of Douglas) is quite an important port for fish processing.

The fishing methods used by the Isle of Man fleet are reasonably traditional. In the herring fishery, the stern trawler has progressively displaced both the smaller (and technically less efficient) drift-netter and ring-netter since 1959, the year when the trawler first came into the Isle of Man herring fishery. Table 4 shows the trend in detail from 1957. From this it can be seen that the quantity of herring per landing from drift-netters has fallen continuously from 1965 (with the exception of the two years 1972/3). Ring-net landings have been much more volatile,

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1 The harbour improvement is to expand the cargo facilities to and from the Island, and not to expand and improve the facilities for the fishing industry.

Table 2: The Isle of Man Fleet by Vessel Size and by Port, 1973

Vessel size Port	Under 15 tons	15-49 tons	50-99 tons
Castletown	40	21	-
Douglas	8	9	-
Peel	13	15	1
Ramsey	13	2	-
Total	74	47	1
(Average tonnage	4.04	26.51	87)

Source: Hjul, P.J. (ed.): Fishing News Directory and Equipment Guide, Westminster Press Ltd., January, 1973.

Table 3: The Isle of Man Fleet by Port, 1980 (Vessels over 15 tons)

<u>Port</u>	<u>Number of Vessels</u>
Castletown	30
Douglas	20
Peel	32
Ramsey	10
Total	92

although there appears to have been a downward trend in landings per vessel. Landings per trawler in the Isle of Man also peaked in 1972/3, and have fallen since then. Whilst Manx vessels tend to work individually, some of the larger Scottish vessels which come to fish herring use the pair-trawling method and fish in 'teams', which are effectively consortia of two or more vessels. This is a fishing technique which is technically more efficient and which also utilises the time at sea more efficiently than when vessels fish individually. It is also, of course, a way of spreading the risks involved in fishing by sharing the income across the vessel team.

The queenies and scallops are caught using a dredge, which is towed behind the vessel and virtually scrapes the shells off the gravelly beds. The shells are then graded in a circular riddle on the deck of the vessel. Crabs and lobsters are caught in pots or creels in the conventional manner. There is no evidence of trawling for crabs off the Isle of Man. (This technique has been tried by Northern Ireland fishermen, although with only limited success).

Both the vessels from the Isle of Man, and other vessels fishing in the North Irish Sea, are owned by their skippers, although processors may own, or have shares in, a small number of boats. However, skipper/ownership is clearly the most prevalent mode of vessel ownership for vessels fishing in the North Irish Sea.

### 2.3.2 The catch by the Manx fleet, and by other vessels near the Isle of Man

Table 1 shows the fish that have been landed into the Isle of Man over the years 1969-1979. The obvious changes are: firstly, the fall in the quantity of queenies and scallops landed into the Island (the fall between 1969 and 1979 was 23.2 per cent); the rise in herring landings from 1969-1979 (a rise of 54 per cent over 1969, although a fall of 30 per cent from the landings peak in 1975); and the great increase in prawn landings between 1974, when they were first recorded, and 1979 (more than a 57-fold increase in landings). Table 4 shows that the number of landings of herring on the Isle of Man have increased over the period, from a total of 611 in the Island in 1957, to 2,089 in

Table 4 Annual Herring Landings in the Isle of Man and Elsewhere by  
Type of Gear, 1957-1979

Year	<u>DRIFT</u>					<u>RING</u>		
	Landings		Tonnes		Tonnes per Landing	Landings		Tonnes
	Total	In I.O.M.	Total	In I.O.M.		Total	In I.O.M.	Total
1957	-	253	-	352	1.39	-	355	-
1958	-	313	-	116	0.37	-	382	-
1959	141	103	105	48	0.47	623	440	5,333
1960	271	112	195	61	0.54	606	325	4,347
1961	428	194	382	177	0.91	584	206	4,201
1962	751	283	552	251	0.89	951	244	4,799
1963	168	117	130	96	0.82	444	190	1,522
1964	58	58	50	50	0.86	57	57	390
1965	336	135	362	184	1.36	179	103	1,410
1966	654	280	638	316	1.13	3	2	2
1967	426	281	550	467	1.66	46	10	465
1968	529	354	749	546	1.54	93	81	460
1969	417	348	584	465	1.34	71	67	650
1970	210	210	269	269	1.28	121	74	885
1971	159	149	207	187	1.25	80	38	315
1972	202	98	241	161	1.64	-	-	-
1973	208	98	241	139	1.42	4	4	16
1974	83	83	101	101	1.22	-	-	-
1975	58	58	59	59	0.81	-	-	-
1976	362	32	26	26	0.81	-	-	-
1977	-	-	-	-	-	-	-	-
1978	n.a.	18	378	7	0.39	-	-	-
1979	-	-	-	-	-	-	-	-

Source: Brand, A.R.: The Manx Herring Fishery in 1979, Isle of Man Board of  
Agriculture and Fisheries, Douglas, 1980.

		<u>TRAWL</u>				
		Landings		Tonnes		
In I.O.M.	Tonnes per Landing In I.O.M.	Total	In I.O.M.	Total	In I.O.M.	Tonnes per Landing In I.O.M.
2,473	6.97	-	3	-	8	2.67
2,367	6.20	-	-	-	-	-
3,407	7.74	190	37	769	102	2.76
1,975	6.08	70	22	348	57	2.59
1,205	5.85	232	135	1,122	559	4.14
730	2.99	398	241	2,119	547	2.27
753	3.96	239	108	742	125	1.16
390	6.84	159	87	563	117	1.31
683	6.63	473	100	2,835	269	2.69
2	1.00	515	190	2,085	278	1.46
74	7.40	723	301	5,018	1,419	4.71
367	4.53	1,161	415	6,389	2,340	5.64
613	9.15	1,004	469	8,008	3,954	8.43
533	7.20	1,326	971	14,757	8,980	9.25
162	4.26	2,383	1,492	18,327	10,278	6.89
-	-	1,797	1,166	19,163	11,450	9.82
16	4.00	1,278	1,006	12,842	9,491	9.43
-	-	3,102	1,530	23,947	10,922	7.14
-	-	2,416	1,608	17,138	11,070	6.88
-	-	1,911	1,185	14,088	7,672	6.47
-	-	2,380	1,484	13,464	8,729	5.88
-	-	n.a.	2,440	10,698	6,726	2.76
-	-	2,652	2,089	11,833	7,729	3.70



1979. Similarly, the weight of herrings landed on the Island rose from 2,833 in 1957 to 9,780 in 1970, further to 11,070 in 1975. Total weight of herring landed then fell to the early 1970 level of 7,729 in 1979. Total landings of herring into the Isle of Man in 1980 were 5,969 tons, of which 32 per cent were caught during the low season, and 68 per cent during the high season. Isle of Man vessels took 9.6 per cent of this catch, the Republic of Ireland vessels took 1.9 per cent, Northern Ireland vessels took 41.7 per cent, and Scottish vessels took 46.7 per cent. The balance of 0.1 per cent was taken by the two English vessels that landed into the Isle of Man during the 1980 herring season (compared with 15 Island vessels, 11 Republic of Ireland vessels, 68 Northern Ireland vessels and 61 Scottish vessels).

#### 2.3.3 Employment in the fish-catching and fish-processing industry in the Isle of Man

Information on employment in the fish-catching and fish-processing sectors is not available on a detailed basis in the Isle of Man, and there is no information available on part-time employment in either the catching or processing sector. As mentioned above, employment in the catching and processing sector each come to 250 persons approximately. This represents 2.1 per cent of the Island's total labour force of 23,300. This is greater than the UK average of less than 1 per cent.

#### 2.3.4 Industrial Organisations

There is only one industrial association associated with the fishing industry on the Island; this is the Isle of Man Fishermen's Association. This Association, to which most Manx vessels owners belong, is financed by a levy of 1 per cent of the first-hand value of landings in the Isle of Man. It appears to be a relatively small organisation, whose main activity is the representation of fishermen's views to the Isle of Man Board of Agriculture and Fisheries. There is a wholly-owned processing subsidiary of the Association (Isle of Man Fishermen's Association Limited). Although established in 1977, it has recently had

to suspend trading because of cash flows problems brought on by management irregularities.

#### 2.4 The flow of fish from landings to final use

The fish that is landed to processors in the Isle of Man is largely exported from the Island, either to Great Britain, the Continent or to North America. Some of the fish is, obviously, consumed on the Island, particularly during the two summer tourist months, but this represents only a small proportion of total landings.

We will consider the catch in three portions: shellfish, herring, and prawns and whitefish. Shellfish boats land directly to particular processors, and receive payment on the basis of the meat content of the catch. There are three shellfish processors in Port St. Mary, two in Peel and one in Douglas. The price per pound of meat received by the fishermen in the Isle of Man is shown in Table 5. Whilst the prices in Table 5 are in nominal terms,<sup>1</sup> it can easily be seen that real prices have increased over the decade. This can be seen by recalling that the value of sterling halved during the ten years to 1979. If the 1979 values are halved, this gives an approximate indication of 1979 prices in 1970 values. By this criterion, the real price of queenies was 39 pence per pound of meat in 1979 (in 1970 values). Similarly, the real price of scallops was 85 pence per pound of meat. This represents a 205 per cent real increase in price for queenies, and a 243 per cent real increase in price for scallops. From the processors queenies and scallops are exported: 25 per cent of their output goes to Continental Europe, and 75 per cent to the USA.

The Nephrops which are landed in the Isle of Man are landed mainly by Northern Ireland vessels. They are processed by one processor, who is a sub-agent for one of the major UK seafood processors. During 1980 the UK domestic demand and the export demand both fell off, and most UK seafood processors were holding high levels of stocks during 1980.

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1 Not adjusted for inflation.

Table 5 Price Received for Fish Landed in the Isle of Man, 1969-1979

Year	Queenies (£/lb. meat)	Escallops (£/lb. meat)	Prawns (£/lb.)	Lobsters (£/lb.)	Herring (£/unit)
1969	0.19	0.35	-	-	2.70
1970	0.18	0.40	-	-	3.28
1971	0.22	0.50	-	-	3.50
1972	0.31	0.50	-	-	4.29
1973	0.35	0.51	-	-	8.26
1974	0.34	0.68	0.53	1.05	7.79
1975	0.37	0.73	0.57	1.39	11.82
1976	0.44	1.01	0.61	1.79	15.91
1977	0.60	1.21	0.77	2.25	49.99
1978	0.78	1.64	0.91	2.44	48.75
1979	0.78	1.71	1.36	2.64	33.54

a. 1 unit = 100 kilogrammes.

Source: private communication, J.L.H. Corlett.

The whitefish processing capacity on the Island is limited, with only one whitefish processor in full-time operation. The quantity of whitefish landed on the Island has increased by almost 733 times over the ten-year period from 1969 to 1979. This quite incredible increase is attributable to the increase in Nephrops landed by Northern Ireland vessels in the Isle of Man. The whitefish catch is regarded, officially, as a by-catch from the Nephrops fishery, even though the whitefish catch often exceeds the Nephrops catch. The exception to this is during the six-week to two-month directed cod fishery beginning in March each year. Sixty-nine per cent of the whitefish catch in 1980 was contributed by three species: cod (25 per cent), dogfish (16 per cent) and whiting (28 per cent). In terms of value, the cod catch represents 34 per cent of the total value of the catch, and whiting 15 per cent. In other words, 53 per cent of the catch by weight, and 49 per cent of the catch of whitefish by value, is contributed by two species.

The herring catch which is landed on the Isle of Man is the only fish species which is auctioned. During the herring season, there are two auctions per day: the first auction is at 8 o'clock in the morning, and the second is held later in the morning, the precise timing depending on the volume of fish landed for auction following the first auction. Prices at the 8 o'clock auction are almost inevitably higher than prices at the later auction. Also prices tend to be highest at the Monday auctions, and lowest at the Friday auctions.

Once landed and sold, the disposal of herrings in the Isle of Man is primarily through four channels to fishmeal and fish-oil; to kippering; to pickle-curing and 'klondyking'; and to freezing. Table 7 shows the disposal of herrings landed in the Isle of Man since 1969. The channels through which the Manx herrings are processed, together with their relative importance, have changed over the years: until 1954, herrings landed in the Isle of Man were either kippered or pickle-cured. From 1951-1954, the proportion of the catch varied between 69 per cent and 91 per cent. In 1955, through 'til 1971, fishmeal and oil reduction became an outlet for herrings landed in the Isle of Man. In 1955-7 and 1959, the proportion of herring going through this outlet varied between 43 per cent and 63 per cent. In the same years, the proportion of herring that was kippered fell to 37 per cent and 26 per cent respectively. However,

**Table 6 Weight and First-hand Value of Whitefish landed to Processors  
in the Isle of Man, 1969-1979**

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<u>Year</u>	<u>Weight (tons)</u>	<u>Value (£ per lb.)</u>
1969	1.59	0.0225 (estimated)
1970	1.29	0.0225 "
1971	24.91	0.0236 "
1972	89.45	0.0300 "
1973	24.13	0.0438 "
1974	12.99	0.0923 (actual)
1975	15.10	0.0527 "
1976	51.03	0.1264 "
1977	295.42	0.1178 "
1978	513.54	0.1386 "
1979	1,165.21	0.1557 "

Source: private communication, J.L.H. Corlett.

Table 7 Disposal of Herrings Landed in the Isle of Man<sup>(a)</sup> 1969-1979  
(tons)

<u>Year</u>	<u>Meal and oil</u>	<u>Kippering</u>	<u>Pickle-cured and Klondyked</u>	<u>Frozen</u>
1969	444.91(10) <sup>b</sup>	879.02(19)	3,306.88(71)	4.91(0.001)
1970	156.16(2)	921.25(10)	8,525.00(89)	-
1971	109.02(1)	949.73(9)	9,310.71(89)	69.73(1)
1972	-	936.96(8)	10,262.41(90)	203.30(2)
1973	14.73(0.001)	1,106.88(11)	8,473.93(84)	483.21(5)
1974	-	668.84(6)	9,819.46(91)	337.86(3)
1975	-	1,023.39(9)	8,978.75(82)	915.36(8)
1976	-	816.16(11)	6,265.09(83)	479.29(6)
1977	-	793.57(9)	6,831.79(80)	937.95(11)
1978	-	741.52(11)	5,070.80(77)	800.45(12)
1979	-	1,150.09(15)	4,036.61(53)	2,400.36(32)

Source: Brand, A.R.: The Manx Herring Fishery in 1979, Isle of Man  
Board of Agriculture and Fisheries, 1980.

- a. A small quantity of the catch, not recorded here, goes for direct consumption on the Island.
- b. Figures in parentheses represent proportions of the catch going to a particular disposal route. Because of rounding, they may not sum to 100 per cent.

with the introduction of freezing in 1960, the proportion of the herring catch going to reduction to meal and oil fell to approximately 10 per cent of the catch. Reduction of herrings landed in the Isle of Man to meal and oil ceased completely after 1973:

The proportion of the catch frozen held to between 10-15 per cent from 1960-1965, but declined throughout the remainder of the decade, with no herring landed in the Island going to freezing in 1970. However, from 1970 to 1979, the proportion of the catch going to be frozen rose from 1 per cent in 1971, to 32 per cent in 1979. The proportion of the catch going to kippering during the 1970's varied between 6 per cent and 15 per cent. Between 1970 and 1977, the proportion of the catch being pickle-cured or 'klondyked' never fell below 80 per cent. However, in 1978 and 1979, 77 per cent and 53 per cent of the catch respectively went through this primarily export-oriented channel. It appears that freezing is eating into the share of the catch traditionally going to the more traditional methods of preservation. The proportion of the catch being kippered on the Island averaged around 10 per cent during the decade, with the exception of 1979, when the proportion of the catch kippered rose above 11 per cent (to 15 per cent) for the first time since 1969.

The traditional outlets for herring landed in the Isle of Man, kippering and pickle-curing, have declined from 100 per cent (up to 1954) to 68 per cent (in 1979). Meal and oil reduction was an outlet between 1955 and 1973. Since 1960, freezing has become an important outlet for herring landed in the Isle of Man, with a temporary decline between 1966 and 1970.

It is difficult to quantify the numbers of herring processors in the Isle of Man. Herring processing appears to be concentrated around Peel, where there are four kippering facilities and one herring processor. There is no detailed register of employment in these factories, nor in any of the other six processing factories. Even such a register would not, however, fully account for those employed in fish processing on the Island. There is a considerable amount of part-time employment, particularly during the herring season, both in the factories and in private houses. There is no estimate of the extra employment that this provides.

### 3. Fisheries Policy

#### 3.1 Conservation and control measures

As indicated above, the grounds outside the three-mile limit of the Isle of Man, but within twelve miles, are administered jointly by the Isle of Man and the UK governments. The conservation measures taken to conserve stocks in this area relate primarily to the herring grounds; the whitefish are regarded as a by-catch, and therefore are not subject to TAC provisions, and Nephrops, as a non-quota species, is not subject to TAC provisions. The main conservation imposed unilaterally by the Manx Board is a prohibition on the landing (in the Isle of Man<sup>1</sup>) of all scallops measuring less than 11 mm., and of spawned scallops containing undersized roes if these represent more than 20 per cent of the catch. A further mode of conservation is provided by a closed season which prohibits landings for five months commencing June 1st, and also prohibits scallop fishing within the 3-mile limit of the Island. The main scallop and queenie spawning falls within this period.

The herring stocks are the main focus of concern in the North Irish sea, however. In 1973, a seven-week closed season was introduced by the Isle of Man Board of Agriculture and Fisheries in consultation with the UK Ministry of Agriculture and Fisheries. This closed season prohibited the fishing of within 12 miles of the Island for seven weeks from October 1st. Whilst it was originally thought that this conservation measure alone had produced one-third reduction in the catch, there is some evidence (see Tomkins and Butlin, 1973) that the absence of some of the Scottish vessels from the fishery produced this result. This conclusion is corroborated by the progressively increasing stringency of conservation measures since 1975; in that year, in addition to the closed season, a TAC of 18,000 tonnes was imposed on the Manx herring fishery. This was reduced to 12,000 tonnes in 1976, and the closed season marginally extended.

In 1977, the Council of the European Community agreed, for the first time, to implement a Total Allowable Catch (TAC) limit on the fishery of 13,000 tonnes. The UK/Isle of Man quota of this total was established at 91.5 per cent (or 11,900 tonnes). The UK/Isle of Man quota was controlled through a restrictive licensing scheme. Amongst the conditions

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1 There is no equivalent English conservation measure along the coast of Cumbria.



attached to each of the limited number of licences issued was that fishing would be restricted to the five weekdays only during the 'low season' (until August 20th); during the 'high season' fishing was restricted to four weekdays only.

In 1978, no conservation measures were agreed by the Council for the preservation of herring stocks around the Isle of Man. The UK and Isle of Man governments unilaterally imposed a quota of 9,000 tonnes on the grounds, however, this being the ICES, ACFM's recommended 1978 herring TAC. 98 per cent of this TAC (8,100 tonnes) was allocated to the UK. The quota was controlled by means of a restrictive licensing scheme. The 1979 TAC of 7,000 tonnes was again implemented unilaterally by the Isle of Man and the UK, with the UK quota again being 90 per cent (6,300 tonnes). The restrictive licensing scheme remained operative. The closure of the fishery was extended to two months in 1978, from September 24th. This extended closed season was retained in 1979, with the closure beginning on September 22nd that year. In 1980, the Council agreed on a TAC of 10,000 tonnes for the Isle of Man herring fishery, of which the UK received the usual 90 per cent. The quota could not be implemented with the aid of a restrictive licensing scheme, however, as this had been declared contrary to the Hague Agreement by the European Communities Court of Justice. Licences were issued to UK vessels, but these were freely available.

Since 1977, the uptake of the UK and Isle of Man 90 per cent share of the TAC has been regulated through an ad hoc 'herring advisory committee'. The committee is comprised of representatives of the Isle of Man Board of Agriculture, with observers from the Fisheries Division, Northern Ireland Department of Agriculture, and from the Northern Ireland Fish Producers' Organisation. They regulate the uptake of the catch by imposing a catch-limit of a certain number of units<sup>1</sup> per crew-member per day. (In 1980, for most of the season, the limit was 3 units per man per day). This is policed by the fisheries officers in the Isle of Man and in the three major Northern Ireland fisheries ports (Ardglass, Kilkeel and Portarogie). Vessels must not catch more than the equivalent

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1 1 unit = 100 kgs.

of 1 day ahead of their quota, and must not exceed their weekly quota. In the event of bad weather preventing fishing earlier in the week, the vessels are allowed to catch up to the sum of their quota for that day plus that for the days of fishing that have been missed. In addition to regulating herring fishing throughout the open season, the activities of the Herring Advisory Committee are also thought to provide a more even and regular flow of fish to the processors.

### 3.2 Aids to the fishing fleet

With the depressed state of the fishing industry throughout north-west Europe, it is not surprising that the Isle of Man Board of Agriculture and Fisheries is considering a temporary operating subsidy to aid the small Island fleet. The proposal, which has still to be finalised, is that the subsidy will represent ten per cent of the first-hand sales value of the fish landed. It is to run for three months initially, can be renewed for successive three-month periods, and is expected to cost approximately £100,000 per year in total (equivalent to slightly more than £1,000 per vessel on average).

The Manx Board of Agriculture and Fisheries also operates capital aid programmes. There is a grant and loan scheme for new vessels, and a loan scheme for second-hand vessels. For new vessels, a grant of 25 per cent of the purchase price can be awarded, and a loan of 55 per cent can also be made. The same terms apply to the purchase of new equipment (but not that involved in routine or accidental repair and maintenance activities). For second-hand vessels there is a loan scheme operated by the Board. On all loans made to fishermen, the rate of interest is 9 per cent, and the repayment period 20 years. The provision of a grant or loan is dependent on the existing vessel being sold off the Island.

The Board is also empowered to aid the processing sector, and has provided assistance to encourage investment in shellfish processing in recent years. The amount of encouragement given is unspecified, but it is estimated that the aid given has encouraged £5 million to be invested in shellfish processing by the private sector.

#### 4. Conclusion

The Isle of Man fleet is a small, inshore fishing fleet,<sup>1</sup> operating from a small island whose total population is equivalent to that of a small English market town. 2.1 per cent of the Island labour force works either on vessels or in the processing industry.

The Isle of Man fleet has traditionally fished the queenie and scallop beds that are to be found near to the Island, and has, to a lesser extent, also caught herring, whitefish, lobsters and some crabs. The fleet has expanded modestly during the 1970's, with the Board's assistance provided through both grant and loan schemes.

The conservation measures implemented by the Board on the shellfish stocks appear to keep the problem of overfishing in check, rather than helping to improve the stocks. There are, however, no plans at the moment to introduce more stringent measures. The conservation measures that have been introduced either by the Council of the European Community or by the Board in consultation with the MAFF of the UK have, of necessity, been interim measures, awaiting the settlement of a Common Fisheries Policy. The continual fall in the TAC until 1980 suggests that the policy has not been particularly successful. This conclusion is further substantiated by the inability of the fleet to catch the raised TAC in the 1980 season (although low herring prices and adverse weather conditions were probably contributing factors).

The processing sector appears to be reasonably healthy (from what little information could be gleaned on this). The two exceptions are the processing arm of the Isle of Man Fisherman's Association, and the one processor who handles prawns landed by the Northern Ireland vessels.

The harbour infrastructure is barely adequate for the size of the fleet that is accommodated, and the pressure will be increased in the 1981 season because extensions to the freight facilities at Douglas will reduce quayage there (by eliminating berthing along the battery pier).

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1 Nevertheless, it is considerably larger than some other small, inshore fleets, which receive much more attention in the fishing trade press.

Although the Isle of Man's industry is not eligible for aids provided to member states by the European Commission, this seems only to have avoided exacerbating the excess capacity problem inherent in any sea fishery. (This is in contrast to the situation in Northern Ireland). The main advantage to the Island would be for it to have access to the Regional Fund of the Community to help aid harbour improvements. Providing that the Common Fishery Policy, when negotiated, is able to avoid further depleting the stocks on which the Island depends totally, the Manx fishing industry should be able to maintain its modest prosperity into the future.

## APPENDIX 2 - FISHERY MANAGEMENT

Almost all fisheries are overfished and almost all fleets have excess capacity. This is the result of the open access nature of fisheries (until 1977) and the misguided policies of governments which subsidised resources to the fishing industry. If ownership of a fishery had been vested in a private individual (as for example is most land) two consequences would have followed. Firstly the owner would have an incentive to conserve the fish stocks so that the asset which he owned did not decline in value. Secondly he would let out the right to catch a given quantity of fish to whomsoever would pay most for this right. This income would be the source of his profit. Because until 1977 no-one owned fisheries, no-one had an incentive to conserve stocks, while secondly, the profit which under a system of ownership would have gone to the owner was spread over the resources in the fishery, an excess of which are attracted by the fact that they share in this profit. To make matters worse, governments, which should, if anything, have been taxing resources in the industry as a proxy for the fee the industry would be paying under a system of ownership, in fact subsidised resources in almost all countries. Governments are forced into this policy of subsidisation, for once one government has subsidised its industry, to maintain the competitiveness of the industry, other governments are forced into similar policies. What may initially appear a rational policy to one government becomes folly when all do it.

Rationality in fishery management could be attained by vesting the ownership of fisheries in private hands. That such a policy is unlikely to be proposed or accepted is not of significance, provided the manager of a fishery acts as if it were in private ownership. Thus at its simplest current fisheries policy should be directed at (a) initially rebuilding and subsequently conserving fish stocks, and (b) ensuring that no more resources are attracted to the industry than are needed for the least cost extraction of the given volume of fish. The former objective can be pursued by the seeking of scientific advice and the establishment of total allowable catches on the basis of the advice, while the economist's ideal solution to the latter would be to put the right to catch various packages of fish up for auction among the fishermen of all nations. The revenues so obtained could be used to further a policy of scrapping

by buying out vessels. This is much too revolutionary a proposal to have any chance of acceptance in the foreseeable future.

The problem still remains of how to prevent excess resources being attracted to the industry. Even with TACs and quotas too many resources will be attracted to the industry, unless they have to pay for the right to catch the fish. The planned quantity of fish may be taken, but too many resources, some of which could in the long run be used elsewhere in the economy to advantage, will be committed to fishing, since they are still enjoying a share of the profit, which should go to an owner. Resources will not be optimally allocated in the economy, because an input, the fish, which is scarce and needs to be rationed by price to would-be catchers is supplied free. This effective subsidy enables more resources to enter the industry than are necessary while still enjoying the going rate of profit in the economy on their overall activity.

#### Restrictive Licensing

One way of limiting the entry of resources to the industry is by restrictive licensing. A scheme might work as follows. Given a scientific estimate of the annual allowable catch for a species, an attempt could be made to assess the number of vessels working at full capacity that would be needed to take the catch. This in itself would be no easy task, since it would probably involve choices between types of vessel, e.g. 1 purse-seiner or 2 pelagic trawlers, and the lucky vessels might adopt new fishing practices e.g. the use of carrier vessels. Only auctioning could sort this out but in its absence, licences for a given number of vessels will have to be fixed.

A host of problems is then seen to arise. There is first the question of who should issue the licences. This would probably be better done by the fisheries authorities in the national state rather than by the EEC commission, which should confine itself to setting the overall EEC TAC and the quotas of countries. The fishery authorities in the national state would be more familiar with their own industry.

The second problem is that the number of licences, which could be issued if boats are to be fully employed, is likely to be less than the number of vessels, so that the licensing authority would have to make the invidious choice about which vessels are to have futures and which are not. In present circumstances if licensing is to be introduced equitably, it would have to be along with a policy of buying out excess capacity, so that vessel owners should be indifferent between receiving a licence or a capital sum for scrapping the vessel. The extent of EEC payments under Com(80)787 final would not seem sufficiently generous to compensate for the failure to obtain a licence. The owner of e.g. a 70 foot vessel would almost certainly prefer a licence to a lump sum payment of just over £12,000.

Thirdly, vessels do not usually fish for a single species, so that if the licence was for a single species, there would be problems of what to do about catches, though this problem should not be insuperable.

Fourthly, since the fishing for many species is seasonal, while the vessels may be fully utilised during the season, the problem of spare capacity may arise out of season, unless the vessel obtains a licence for a complementary, seasonal fishery.

Fifthly, the allocation of licences will be done with reference to current fish stocks. To the extent that they are below their long run yield, there would be the possibility of issuing more licences and employing more vessels in the future. Hence as well as a policy of scrapping, the introduction of a scheme for the temporary laying up of vessels would be desirable.

Sixthly, there is the problem of who should receive the licence, e.g. the skipper or the vessel owner. It would seem reasonable to award licences to vessel owners, since it is vessels which are requiring to be controlled.

Seventhly, there is a problem which arises from the failure to use the first best option of control, i.e. the auction of fishing rights. This is that a licence is a valuable right conferred free upon the recipient. If licences are allowed to be transferable, the transferee receives a windfall source of income. This may not be too objectionable if there exists a scheme for scrapping vessels, since the owner could

have had a lump sum payment under this head. Any licence cum scrapping scheme would have to ensure, however, that the recipient of a licence was ineligible for a scrapping grant if he had disposed of his licence, and his vessel was, therefore, no longer usable. If licences are not deemed transferable, because e.g. of the desire to ensure that vessels are always owned by members of fish-dependent communities, a fleet may become ossified and inefficient. If on the other hand licences are transferable, efficient, or just wealthy, owners may be able to increase their stake in the industry at the expense of the long run viability of communities with no alternative employment. Our presumption would be in favour of allowing licences to be transferable in the interests of efficiency.

Eighthly, there is the question of the duration of the licences. If they are for only one year, this may induce too much uncertainty in the industry since no-one can be sure of his long run future in the industry. If they are of long duration they may simply leave an inefficient owner undisturbed for the course of his licence. Returning to our analogy with private ownership of the asset, a private owner would probably create a mix of licence lengths, if leases in agriculture are anything of a guide. A way out might be to issue licences free in the first instance for say 5-7 years. At the end of this period serious consideration should be given to putting licences of various duration up for auction by the fishery authorities of the state. Fishermen could by then be expected to pay, for the initial licensing should have led to a recovery of profits because of a better match between resources and capacity.

Ninthly, there is the problem of how newcomers to the industry could obtain a licence. The solution would seem to lie in allowing the licences to be transferable (for money) from the beginning and by allowing newcomers to bid for licences if they are eventually to be auctioned.

To sum up, it is essential to reduce the volume of resources applied to fishing. Measures such as quotas, closed seasons, enlarged mesh size, pout boxes, etc., may serve a useful biological function by allowing stocks to increase but they do nothing to abate the inefficiency of there being too many resources applied to the industry. Restrictive



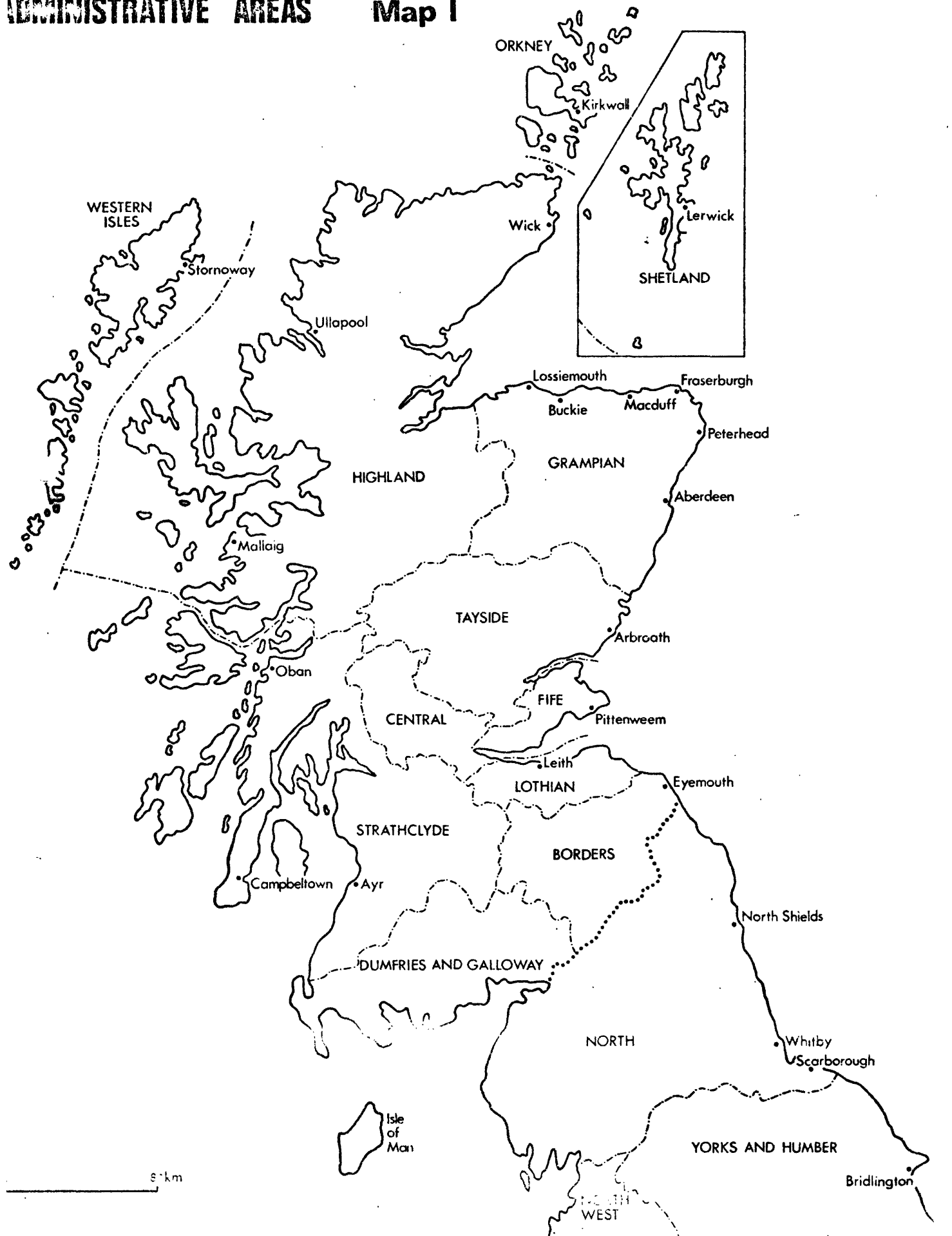
licensing though not ideal does represent a step in the correct direction. It encounters the nine problems listed above, whereas the ideal of auctioning licences encounters only problems one, three and four. Restrictive licensing, if no payment is required for the licence, will still represent a situation of more economic resources being used than is necessary.

#### Restrictive Licensing and Fishing Plans

If it is thought desirable on social grounds to grant a preference to local communities, with little alternative employment to fish, then this could be done as part of a national restrictive licensing scheme by licensing a high proportion of vessels from such areas.

# ADMINISTRATIVE AREAS

## Map 1



# I.C.E.S. FISHING AREAS AROUND THE U.K. COASTLINE Map II

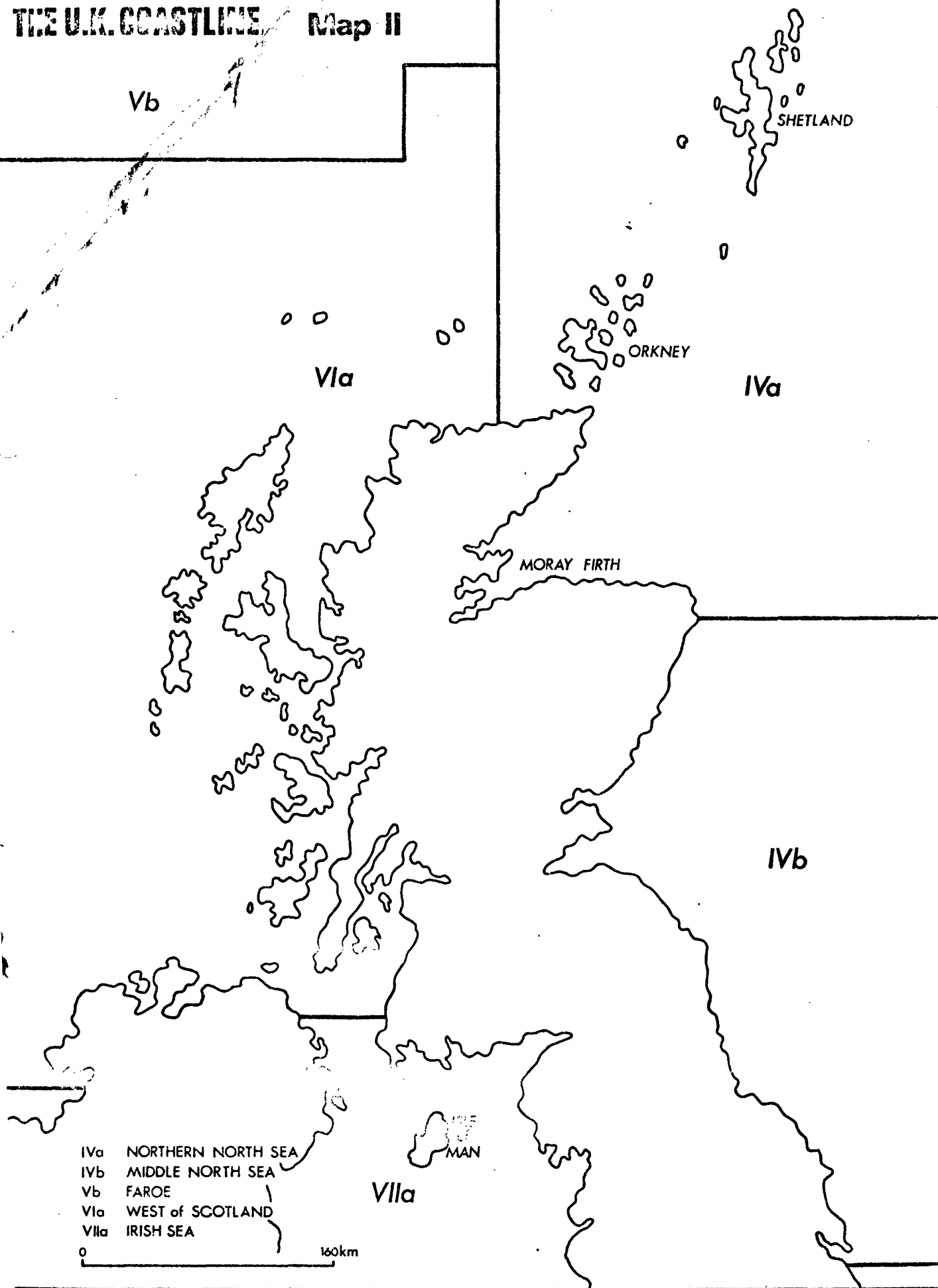


TABLE A1Distribution of Population, 1981

<u>Region</u>	<u>Enumerated Population</u>
Borders	99,248
Central	273,078
Dumfries and Galloway	145,078
Fife	326,480
Grampian	470,596
Highland	200,030
Lothian	735,892
Strathclyde	2,397,827
Tayside	391,529
Orkney Islands	18,906
Shetland Islands	26,716
Western Isles	31,766
Scotland Total	<u>5,117,146</u>
Northumberland	299,905
Durham	604,728
North Yorkshire	666,610
Tyne and Wear	1,143,245
Cleveland	565,775
North East England Total	<u>3,280,263</u>
Isle of Man (estimate)	61,000
North Britain Total	8,458,409

Source: 1981 Census, provisional results.

Table A2

## Employment by industry: Scotland

thousands

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
<i>Analysis by sector (1968 SIC)</i>										
I Agriculture, forestry, fishing	59	55	54	52	50	49	49	49	48	48
II Mining and quarrying	39	39	37	35	34	36	35	34	33	33
III-XIX Manufacturing industries	708	669	643	657	676	637	608	613	611	603
XX Construction	173	159	157	173	170	173	171	166	166	170
XXI Gas, electricity and water	31	31	29	29	28	26	29	29	29	30
II-XXI Index of production industries	951	898	866	894	909	872	844	841	839	836
XXII-XXVII Services	1,049	1,051	1,069	1,104	1,125	1,155	1,179	1,187	1,191	1,211
<i>Analysis by industrial order (1968 SIC)</i>										
I Agriculture, forestry, fishing	59	55	54	52	50	49	49	49	48	48
II Mining and quarrying	39	39	37	35	34	36	35	34	33	33
III Food, drink and tobacco	99	97	95	95	99	92	91	92	91	90
IV Coal and petroleum products	3	3	3	3	3	3	3			
V Chemicals and allied industries	30	28	26	27	28	28	29	32	31	31
VI Metal manufacture	47	46	43	44	43	44	39	39	37	35
VII Mechanical engineering	109	96	85	87	94	96	92			
VIII Instrument engineering	18	19	18	17	18	18	16			
IX Electrical engineering	53	50	50	52	60	51	49			
X Shipbuilding and marine engineering	45	45	44	44	43	43	42	256	259	253
XI Vehicles	41	37	35	38	40	36	32			
XII Metal goods not elsewhere specified	31	30	29	30	32	29	27			
XIII Textiles	80	72	71	71	69	59	57			
XIV-XV Leather, clothing and footwear	33	34	36	38	37	35	33	95	92	93
XVI Bricks, pottery, glass, cement, etc	24	22	21	21	20	19	17			
XVII Timber, furniture, etc	24	23	23	24	23	21	20			
XVIII Paper, printing and publishing	55	52	50	50	50	48	44	100	101	101
XIX Other manufacturing industries	17	16	16	17	18	16	16			
XX Construction	173	159	157	173	170	173	171	166	166	170
XXI Gas, electricity and water	31	31	29	29	28	26	29	29	29	30
XXII Transport and communication	146	143	138	139	139	140	137	134	123	133
XXIII Distributive trades	255	238	237	243	242	241	237	240	237	236
XXIV Insurance, banking, finance, etc	59	65	66	68	72	75	76			
Professional and scientific services	282	288	301	311	323	329	352	662	667	685
XXVI Miscellaneous services <sup>2</sup>	184	185	189	202	204	211	227			
XXVII Public administration and defence <sup>3</sup>	123	131	137	141	145	158	150	151	154	157

<sup>2</sup> Excludes private domestic service.<sup>3</sup> Excludes members of HM Forces.

Index of industrial production<sup>S</sup>: industrial analysis: Scotland

1975=100

1968 SIC	Total all indust- ries	All indust- ries less mih 104 <sup>1</sup>	Total manu- factur- ing indust- ries	Manufacturing industries						Mining and quarry- ing	Const- ruction	Gas, elec- tricity and water
				Food drink and tobacco	Chem- icals and coal and petrol- eum products	Metal manu- factur- ing	Engin- eering and allied indust- ries	Textiles leather and cloth- ing	Total other manu- factur- ing			
Index weight	1,000	995	647	131	59	39	245	65	108	45	236	72
1970	96.3	96.8	97.9	87	82	126	98	103	109	93	98	82
1971	94.8	95.3	96.2	91	90	111	91	106	105	100	95	81
1972	97.2	97.6	97.9	94	102	108	88	110	109	88	100	90
1973	105.4	105.8	105.9	99	109	121	97	120	119	99	106	103
1974	101.5	101.7	104.9	103	117	112	99	107	110	89	95	100
1975	100.0	100.0	100.0	100	100	100	100	100	100	100	100	100
1976	99.7	99.6	100.4	101	117	93	95	105	102	97	97	104
1977	100.6	100.5	100.1	101	115	92	94	111	102	92	101	100
1978	101.1	100.8	100.4	105	115	93	91	109	106	94	101	112
1976 Q1	100.1	100.1	100.3	99	112	94	97	102	104	102	98	104
Q2	99.2	99.1	100.1	101	120	92	94	104	102	99	95	103
Q3	98.2	98.1	99.4	100	120	92	93	105	102	93	95	101
Q4	101.2	101.1	101.9	103	117	94	97	108	102	94	99	108
1977 Q1	100.9	100.7	101.9	102	118	99	95	112	103	94	97	108
Q2	99.8	99.7	100.0	98	118	89	96	109	100	90	99	109
Q3	102.6	102.4	101.1	104	113	93	95	110	103	91	106	112
Q4	99.2	99.0	97.6	99	112	88	90	110	101	92	102	108
1978 Q1	101.0	100.8	99.2	106	114	89	92	107	99	91	105	111
Q2	102.4	102.0	100.6	106	114	93	91	108	107	95	106	112
Q3	100.6	100.2	100.8	104	118	93	90	112	109	95	97	115
Q4	100.5	100.1	100.8	105	115	98	90	109	109	96	97	111
1979 Q1	98.4	97.9	98.4	104	109	90	89	107	104	92	92	124
Q2	100.7	100.2	102.5	108	115	101	92	109	109	95	91	119
% change: Q2 79 on Q1 79	2.3	2.3	4.2	4	6	12	3	2	5	3	-1	-4
Latest 4 qtrs on preceding 4 qtrs	-1.2	-1.4	1.0	1	1	5	-2	0	5	2	-10	6

United Kingdom<sup>2</sup>

1975=100

Index weight	1,000	999.7	697	77	66	47	298	67	142	41	182	80
1970	99.7	99.4	98.0	94	90	125	96	101	96	119	111	84
1971	99.8	99.5	97.4	95	92	114	95	103	97	119	113	87
1972	102.0	101.6	100.0	99	97	114	96	106	103	100	115	94
1973	109.5	109.3	108.3	103	108	125	104	111	115	110	118	99
1974	105.1	105.2	105.5	102	111	115	105	104	110	90	106	99
1975	100.0	100.0	100.0	100	100	100	100	100	100	100	100	100
1976	102.2	100.8	101.6	103	111	106	98	101	104	126	99	103
1977	106.0	102.0	103.0	104	114	102	99	102	106	189	98	107
1978	109.9	104.1	103.8	106	116	101	99	101	108	232	106	110
1978 Q2	110.7	105.1	104.5	107	115	106	100	101	109	229	108	112
Q3	111.4	105.5	104.9	105	117	99	100	104	111	237	108	113
Q4	110.4	103.8	103.3	106	118	99	97	102	110	255	106	109
1979 Q1	109.7	102.0	102.2	106	113	99	98	99	105	277	96	122
Q2	115.3	106.9	107.6	108	122	111	103	104	112	296	103	118
% change: Q2 79 on Q1 79	5.1	4.8	5.3	2	8	12	5	5	7	7	9	-3
Latest 4 qtrs on preceding 4 qtrs	3.9	1.8	1.4	1	3	0	0	2	3	29	1	6

<sup>S</sup> indicates seasonally adjusted series.<sup>1</sup> Petroleum and natural gas industry mih 104 covers exploration for, and extraction of, mineral oil and natural gas and also the stabilisation separation and storage of these products.<sup>2</sup> UK IIP figures as given in the CSO press release of February 1980.

Table A1: U.K. Landing Quantity of Each Species Landed in Northern Britain 1970-1980

VOLUME (tonnes)	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Cod	64,103	66,854	81,283	70,183	60,639	56,869	59,611	47,165	57,888	55,995	55,949
Haddock	5,962	8,021	8,497	9,401	9,214	10,305	11,138	10,619	10,014	7,881	5,776
Plaice	141,851	150,019	123,463	108,381	84,582	78,167	97,668	98,778	66,455	58,740	69,772
Halibut	1,445	1,524	1,663	1,726	1,576	1,837	1,250	1,167	1,245	1,213	1,436
Monkfish	704	575	507	505	363	309	308	214	200	227	154
Sole	2,407	2,392	2,042	2,372	2,387	2,568	2,545	3,146	3,058	2,892	3,249
Shrimp	1,776	2,124	2,723	2,137	2,025	1,442	1,517	1,693	1,730	1,683	1,680
Crabs	2,177	2,483	2,722	2,906	3,445	3,397	3,922	3,748	3,427	3,421	3,355
Scallops	6,017	5,652	4,636	5,427	4,896	4,443	4,396	4,892	5,446	5,641	5,993
Saithe	19,319	17,705	21,514	29,141	25,616	18,647	22,064	18,794	18,646	11,077	8,247
Skate	4,015	4,180	4,427	3,643	3,098	3,164	3,352	3,602	3,447	3,166	3,245
Turbot	99	129	86	111	98	99	112	139	156	116	138
Whiting	26,851	36,347	32,931	30,208	35,450	40,405	42,141	42,144	48,929	53,260	48,264
Norway Pout	242	1,743	4,768	23,925	38,341	33,228	25,462	7,433	5,797	3,038	1,804
Sandeels	-	-	-	-	8,817	13,219	18,696	21,993	28,055	13,392	32,144
Other	-	-	-	-	-	-	-	-	-	-	5,348
<b>Total Demersal</b>	<b>283,390</b>	<b>305,660</b>	<b>297,229</b>	<b>296,550</b>	<b>286,243</b>	<b>272,986</b>	<b>299,272</b>	<b>270,950</b>	<b>259,844</b>	<b>226,892</b>	<b>246,822</b>
Herring	125,352	137,899	137,923	147,136	124,174	104,361	81,840	38,889	15,950	2,020	2,255
Mackerel	963	1,430	1,822	8,166	8,868	16,766	29,612	54,574	107,465	108,479	101,331
Sprats	25,696	44,447	57,000	90,159	73,321	46,101	78,609	76,698	87,160	25,281	10,357
Blue Whiting	-	-	-	-	-	279	1,573	3,000	1600	1,500	6,823
Other	2	10	42	1,082	1,301	190	86	115	42	107	6
<b>Total Pelagic</b>	<b>162,015</b>	<b>182,787</b>	<b>196,789</b>	<b>246,543</b>	<b>217,665</b>	<b>167,698</b>	<b>191,721</b>	<b>173,075</b>	<b>210,118</b>	<b>137,390</b>	<b>120,772</b>
Nephrops	8,436	9,440	11,218	10,045	8,544	8,592	11,334	10,402	11,812	13,153	10,789
Crabs	2,696	2,099	2,222	2,629	2,751	2,048	2,285	2,708	3,002	2,911	3,031
Lobsters	645	719	632	586	647	557	581	599	576	509	469
Other	11,567	11,189	9,382	11,595	8,488	12,057	15,803	13,430	12,249	12,661	14,355
<b>Total Shellfish</b>	<b>23,344</b>	<b>23,447</b>	<b>23,454</b>	<b>24,855</b>	<b>20,431</b>	<b>23,254</b>	<b>30,003</b>	<b>27,139</b>	<b>27,639</b>	<b>29,234</b>	<b>28,644</b>
<b>Total All Species</b>	<b>468,755</b>	<b>511,894</b>	<b>517,471</b>	<b>567,947</b>	<b>524,339</b>	<b>463,937</b>	<b>520,996</b>	<b>471,165</b>	<b>497,601</b>	<b>393,517</b>	<b>396,237</b>

SOURCE : S.S.F.S.T. and S.F.S.T.

Table A5: U.K. Vessels : Value of Each Species Landed in Northern Britain 1970-1980

VALUE £'000	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Cod	6,603.0	8,642.8	12,161.5	17,081.2	15,553.3	14,555.2	21,741.1	25,554.0	32,169.0	34,502.5	32,683.7
Dogfish	253.9	417.7	446.7	805.4	960.1	1,054.4	1,520.0	1,857.1	2,211.1	1,966.6	1,219.1
Haddock	9,631.1	13,308.0	15,516.1	18,889.5	17,486.1	16,652.5	25,060.9	37,741.8	31,466.2	28,859.0	28,894.2
Hake	336.5	407.6	443.2	501.9	576.8	655.3	687.7	906.3	954.7	1,062.1	1,222.8
Halibut	340.0	304.1	321.9	347.9	320.7	301.3	391.9	325.6	367.4	492.7	350.6
Lemon Sole	660.4	677.9	659.7	829.7	892.0	1,051.1	1,378.0	2,001.7	2,158.3	2,295.2	2,680.5
Ling	144.3	198.7	302.4	325.4	381.5	210.2	397.9	680.8	684.9	674.6	592.2
Monks	202.8	258.9	334.9	401.2	595.4	815.8	1,836.5	2,238.1	2,236.1	2,226.3	2,783.3
Plaice	821.1	899.7	834.1	1,233.5	1,265.1	1,360.0	1,566.0	2,015.6	2,522.4	2,833.6	2,809.7
Saithe	709.9	921.9	1,212.5	2,542.8	3,121.6	1,820.7	3,613.0	5,031.2	5,031.7	3,555.1	2,644.4
Skate	395.2	445.2	544.8	537.1	528.7	545.7	708.6	934.0	1,101.2	1,055.9	1,135.3
Turbot	34.4	61.3	43.7	64.0	65.8	90.5	142.4	240.1	314.1	210.8	291.4
Whiting	1,485.1	2,610.1	3,503.6	4,212.8	5,105.4	5,689.3	7,754.3	11,858.8	14,443.6	17,160.7	14,670.8
Norway Pout	2.7	15.6	61.5	770.5	851.4	567.7	811.1	279.9	184.4	88.1	54.8
Sandeels	-	-	-	-	219.0	173.7	519.1	824.1	807.8	297.2	955.0
Other											
<b>Total Demersal</b>	<b>22,139.3</b>	<b>29,760.5</b>	<b>37,045.4</b>	<b>49,447.9</b>	<b>48,896.6</b>	<b>46,446.1</b>	<b>69,425.4</b>	<b>94,317.8</b>	<b>98,595.1</b>	<b>99,269.2</b>	<b>96,015.5</b>
Herring	4,308.3	4,609.7	5,073.1	8,739.0	12,168.5	10,258.0	10,243.5	11,260.3	5,437.6	1,151.7	939.8
Mackerel	33.7	39.5	55.6	379.6	342.3	554.9	1,672.6	4,376.7	9,703.3	10,280.0	8,034.7
Sprats	363.6	688.5	899.8	2,206.0	2,304.4	1,188.9	2,838.9	3,935.8	4,171.8	1,444.1	818.6
Blue Whiting	-	-	-	-	-	3.6	43.2	127.2	78.3	40.6	191.3
Other	...	0.2	4.1	42.7	38.6	4.1	3.8	7.3	4.9	8.5	0.5
<b>Total Pelagic</b>	<b>4,708.0</b>	<b>5,338.0</b>	<b>6,032.7</b>	<b>11,367.2</b>	<b>14,853.6</b>	<b>12,009.5</b>	<b>14,802.0</b>	<b>19,707.2</b>	<b>19,395.9</b>	<b>12,924.9</b>	<b>9,985.0</b>
Nephrops	2,068.6	2,233.4	4,027.2	5,161.3	3,961.4	4,088.4	6,550.9	8,448.0	11,595.1	16,319.6	11,641.0
Crab	197.0	169.8	198.6	290.0	359.0	259.7	335.8	547.5	702.5	693.9	757.2
Lobster	818.2	954.8	1,057.9	1,266.4	1,512.8	1,728.5	2,364.7	2,848.5	3,073.0	2,803.9	2,045.0
Other	1,037.7	1,265.1	1,025.0	1,377.4	1,291.5	1,854.0	3,796.2	3,764.9	4,765.8	4,446.5	5,840.2
<b>Total Shellfish</b>	<b>4,121.5</b>	<b>4,623.1</b>	<b>6,308.8</b>	<b>8,095.1</b>	<b>7,124.6</b>	<b>7,930.5</b>	<b>13,047.5</b>	<b>15,608.6</b>	<b>20,136.4</b>	<b>24,263.8</b>	<b>20,283.4</b>
<b>Total All Species</b>	<b>30,966.8</b>	<b>39,721.6</b>	<b>49,386.8</b>	<b>68,910.2</b>	<b>70,874.9</b>	<b>66,386.2</b>	<b>97,275.0</b>	<b>129,633.6</b>	<b>138,127.5</b>	<b>136,457.9</b>	<b>126,283.9</b>

SOURCE : S.S.F.S.T. and S.F.S.T.



Table A6: Principal Species Landed in Northern Britain by U.K. Vessels, 1970-1980

	VOLUME		VALUE		
	m. t. '000	% of total catch	£m	% of total catch	
	1970	1980	1970	1980	
Cod	64.1	55.9	13.7	14.1	25.9
Haddock	141.9	69.8	30.3	17.6	22.9
Whiting	26.9	48.3	5.7	12.2	11.6
Saithe	19.3	8.2	4.1	2.1	2.1
Herring	135.4	2.2	28.9	0.6	0.7
Mackerel	1.0	101.3	0.2	25.6	6.4
Sprats	25.7	10.4	5.5	2.6	0.6
Nephrops	8.4	10.8	1.8	2.7	9.2
Total	422.7	307.0	90.2	77.5	79.4
Catch of All Species	468.8	396.2	100.0	100.0	100.0

Demersal

Pelagic

Shellfish

Source : S.S.F.S.T. and S.F.S.T.

Table A7: Northern British Landings as a Percentage of Total  
U.K. Landings (by volume), 1970-1979

	<u>Demersal</u>	<u>Pelagic</u>	<u>Shellfish</u>	<u>Total</u>
1970	38.8	86.3	41.4	48.1
1971	42.7	88.7	43.1	52.5
1972	44.2	88.3	39.5	54.2
1973	44.7	88.2	35.1	56.0
1974	44.7	82.0	32.0	54.1
1975	47.1	75.3	34.5	53.4
1976	51.9	69.8	36.6	55.9
1977	54.3	51.0	35.0	51.4
1978	59.8	46.4	41.7	52.2
1979	61.5	34.1	45.4	47.1

Table A8: Northern British Landings as a Percentage of Total  
U.K. Landings, (by value), 1970-1979

	<u>Demersal</u>	<u>Pelagic</u>	<u>Shellfish</u>	<u>Total</u>
1970	34.6	85.4	61.3	40.6
1971	37.7	85.7	61.9	42.9
1972	40.3	84.1	64.5	45.4
1973	39.2	86.3	63.0	45.3
1974	39.3	84.0	62.0	46.1
1975	37.9	78.9	58.3	43.8
1976	41.8	72.5	56.5	46.4
1977	49.3	59.1	57.8	51.5
1978	55.4	44.8	60.1	54.2
1979	57.6	30.9	60.9	53.7

Source : S.S.F.S.T. and S.F.S.T.

Table A9: Catches of principal species, landed in Scotland by UK vessels, by region of capture, 1970-1979

NORTH  
SEA

00's

tonnes

ICES  
IVa, b & c

£000

£000

£000

1970 1971 1972 1973 1974 1975 1976 1977 1978 1979

COD	250.6	310.2	459.8	407.0	332.3	310.9	328.1	286.9	350.0	356.8
DOGFISH	24.9	35.1	38.9	8.0	44.3	42.6	50.8	53.4	45.8	43.6
HADDOCK	1,003.8	1,080.2	854.9	783.0	637.0	575.0	714.9	795.4	519.4	481.1
NORWAY POUT	2.4	1.2	10.1	144.9	334.5	266.1	190.4	46.4	55.0	30.2
PLAICE	41.8	37.4	30.3	42.8	35.6	29.0	29.4	32.2	36.5	38.9
SAITHE	44.1	50.9	90.0	90.3	91.3	74.1	108.6	93.9	119.3	68.8
SANDEELS	..	..	..	..	88.2	132.2	187.0	219.8	280.6	133.9
WHITING	187.3	237.8	211.9	184.5	224.6	248.6	230.4	293.5	380.3	398.6
TOTAL DEMERSAL	1,621.0	1,827.2	1,772.8	1,773.5	1,869.8	1,752.2	1,917.9	1,912.5	1,883.0	1,646.4
VALUE	11,735	17,276	22,201	29,978	30,188	28,002	41,360	64,304	68,172	70,335
HERRING	227.6	264.7	242.4	160.1	150.3	87.4	150.3	81.4	..	..
MACKEREL	1.5	6.2	4.0	29.4	3.9	5.8	12.0	15.7	36.7	52.7
SPRATS	132.8	222.6	333.7	523.4	497.9	141.7	308.1	378.0	331.5	117.4
TOTAL PELAGIC	362.0	493.4	580.1	717.4	664.5	234.9	470.4	475.1	368.4	170.3
VALUE	822	1,093	1,170	2,462	2,555	1,220	2,895	3,602	1,905	1,317
NEPIHOPS	27.5	30.5	32.1	33.2	31.5	25.4	42.3	29.6	33.4	31.1
TOTAL SHELL- FISH(1)	68.8	76.3	80.3	83.0	78.8	63.5	100.0	91.5	104.5	97.2
VALUE(2)	560	674	1,143	1,717	1,397	1,247	4,700	5,261	6,976	6,752

WEST OF  
SCOTLAND  
OO's tonnes  
ICES  
Via

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
COD	61.5	47.8	58.5	47.0	50.7	48.4	62.1	45.9	46.8	57.7
DOGFISH	26.9	32.9	34.9	36.0	38.5	47.7	47.9	34.1	30.1	21.5
HADDOCK	255.3	294.1	246.5	156.7	85.2	79.8	106.6	101.5	85.6	66.3
NORWAY POUT	..	16.2	37.6	92.7	48.3	66.2	63.5	28.0	3.0	0.2
PLAICE	8.5	8.0	6.5	4.8	6.7	8.6	8.1	7.9	7.0	8.1
SAITHE	42.2	37.4	55.3	94.2	79.3	51.0	48.3	38.0	41.6	29.6
SANDELS	..	..	..	..	..	..	..	0.1	-	-
WHITING	60.8	101.6	95.2	87.1	88.2	112.6	148.0	87.8	72.6	94.3
TOTAL DEMERSAL	507.9	587.2	591.1	571.3	444.6	467.2	542.9	401.0	341.5	328.9
VALUE	3,707	4,862	6,309	7,155	6,523	6,754	11,312	12,918	13,135	13,787
HERRING	1,035.1	1,049.0	1,121.0	1,276.1	1,115.4	893.0	575.4	300.7	138.0	20.0
MACKEREL	7.9	7.9	14.0	51.7	80.2	161.6	279.5	526.0	1,037.0	1,031.5
SPRATS	52.9	11.8	52.2	75.0	64.3	81.9	57.6	44.9	120.8	11.0
TOTAL PELAGIC	1,095.4	1,068.7	1,187.3	1,409.0	1,260.6	1,141.1	923.9	897.2	1,304.8	1,070.4
VALUE	3,497	3,748	4,543	8,067	11,104	9,488	9,501	14,212	15,603	11,057
NEPHROPS	51.2	59.7	75.5	60.5	51.4	56.6	66.2	67.7	78.7	95.8
TOTAL SHELLFISH							129.8	131.4	135.6	146.5
VALUE(2)	1,275	1,458	2,728	3,027	2,472	2,704	6,641	8,696	11,557	15,524

£000

£000

£000

IRISH SEA	SPECIES	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
tonnes	TOTAL DEMERSAL	3.8	3.1	3.0	2.3	3.2	3.1	3.1	4.1	4.6	5.4
£000	VALUE	42	34	41	42	70	73	105	151	186	250
ICES VIIa	HERRING	4.2	14.8	15.7	17.1	27.9	4.4	5.0	0.7	0.2	..
	MACKEREL	..	..	..	..	0.2	0.2	0.1	..	0.1	..
	SPRATS	-	-	-	-	-	-	..	-	-	-
	TOTAL PELAGIC	4.2	14.9	15.7	17.1	28.2	4.6	5.2	0.8	0.4	1
£000	VALUE	9	52	66	113	256	58	79	22	8	2
	NEPHROPS	..	..	..	0.4	0.3	0.2	0.4	0.8	1.3	1.9
	TOTAL SHELLFISH							56.4	37.1	26.3	39.2
£000	VALUE(2)	1	1	4	16	9	9	810.0	713	634	1,126

Note: Shellfish: Queen scallops of especial importance

Demersal: Principal species: cod, haddock, plaice and skate

	SPECIES	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
FAROE	COD	81.6	75.8	54.0	56.3	66.8	71.8	53.4	33.9	21.1	11.1
OO's tonnes	DOGFISH	0.6	..	..	..	..	..	..	..	..	..
ICES Vb	HADDOCK	57.1	51.2	36.5	42.6	54.0	54.0	71.1	34.9	6.8	2.8
	NORWAY POUT	-	-	-	-	-	-	-	-	-	-
	PLAICE	1.8	1.5	1.0	1.2	1.0	1.3	0.9	1.1	0.2	0.2
	SAITHE	71.7	60.0	51.9	84.4	69.2	41.3	48.8	46.7	11.2	3.0
	SANDEELS	-	-	-	-	-	-	-	-	-	-
	WHITING	2.2	1.5	1.2	3.5	6.7	8.6	10.3	7.2	0.4	0.3
	TOTAL DEMERSAL	245.4	217.4	166.5	215.0	221.0	196.7	206.9	139.3	47.0	25.0
£000	VALUE	2,342	2,502	2,249	4,074	4,821	4,609	6,543	6,116	2,536	1,537
	HERRING	-	-	-	-	-	-	..	-	-	-
	MACKEREL	..	..	..	..	..	..	..	..	..	..
	SPRATS	-	-	-	-	-	-	-	-	-	-
	TOTAL PELAGIC	..	..	..	0.5	..	..	5.4 <sup>BW</sup>	4.5 <sup>BW</sup>	6.8 <sup>BW</sup>	7.2 <sup>BW</sup>
£000	VALUE	..	..	..	2	..	..	20	30	33	18
	NEPHROPS	-	-	-	-	-	-	-	-	-	0.1
	TOTAL SHELL-FISH(1)	..	0.7	1.0	2.1	0.7	2.0	2.4	..	..	0.1
£000	VALUE	2	7	13	43	15	85	183	2	..	8

Note: Demersal: halibut, lemon sole, ling, monks, skate, torsk: catches of these species each about twice that of plaice.



1970 1971 1972 1973 1974 1975 1976 1977 1978 1979

BEAR ISL. SPITZ- BERGEN OO's tonnes ICES I & IIb £000	COD HADDOCK SAITHE TOTAL DEMERSAL VALUE	12.1 0.6 1.0 15.6 117	8.5 0.9 0.8 11.8 117	9.9 2.1 0.5 14.6 168	15.8 6.4 1.5 26.6 492	18.8 6.4 0.5 26.9 518	16.2 3.7 0.5 21.4 497	15.7 1.7 0.3 19.0 621	9.6 0.8 0.3 11.8 518	3.8 0.4 0.2 4.8 219	- - - - -
NORWEGIAN COAST. OO's tonnes ICES Ila £000	COD HADDOCK SAITHE WHITING TOTAL DEMERSAL VALUE DEMERSAL	3.9 0.1 0.9 - 5.8 45	0.6 0.6 .. - 1.5 19	4.4 0.8 0.5 - 6.6 67	1.7 0.7 0.6 - 3.5 57	1.8 5.6 0.4 - 8.6 187	1.0 4.6 0.7 - 6.9 129	2.3 1.7 0.3 - 5.9 149	2.9 1.4 0.5 - 5.4 222	1.0 0.6 0.1 - 2.0 91	- - - - - -
ICELAND OO's tonnes ICES Va £000	COD HADDOCK SAITHE TOTAL DEMERSAL VALUE DEMERSAL	43.9 15.0 20.0 89.1 777	34.5 6.9 14.5 62.7 672	24.8 3.2 4.5 37.1 479	8.0 2.2 4.2 15.8 324	17.9 5.8 6.1 31.9 653	15.8 10.6 8.5 37.6 815	6.6 5.3 3.7 16.7 521	- - - - -	- - - - -	- - - - -

(1) 1970-1975 figures are estimates.

(2) 1970-1975 figures are for nephrops and squids only.

BW: Blue whiting.

..: Negligible

Source: Scottish Sea Fisheries Statistical Tables.



TABLE: A10

TOTAL NOMINAL CATCH OF PRINCIPAL SPECIES IN THE NORTH SEA, 1970 - 1979 ('000 tonnes)

Species	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Cod	219	315	341	229	205	186	213	185	261	228
Haddock	672	258	214	196	193	174	205	151	90	85
Whiting	182	113	110	141	189	140	191	120	103	133
Saithe	222	253	246	226	274	278	320	195	142	115
Sprat	63	86	108	262	314	641	622	304	378	380
Herring 1)	563	520	498	484	275	313	175	46	11	19
Mackerel 2)	322	244	189	327	298	263	306	260	149	153
N. Pout 5)	238	305	445	346	736	560	435	390	270	
Sandeels 5)	191	382	359	297	525	428	488	786	787	

TABLE: A11

TOTAL NOMINAL CATCH OF PRINCIPAL SPECIES IN THE WEST OF SCOTLAND (Vla), 1970 - 1979 ('000 tonnes)

Species	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Cod	13	11	15	12	14	13	17	13	14	16
Haddock	34	46	41	29	18	14	19	19	17	15
Whiting	11	15	15	17	17	20	25	17	15	16
Saithe 3)	15	20	29	36	36	31	42	29	32	22
Herring	179	222	182	248	210	141	111	49	34	6
Mackerel 4)	104	133	171	219	298	491	507	326	504	606

Source: Tables in Advisory Committee on Fisheries Management Report 1980 and ICES Co-operative Research Report 1979.

Notes: 1) Sub-area IV and Divisions VIId and e.  
 2) Sub-area IV and Division IIIa.  
 3) Sub-area VI.

4) Western Area: VI, VII and VIII.  
 5) Figures are for annual landings.

Table A12: Catches by U.K. Vessels Landing in Scotland, from  
Selected North Sea Grounds and from ICES VIA  
(tonnes - nominal weight).

	1975	1977	1979
<u>Nephrops</u>			
Shetland	2	1	0
Orkney & Moray Firth	983	1103	1794
4B-EC Sector	1551	1853	1316
VIA	5635	6728	9178
<u>Lobsters</u>			
Shetland	24	13	10
Orkney & Moray Firth	145	146	132
4B-EC Sector	98	123	91
VIA	201	247	221
<u>Crabs</u>			
Shetland	267	190	115
Orkney & Moray Firth	497	1005	1176
4B-EC Sector	768	668	1016
VIA	154	530	68

Source: D.A.F.S.

Table: A13

DISTRIBUTION OF ALL CATCHES BY SCOTTISH VESSELS FROM SELECTED  
FISHING REGIONS 1975

	<3 miles		3-12 miles		<12 miles		>12 miles		TOTAL	
	tonnes		tonnes		tonnes		tonnes		tonnes	% of (A)
<b>SHETLAND</b>										
Demersal	939		25880		26819		21779		48598	21.1
Pelagic	236		1583		1819		2963		4782	3.6
Shellfish	0		5		5		3		8	0.1
Industrial	0		13287		13287		13909		27196	58.9
Total	1175		40755		41930		38654		80584	19.2
<b>ORK. &amp; MORAY F.</b>										
Demersal	70		12860		13630		28856		42486	18.4
Pelagic	7281		2942		10223		1094		11317	8.6
Shellfish	413		166		579		974		1553	13.6
Industrial	0		18		18		12279		12297	26.6
Total	8464		15986		24450		43203		67653	16.1
<b>REST OF IVA</b>										
Demersal	0		4		4		31285		31289	13.6
Pelagic	10		128		138		3		141	0.1
Shellfish	0		0		0		31		31	0.3
Industrial	0		0		0		38		38	0.1
Total	10		132		142		31357		31499	7.5
<b>IVB-E.C.</b>										
Demersal	767		5682		6449		21389		27838	12.1
Pelagic	1629		2934		4563		2227		6790	5.1
Shellfish	915		563		1478		46		1524	13.4
Industrial	0		0		0		26		26	0.1
Total	3311		9179		12490		23688		36178	8.6
<b>IVB NORTH</b>										
Demersal	0		1		1		3211		3212	1.4
Pelagic	0		0		0		1		1	-
Shellfish	0		0		0		0		0	0.0
Industrial	0		0		0		0		0	0.0
Total	1		1		2		3212		3214	0.8
<b>VIA NORTH</b>										
Demersal	3595		1154		4749		11164		15913	6.9
Pelagic	469		378		847		195		1042	0.8
Shellfish	22		1		23		17		40	0.4
Industrial	0		0		0		0		0	0.0
Total	4086		1533		5619		11376		16995	4.0
<b>VIA SOUTH</b>										
Demersal	25262		1005		26267		2856		29123	12.6
Pelagic	102978		103		103081		4370		107451	81.4
Shellfish	7994		12		8006		36		8042	70.6
Industrial	6550		30		6580		0		6580	14.3
Total	142784		1150		143934		7262		151196	36.0
<b>OTHER</b>										
Demersal	6		569		575		31279		31854	13.8
Pelagic	0		445		445		28		473	0.4
Shellfish	0		10		10		190		200	1.8
Industrial	0		14		14		0		14	-
Total	6		1038		1044		31497		32541	7.8
<b>TOTAL</b>		%of(A)		%of(A)		%of(A)		%of(A)	(A)	
Demersal	31339	13.6	47155	20.5	78494	34.1	1151819	65.9	230313	100.0
Pelagic	12603	85.3	8513	6.4	121116	91.8	10881	8.2	131997	100.0
Shellfish	9344	82.0	757	6.6	10101	88.6	1297	11.4	11398	100.0
Industrial	6550	14.2	13349	28.9	19899	43.1	26252	56.9	46151	100.0
Total	59836	38.1	69774	16.6	229610	54.7	190249	45.3	419859	100.0

(A) is the total of each type of fish caught in the region.

DISTRIBUTION OF ALL CATCHES BY SCOTTISH VESSELS FROM SELECTED  
FISHING REGIONS 1979

	<3 miles		3-12 miles		<12 miles		>12 miles		TOTAL	
	tonnes		tonnes		tonnes		tonnes		tonnes	% of (A)
<b>SHETLAND</b>										
Demersal	64		15147		15211		28300		43511	20.2
Pelagic	214		91		305		747		1052	1.0
Shellfish	1162		59		1221		6		1226	4.5
Industrial	180		12217		12397		4069		16466	99.4
Total	1620		27515		29135		33121		62256	17.1
<b>ORK. &amp; MORAY F.</b>										
Demersal	1824		7466		9290		43696		52986	24.6
Pelagic	921		5093		6014		611		6625	6.3
Shellfish	2297		1192		3489		1574		5064	18.6
Industrial	0		0		0		0		0	0.0
Total	5042		13751		18793		45882		64675	17.7
<b>REST OF IVA</b>										
Demersal	0		0		0		28781		28781	13.4
Pelagic	0		0		0		2178		2178	2.1
Shellfish	0		0		0		2		2	0.0
Industrial	0		0		0		79		79	0.5
Total	0		0		0		31039		31039	8.5
<b>IVB-E.C.</b>										
Demersal	1755		8061		9816		28119		37935	17.6
Pelagic	4588		401		4989		371		5360	5.1
Shellfish	1992		771		2763		118		2881	10.6
Industrial	0		0		0		0		0	0.0
Total	8336		9233		17569		28609		46178	12.7
<b>IVB NORTH</b>										
Demersal	0		0		0		7890		7890	3.7
Pelagic	0		0		0		1669		1669	1.6
Shellfish	0		0		0		0		0	0.0
Industrial	0		0		0		0		0	0.0
Total	0		0		0		9559		9559	2.6
<b>VIA NORTH</b>										
Demersal	200		4204		4404		12302		16707	7.8
Pelagic	571		1060		1631		1070		2701	2.6
Shellfish	35		11		46		12		58	0.2
Industrial	0		0		0		0		0	0.0
Total	806		5275		6081		13384		19465	5.3
<b>VIA SOUTH</b>										
Demersal	17542		2937		20479		1956		22435	10.4
Pelagic	81379		2036		83415		1292		84707	80.4
Shellfish	13714		58		13772		359		14131	51.8
Industrial	23		0		23		0		23	0.1
Total	112653		5032		117685		3607		121292	33.3
<b>OTHER</b>										
Demersal	336		292		628		4630		5258	2.4
Pelagic	4		4		8		1065		1073	1.0
Shellfish	534		1545		2079		1815		3894	14.3
Industrial	0		0		0		0		0	0.0
Total	875		1840		2715		7511		10226	2.8
<b>TOTAL</b>		% of (A)		% of (A)		% of (A)		% of (A)	(A)	
Demersal	21722	10.1	38107	17.7	59829	27.8	55675	72.2	215503	100.0
Pelagic	87677	83.2	8685	8.2	96362	91.5	9003	8.5	105365	100.0
Shellfish	19734	72.4	3637	13.3	23371	85.7	3886	14.3	27257	100.0
Industrial	203	1.2	12217	73.7	12420	75.0	4148	25.0	16568	100.0
Total	129332	35.5	62644	17.2	191976	52.6	172714	47.4	364692	100.0

Table A15:

SHETLAND

TOTAL CATCH :	62,293	100%
(tonnes)		
SUBREGION : 1	201	0.3
2	31,355	50.3
3	30,076	48.3
4	625	1.0
5	37	0.1

ORKNEY/MORAY FIRTH

TOTAL CATCH :	64,920	100%
1	839	1.3
2	61,078	94.1
3	1,630	2.5
4	1,128	1.7
5	245	0.4

REST OF IVA

TOTAL CATCH :	31,438	100%
1	2,028	6.5
2	28,600	91.0
3	350	1.1
4	62	0.2
5	399	1.3

IVB - E.C. SECTOR

TOTAL CATCH :	46,935	100%
1	26,563	56.6
2	19,303	41.1
3	6	...
4	305	0.6
5	757	1.6

IVB - NORW. SECTOR

TOTAL CATCH :	9,721	100%
SUBREGION : 1	3,217	33.1
2	6,311	64.9
3	18	0.2
4	13	0.1
5	162	1.7

VIA - NORTH

TOTAL CATCH :	21,055	100%
1	44	0.2
2	13,176	62.6
3	2,739	13.0
4	3,507	16.7
5	1,590	7.6

VIA - SOUTH

TOTAL CATCH :	139,968	100%
1	435	0.3
2	76,773	54.9
3	9,723	6.9
4	34,368	24.6
5	18,676	13.3

OTHER REGIONS

TOTAL CATCH :	10,332	100%
1	1,509	14.6
2	3,399	32.9
3	0	-
4	5,319	51.5
5	106	1.0

**TABLE A16:**  
Landings in Scotland by Scottish vessels: Base district by landing district, all species (See map 1)

Weight: Tonnes

BASE DISTRICT*	LANDING DISTRICT																			Total Landings
	Eve-mouth	Leith	Pitten-weem	Arbroath	Aber-deen	Peter-head	Fraser-burgh	Mac-duff	Buckle	Lossie-mouth	Wick	Orkney	Shet-land	Storn-oway	Ulla-pool	Mallaig	Oban	Campbell-town	Ayr	
Evermouth	4,563	533	—	—	4	61	19	—	—	—	—	—	—	—	10	18	—	—	—	5,147
Leith	1,859	5,264	37	5	96	241	19	—	—	30	—	—	—	—	11	13	107	—	—	7,781
Pittenweem	7	43	5,530	102	6,382	45	8	—	—	5	—	—	—	—	—	—	42	—	—	12,223
Arbroath	—	—	—	4,669	5	875	—	—	—	13	—	—	—	—	—	—	—	—	—	5,554
Aberdeen	—	—	3	—	41,482	525	5	—	21	4	—	—	2	68	1,732	84	209	8	—	43,901
Peterhead	—	—	2	—	116	20,919	1,200	2	67	2	—	—	208	1,061	11,076	1,433	169	8	—	35,367
Fraserburgh	—	393	—	—	171	5,706	9,506	963	68	5	—	—	306	3,083	22,772	3,377	109	8	1,237	47,279
Macduff	10	168	—	—	372	5,078	5,322	6,351	152	59	6	—	—	1,537	18,391	1,835	18	—	71	39,377
Buckle	1	—	—	—	389	16,405	405	40	3,599	28	58	—	2	20	3,183	177	—	—	—	24,315
Lossiemouth	—	—	—	—	80	10,673	198	11	575	4,063	19	—	1	2	2,074	2,274	2,230	220	17	22,641
Wick	—	—	—	—	—	812	12	3	81	124	3,855	—	—	—	33	—	—	1	—	4,831
Orkney	—	—	—	—	926	1,338	4	—	—	10	212	933	4,318	9	1,081	80	9	—	2	5,937
Shetland	—	—	—	11	1,159	309	—	—	—	—	—	—	23,716	1,685	6,466	254	—	—	—	33,595
Stornoway	39	—	—	—	26	—	—	2	—	—	—	—	—	3,290	316	972	—	1	—	4,651
Ullapool	—	—	—	—	18	1,011	37	—	51	6	—	—	—	8	3,178	125	46	6	—	4,441
Mallaig	—	—	—	—	2	151	—	1	—	—	—	—	—	350	1,662	4,075	—	—	—	7,053
Oban	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	35	1,223	17	33	1,313
Campbelltown	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	86	62	4,829	476	5,469
Ayr	—	—	—	—	—	—	153	—	50	—	—	—	—	180	3,862	551	530	282	9,890	15,471
ALL DISTRICTS	6,407	5,404	5,573	4,792	51,235	64,155	16,873	7,378	4,658	4,355	4,156	934	28,616	11,345	75,292	16,307	4,651	5,366	11,879	330,393

\*Landings by vessels not allocated to a Scottish base district at the time of landing are excluded.

Source: Scottish Sea Fisheries Statistical Tables 1979.

TABLE A17:

RAINBOW TROUT FARMINGType and Numbers of Farm Sites and Their Production in 1980

Annual Production (tonnes)	>200	101-200	81-100	61-80	41-60	21-40	5-20	<5	New Farms	Total Farms	Production/ Type of Site
Type & Number of Farm Sites											
Lined or Earth Pond	-	1	-	2	2	3	8	3	-	19	601
Tanks	-	1	-	-	2	5	6	6	-	20	548
Freshwater Cages	1	-	1	2	-	-	2	2	3	11	470
Seawater Cages	-	-	-	-	-	1	3	1	1	6	86
Raceways	-	-	-	-	-	-	1	-	-	1	12
TOTAL	1	2	1	4	4	9	20	12	4	57*	1717**

NOTES:

\* There are four more sites wholly or mostly producing eggs, fry and fingerling for on-growing on other farms

\*\* 74 tonnes included in the total were supplied by 23 farms for restocking

SOURCE:

Munro and Waddell (1981)

Table A18: Size Distribution of Scottish Ports, 1980

Rank of Vessels	Port	Number of Vessels	Rank by Landings	Port	Volume of Landings (tonnes)	Rank by Value	Port	Value of Landings (£m)
1	Fraserburgh	133	1	Ullapool	75,813	1	Peterhead	33.037
2	Peterhead	131	2	Peterhead	71,250	2	Aberdeen	18.411
3	Buckie	84	3	Aberdeen	42,646	3	Fraserburgh	6.996
4	Aberdeen	81	4	Lerwick	31,424	4	Ullapool	6.678
5	Arbroath	58	5	Fraserburgh	27,412	5	Mallaig	5.550
6	Gardenstown	56	6	Stornoway	16,837	6	Lerwick	3.037
7	Scalloway	51	7	Mallaig	9,403	7	Eyemouth	2.858
8	Lossiemouth	48	8	Kinlochbervie	5,991	8	Pittenweem	2.651
8	Port Seton	48	9	Eyemouth	5,416	9	Ayr	2.583
10	Whalsay	42	10	Ayr	5,381	10	Kinlochbervie	2.411

Source: Scottish Sea Fisheries Statistical Tables.



Table A19: Size Distribution of Scottish Ports 1970

Rank of Vessels	Port	Number of Vessels	Volume of Landings	Rank by Landings	Port	Volume of Landings	Number of Vessels
1	Aberdeen	144	120,098	1	Aberdeen	120,098	144
2	Fraserburgh	105	19,200	2	Mallaig	43,924	32
3	Peterhead	93	12,038	3	Ullapool	28,137	16
4	Buckle	81	10,458	4	Lerwick	20,911	18
5	Scalloway and Isles	72	4,733	5	Fraserburgh	19,200	105
6	Gardenstown	59	22	6	Granton	18,606	15
7	Lossiemouth	57	6,193	7	Oban	18,054	10
8	Whalsay	48	1,036	8	Ayr	13,935	12
9	Pittenweem	48	385	9	Peterhead	12,038	93
				10	Buckle	10,458	81

source: Scottish Sea Fisheries Statistical Tables

Table A20:

Non-availability of key services  
(x = not available locally)

	Slipway	Ice	Cold storage
Eyemouth			
Dunbar	x	x	x
Port Seton		x	x
Granton		x	
Pittenweem	x		x
Arbroath			
Aberdeen			
Peterhead			
Fraserburgh			
Macduff			x
Whitehills	x	x	x
Buckie			
Lossiemouth			
Burghead	x	x	x
Helmsdale	x	x	x
Lybster	x	x	
Wick			
Scrabster	x	x	x
Kirkwall	x	x	x
Lerwick			
Whalsay	x		
Scalloway			
Stornoway			
Breasclete	x		
Castlebay	x	x	x
Kinlochbervie	x		x
Lochinver	x		x
Ullapool	x		x
Gairloch	x		
Kyle		x	x
Portree	x	x	x

Table A20 (Continued)

	Slipway	Ice	Cold storage
Mallaig			
Oban	x	x	x
Campbeltown		x	x
Carradale	x	x	x
Tarbert	x		x
Ayr	x		x
Girvan		x	x
Kirkcudbright	x	x	x
Bridlington	x		x
North Shields			

TABLE A21DISTRIBUTION OF SCOTTISH VESSELS BY LENGTH 1970-1980, NUMBER AT 31 DECEMBER

<u>Year</u>	<u>Total of All Vessels</u>	<u>140ft and Over</u>	<u>110 to 139.9ft</u>	<u>80 to 109ft</u>	<u>60 to 79.9ft</u>	<u>40 to 59.9ft</u>	<u>Under 40ft</u>
1970	2617	2	68	55	347	607	1538
1971	2620	3	68	53	358	614	1524
1972	2712	4	66	56	378	625	1583
1973	2689	4	64	56	399	650	1516
1974	2754	4	57	54	420	660	1559
1975	2678	4	48	54	448	619	1505
1976	2616	3	43	47	446	587	1490
1977	2580	3	36	45	452	564	1480
1978	2616	1	35	55	462	553	1510
1979	2517	-	31	57	476	541	1412
1980	2514	-	25	57	479	536	1417

Source: derived from Scottish Sea Fisheries Statistical Tables 1970 to 1980.

TABLE A22

DISTRIBUTION OF SCOTTISH VESSELS OF 80 FT AND OVER  
BY TYPE 1970 - 1980. NUMBER AT 31ST DECEMBER.

	<u>Trawlers</u>	<u>Liners</u>	<u>Purse Seiners</u>	<u>Seiners</u>	<u>Scallop Dredgers</u>	<u>Total</u>
1970	117	7	1	-	-	125
1971	117	6	-	1	-	124
1972	117	6	-	3	-	126
1973	118	4	-	2	-	124
1974	107	4	1	3	-	115
1975	96	3	3	4	-	106
1976	78	3	8	4	-	93
1977	68	3	9	4	-	84
1978	59	4	22	4	2	91
1979	46	5	31	4	2	88
1980	34	4	39	4	1	82

Source: Derived from Scottish Sea Fisheries Statistical Tables 1970-1980.

TABLE A23

NEW VESSELS IN SCOTLAND BY REGISTERED LENGTH GROUPS 1972 - 1979

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1972-1978</u>	<u>1979</u>
Under 40ft	33	20	27	15	13	11	15	134	9(1)
40-59.9ft	15	25	10	12	4	3	2	71	23
60-79.9ft	23	25	32	35	28	12	16	171	
80-109.9ft	-	2	-	2	2	-	2	8	
110-139.9ft	-	1	1	2	4	1	2	11	3
Over 140ft	1	-	-	-	-	-	-	-	35(2)
TOTAL:	72	73	70	66	51	27	37	395	

Source: Derived from Scottish Sea Fisheries Statistical Tables 1975-1979

Note (1) relates to vessels between 30-39.9 ft  
 Note (2) relates to vessels 30ft and over

TABLE A24

SCOTTISH INSHORE FLEET (i.e. 40-79.9ft): PERCENTAGE OF VESSELS OF  
GIVEN AGE AND UNDER AT 31 DECEMBER 1979 AT MAJOR SCOTTISH PORTS.

	<u>Total Vessels</u>	<u>5 Years and Under</u> %	<u>10 Years and Under</u> %	<u>15 Years and Under</u> %
Ayr	71	8	28	45
Campbeltown	56	0	11	25
Mallaig	28	4	25	50
Stornoway	58	0	12	41
Lerwick	47	9	25	42
Wick	28	4	18	32
Lossiemouth	87	17	41	61
Buckie	110	18	48	61
Macduff	95	19	41	59
Fraserburgh	88	20	45	61
Peterhead	88	24	53	68
Aberdeen	46	28	70	85
Arbroath	33	0	12	15
Pittenweem	55	25	51	73
Leith	59	8	40	53
Eyemouth	25	12	36	64

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TABLE A25OWNERSHIP OF SCOTTISH DEEP SEA FLEET

<u>Number of Vessels Owned</u>	<u>Number of Owners</u>		<u>Number of Vessels</u>		<u>Cumulative % of Fleet</u>	
	<u>1976</u>	<u>1979</u>	<u>1976</u>	<u>1979</u>	<u>1976</u>	<u>1979</u>
Over 10 Vessels	2	-	29	-	31	-
5 - 10	5	1	37	10	71	11
4	-	-	-	-	71	11
3	-	2	-	6	71	18
2	2	8	4	16	75	36
1	23	57	23	57	100	100
	32	68	93	83	-	-

Source: White Fish Authority Annual Reports.

TABLE A26:

DISTRIBUTION OF NORTHERN BRITISH VESSELS BY GROSS REGISTERED  
TONNAGE 31 DECEMBER 1979.

Length of Vessels	Gross Registered Tonnage	East Coast	West Coast	Orkney & Shetland	Scotland	N.E. England	Northern Britain
30'-39.9'	<15	77	154	38	269		
	15-29.9	30	41	3	74		
	TOTAL	107	195	41	343		
40'-79.9'	<15	0	1	2	3	3	6 •
	15-29.9	247	139	20	406	111	517
	30-49.9	269	97	32	398	47	445
	50-79.9	126	3	8	137	14	151
	80-99.9	38	0	2	40	1	41
	≥100.0	30	3	0	33	8	41
	TOTAL	710	243	64	1017	184	1201
≥80'	<100	4	2	1	7		7
	100-149.9	13	1	4	18		18
	150-199.9	8		1	9		9
	200-249.9	26	4		30	2	32
	250-299.9	12			12	3	15
	300-349.9	6			6		6
	350.0+	7			7		7
	TOTAL	76	7	6	89	5	94

Source: Vessel Lists for 1979, of DAFS, Edinburgh and MAFF, London.

Note: The above table does not include data for the Isle of Man.



TABLE A27

GROSS REGISTERED TONNAGE OF VESSELS BY PERIOD OF CONSTRUCTION AND BY VESSEL LENGTH FOR NORTHERN BRITAIN.

A) Vessels of 30 to 39.9 feet

Period of Construction	Tonnage		TOTAL
	<15	15-29.9	
Before 1940	38	3	41
41-45	4	0	4
46-50	21	6	27
51-55	11	8	19
56-60	19	19	38
61-65	25	6	31
66-70	33	13	46
71-75	74	15	89
76-80	18	3	21
Not known	(26)	(1)	27
TOTAL	269	74	343

B) Vessels of 40-79.9 feet

Period of Construction	Tonnage						TOTAL
	<15	15-29.9	30-49.9	50-79.9	80-99.9	>100	
Before 1940	2	25	3	0	0	0	30
41-45		14	9	0	0	0	23
46-50		97	36	3	0	0	136
51-55		32	28	9	1	0	70
56-60	1	70	98	22	0	0	191
61-65		66	52	14	1	0	133
66-70		88	88	32	2	3	213
71-75	1	90	93	49	19	27	279
76-80		21	34	20	18	11	104
Not known	2	14	4	2	0	0	22
TOTAL	6	517	445	151	41	41	1201

C) Vessels of More than 80 feet

Period of Construction	Tonnage							TOTAL
	<100	100-149.9	150-199.9	200-249.9	250-299.9	300-349.9	≥350	
Before 1940								
41-45								
46-50		1						1
51-55		0						0
56-60		4	3	12	4		1	24
61-65	1	1	1	13	4	3	1	24
66-70	2	5	0	1	2	1	0	11
71-75	2	4	4	3	0	2	1	16
76-80	1	2	1	3	5	0	4	16
Not known	1	1	0	0	0	0	0	2
<b>TOTAL</b>	<b>7</b>	<b>18</b>	<b>9</b>	<b>32</b>	<b>15</b>	<b>6</b>	<b>7</b>	<b>94</b>

Source: Vessel Lists for 1979 of DAFS, Edinburgh and MAFF, London.

TABLE A28

## DISTRIBUTION OF VESSELS IN NORTHERN BRITAIN BY LENGTH AND HORSEPOWER.

Length of Vessel	Horsepower	East Coast	West Coast	Orkney & Shetland	Scotland	N.E. England	Northern Britain
30'-39.9'	< 100	60	127	33	220	-	-
	100-199.9	45	63	8	116	-	-
	200-299.9	2	5	0	7	-	-
	TOTAL	107	195	41	343		
40'-79.9'	Not known					4	4
	<100	23	23	7	53	28	81
	100-199.9	206	103	27	336	68	404
	200-299	168	72	11	251	56	307
	300-399	84	29	5	118	17	135
	400-499	97	12	6	115	3	118
	500-599	55	1	5	61	6	67
	600-699	50	0	0	50	1	51
	700-799	14	2	1	17	0	17
	800-899	12	0	2	14	1	15
	900-999	1	0	0	1	0	1
	≥1000	0	1	0	1	0	1
	TOTAL	710	243	64	1017	184	1201
≥80'	< 600	8	2	1	11	0	11
	600-799	41	2	0	43	3	46
	≥800	27	3	5	35	2	37
	TOTAL	76	7	6	89	5	94

Source: Vessel Lists for 1979 of DAFS, Edinburgh and MAFF, London.

Table A29Vessels by Method of Fishing Mainly Engaged in During 1975,  
1977 and 1979

	1975	%	1977	%	1979	%
Demersal Fishing - Total	1170	43.7	1043	40.4	1022	40.6
Trawl - 80ft and over	95		67		43	
Under 80ft	306		310		357	
Lines	359		315		296	
Seine	407		342		316	
Other Methods	5		9		10	
Pelagic Fishing - Total	143	5.3	127	4.9	91	3.6
Drift	4		4		1	
Ring	10		7		-	
Purse Seine	23		26		40	
Pelagic Trawl	106		90		50	
Shell Fishing	1102	51.0	1139	54.7	1086	55.7
Nephrops Trawl	259		263		313	
Shrimp Trawl	4		8		5	
Total	2678		2580		2517	

Source: Scottish Sea Fisheries Statistical Tables, 1979.

Table A30  
Number of Fishermen

District	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Eyemouth	196	190	205	212	232	220	227	212	227	229	214
Leith	497	504	488	483	518	521	389	388	459	395	377
Pittenweem	370	371	368	403	391	363	358	376	397	417	412
Arbroath	242	233	250	255	279	271	241	241	240	256	273
Aberdeen	1365	1482	1417	1483	1341	1060	1126	1060	1031	622	566
Peterhead	496	490	534	559	615	590	647	708	774	779	781
Fraserburgh	779	820	872	849	824	757	722	678	677	701	752
Macduff	650	638	663	675	658	651	620	651	676	687	700
Buckie	639	624	637	643	642	601	617	631	680	716	726
Lossiemouth	639	629	616	586	555	468	482	489	528	557	599
Wick	454	470	496	494	471	440	432	436	470	340	284
Total East Coast	6327	6451	6546	6642	6526	5942	5861	5870	6159	5699	5685
Orkney and Shetland	975	959	1013	1005	1042	997	1002	1011	1026	872	878
Stornoway	527	533	526	499	532	524	548	564	567	579	496
Ullapool	204	246	275	237	229	228	246	262	262	271	284
Mallaig	259	287	289	299	318	285	270	261	269	349	334
Oban	83	100	117	118	120	115	115	153	151	223	198
Campbeltown	332	355	385	394	380	353	374	398	376	370	367
yr	590	401	419	453	424	404	450	466	431	461	457
Total West Coast	1995	1922	2011	2000	2003	1909	2003	2104	2056	2253	2136
Total Scotland	9297	9332	9570	9647	9571	8848	8866	8985	9241	8824	8699

Source: Scottish Sea Fisheries Statistical Tables.

TABLE A31: INDEX OF FISHERMEN EMPLOYED IN SCOTLAND BY DISTRICT, 1969. - (1969 = 100)

District	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Eymouth	100	98	95	103	106	116	110	114	106	114	115	107
Leith	100	90	91	88	87	93	94	70	70	83	71	68
Pittenweem	100	102	103	102	112	108	101	99	104	110	116	115
Arbroath	100	99	95	102	105	114	111	99	99	98	105	112
Aberdeen	100	103	112	107	112	101	80	85	80	78	47	43
Peterhead	100	100	99	108	113	124	119	131	143	157	158	158
Fraserburgh	100	102	107	114	111	108	99	94	88	88	92	99
Mudduff	100	94	92	96	97	95	94	89	94	97	89	101
Buckle	100	96	93	95	96	96	90	92	94	100	107	108
Lossiemouth	100	98	96	94	90	85	72	74	75	81	85	91
Wick	100	100	103	109	109	104	97	95	96	103	75	63
Lerwick	100	91	90	95	94	97	93	94	95	96	81	82
Stornoway	100	105	106	105	99	106	104	109	112	113	115	99
Ullapool	100	99	119	133	114	111	110	119	127	127	131	137
Mallaig	100	97	107	108	112	119	107	101	98	101	131	125
Oban	100	120	145	170	171	174	167	167	222	219	323	287
Campbeltown	100	104	112	121	124	119	111	118	125	118	116	115
Ayr	100	106	109	114	123	115	110	122	127	117	125	124
Total	100	99	101	104	105	104	96	96	97	100	96	95
Partially Employed	100	95	94	96	88	92	88	86	89	90	79	74
Regularly Employed	100	99	103	105	108	106	98	98	99	102	99	96

Table A32Fish processing and related onshore employment

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Principals	1965	1877	1841	1791	1740	1666	1570	1589	1572	1520
Office Staff	1714	1726	1869	1959	1905	1848	1794	1835	1814	1720
Fish Workers	9574	11114	11416	11590	10622	9855	10125	9792	9123	8640
Other Workers	6333	6534	6974	6231	6126	5407	5317	5406	5339	5215
Total	19756	21251	22100	21571	20397	18776	18806	18622	17848	17095
			<u>% Changes</u>							
Principals		+ 0.64	-1.92	- 2.7	-2.8	- 4.3	-5.8	+1.2	-1.1	-3.4
Office Staff		+ 0.7	+8.3	+ 4.8	-2.8	- 2.9	-2.9	+2.3	-1.2	-5.2
Fish Workers		+16.1	+2.7	+ 1.5	-8.4	- 7.2	+2.7	-3.3	-6.8	-5.3
Other Workers		+ 3.2	+6.7	-10.7	-1.7	-11.7	-1.7	+1.7	-1.3	-2.2
Total		+7.6	+4.0	- 2.4	-5.4	- 7.9	+0.2	-1.0	-4.2	-4.2

Source: DAFS

Table A33

Fish processing: regional employment

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Eyemouth	329	301	372	395	408	417	454	631	605	565
Leith	1855	1868	1830	1759	1718	1383	1308	1285	1283	1133
Pittenweem	348	353	385	379	343	308	281	304	293	321
Arbroath	438	475	499	497	484	481	526	465	532	581
Aberdeen	7475	8212	8242	7741	7319	6669	6283	6042	5122	4935
Peterhead	1070	1167	1495	1520	1124	1043	1075	1008	1059	1217
Fraserburgh	2787	2725	2917	2882	2968	2543	2818	2743	2818	2661
Macduff	419	429	413	428	390	261	258	276	284	301
Buckie	673	687	719	710	690	714	721	662	700	695
Lossiemouth	521	604	647	687	650	641	622	625	637	595
Wick	445	408	371	343	341	329	331	331	336	169
Lerwick	807	1144	1203	1198	1175	1106	1148	1196	1152	822
Orkney	153	242	265	291	291	252	186	-	-	139
Stornoway	159	195	244	240	196	225	289	288	279	238
Ullapool	134	147	149	156	168	180	160	162	147	153
Mallaig	204	234	248	236	181	172	163	145	132	144
Oban	175	144	133	131	134	115	117	132	121	151
Campbeltown	553	497	461	475	423	387	345	389	487	511
Ayr	1229	1419	1507	1503	1394	1551	1724	1938	1861	176



Table A34

Fish processing: regional employment, % changes

	1971	1972	1973	1974	1975	1976	1977	1978	1979
Eyemouth	- 8.5	+23.6	+6.2	+ 3.3	+ 2.2	+ 8.9	+39.0	- 4.1	- 6.6
Leith	+ 0.7	- 2.0	-3.9	- 2.3	-24.2	- 5.4	- 1.8	- 0.2	-11.7
Pittenweem	+ 1.4	+ 9.1	-1.6	-9.5	-10.2	- 8.8	+ 8.2	- 3.6	+ 9.6
Arbroath	+ 8.4	+ 5.1	-0.4	- 2.6	- 0.6	+ 9.4	-11.6	+15.4	+ 9.2
Aberdeen	+10.1	+ 0.4	-6.1	- 5.5	- 8.9	- 5.8	- 3.8	-15.2	- 3.7
Peterhead	+ 9.1	+28.1	+1.7	-26.1	- 7.2	+ 3.1	- 6.2	+ 5.1	+14.9
Fraserburgh	- 2.2	+ 7.0	-1.1	+ 3.0	-14.3	+10.8	- 2.7	+ 2.7	- 5.6
Macduff	+ 2.4	- 3.7	+3.6	- 8.9	-33.1	- 1.1	+ 7.0	+ 2.9	+ 6.0
Buckie	+ 2.1	+ 4.7	-1.3	- 2.8	+ 3.5	+ 1.0	- 8.2	+ 5.7	- 0.7
Lossiemouth	+15.9	+ 7.1	+6.2	- 5.4	- 1.7	- 3.0	+ 0.5	+ 1.9	- 6.6
Wick	- 8.3	- 9.1	-7.5	- 0.6	- 3.5	+ 0.6	0.0	+ 1.5	-49.7
Lerwick	+41.8	+ 5.2	-0.4	- 1.9	- 5.9	+ 3.8	+ 4.2	- 3.7	-28.6
Orkney	+58.2	+ 9.5	+9.8	0.0	-13.4	-26.2	-	-	-
Stornoway	+22.6	+25.1	-1.6	-18.3	+14.8	+28.4	- 0.3	- 3.1	-14.7
Ullapool	+ 9.7	+ 1.4	+4.7	+ 7.7	+ 7.1	-11.1	+ 1.3	- 9.3	- 4.1
Mallaig	+14.7	+ 6.0	-4.8	-23.3	- 5.0	- 5.2	-11.0	- 9.0	+ 9.1
Oban	-17.7	- 7.6	-1.5	+ 2.3	-14.2	+ 1.7	+12.8	- 8.3	+26.4
Campbeltown	-10.1	- 7.2	+3.0	-10.9	- 8.5	-10.9	+12.8	+25.2	+ 5.3
Ayr	+15.5	+ 6.2	-0.3	- 7.3	+11.3	+11.2	+12.4	- 4.1	- 5.3

Table A35: AN INDEX OF PERSONS EMPLOYED IN THE FISHING INDUSTRY (EXCLUDING FISHERMEN), 1969-79

District	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Eyemouth	100	116	106	131	139	144	147	160	222	213	199
Leith	100	101	102	100	96	94	75	71	70	70	62
Pittenweem	100	98	100	109	108	97	87	80	86	83	91
Arbroath	100	111	120	126	126	122	122	133	118	135	147
Aberdeen	100	105	116	110	109	103	94	89	85	72	70
Poterhead	100	124	136	174	177	130	121	125	117	123	141
Fraserburgh	100	113	110	118	117	120	103	115	112	115	108
Macduff	100	182	187	180	186	170	113	112	120	123	131
Buckle	100	99	101	106	104	101	105	106	97	103	102
Lossiemouth	100	140	162	174	185	175	172	167	168	171	160
Wick	100	103	94	85	79	79	76	76	76	77	39
Lerwick	100	129	183	192	192	189	177	170	192	185	132
Orkney	100	103	170	187	205	205	177	131	N.A.	N.A.	106
Stornoway	100	121	149	186	183	150	173	221	220	213	182
Ullapool	100	98	107	109	114	123	131	117	118	107	112
Mallaig	100	98	113	120	114	87	83	79	70	64	70
Oban	100	107	88	81	80	82	70	71	80	74	93
Campbeltown	100	164	147	137	141	126	115	102	115	145	152
Ayr	100	108	125	132	132	122	156	151	170	163	155
Total	100	111	119	124	121	114	105	105	104	100	96

Table A36Total Employment in the Fishing Industry

<u>District</u>	<u>1970</u>	<u>1972</u>	<u>1974</u>	<u>1976</u>	<u>1978</u>	<u>1979</u>
Eyemouth	525	577	640	681	832	794
Leith	2352	2318	1950	1697	1510	1528
Pittenweem	718	753	734	639	690	738
Arbroath	913	749	763	767	772	837
Aberdeen	8840	9659	8660	7409	6153	5557
Peterhead	1070	2029	1739	1722	1833	1996
Fraserburgh	3566	3789	3792	3540	3495	3362
Macduff	1069	1076	1048	878	960	988
Buckie	1312	1356	1332	1338	1380	1411
Lossiemouth	1160	1263	1205	1104	1165	1152
Wick	899	867	812	763	806	509
Lerwick	NA	1874	1860	1710	1471	1406
Orkney	NA	607	648	536	707	427
Stornoway	686	770	728	837	846	817
Ullapool	338	424	397	406	409	424
Mallaig	463	537	499	433	401	493
Oban	258	250	254	232	272	376
Campbeltown	885	846	817	719	863	823
Ayr	1819	1926	1818	2174	2292	2224

Table A37

Employment in the Fishing Industry in the Fishing District as a  
Percentage of the Estimated Population in the Population Centre  
with the Fishing District Name, 1979

Mallaig	54.5
Ullapool	52.5
Eyemouth	31.3
Fraserburgh	30.2
Macduff	26.6
Pittenweem	25.0
Lossiemouth	23.9
Lerwick	17.9
Buckie	17.2
Stornoway	15.2
Campbeltown	13.9
Peterhead	13.3
Wick	6.5
Oban	5.9
Ayr	4.6
Arbroath	3.6
Aberdeen	2.6
Leith	0.33

TABLE A38 . Age of Joining - Cumulative Percentage of Men at Each Age  
(starting at age 13 years, percentages rounded)

Current Age	Age of Joining	16 and Under	17	18	19	20	21	22	23+	Cumulative nos in sample at each age
16										
17										
18										
19		85	13	-	2	-	-	-	-	47
20		74	15	3	5	3	-	-	-	66
21		74	13	4	5	2	2	-	-	85
22		71	14	5	5	2	2	1	-	100
24		71	14	5	4	2	2	1	1	138
25		71	12	5	5	3	2	1	1	155
30		67	12	4	4	5	2	2	4	229
40		64	9	4	2	4	3	2	14	507

Note: sample to age 20 should be treated with caution

TABLE A39 Age of Joining Cumulative Percentage of Fishermen at Each Age  
(Starting at Age 13) (Percentage Rounded)

Current Age	Age of Joining	16 and under	17	18	19	20	21	22	23+	Cumulative total in sample at each age
20	77	17	-	6	-	-	-	-	-	18
25	77	17	-	4	2	-	-	-	-	48
30	75	17	-	3	2	-	-	-	3	59
35	77	14	1	3	1	-	-	1	3	78
40	75	13	1	2	2	-	-	1	6	88
All Ages	72	13	1	2	3	-	-	2	7	116

PETERHEAD

Figures up to age 30 must be treated with caution

TABLE A40 Age of Joining Cumulative Percentage of Fishermen at Each Age  
 (Starting at Age 13)  
 (Percentages Rounded)

Current Age	Age of Joining	16 and under	17	18	19	20	21	22	23+	Cumulative total in sample at each age
20	77	17	6	-	-	-	-	-	-	17
25	59	11	8	8	-	8	3	3	3	37
30	56	14	7	7	2	7	5	2	2	43
35	58	12	5	5	2	5	3	10	10	59
40	61	10	4	4	1	6	3	11	11	71
All Ages	62	8	4	3	-	7	3	13	13	113

MINOR SCOTTISH PORTS

Sample to age 35 years should be treated with caution

Table 2.41:

Age Structure of British Fishermen as at 31 December 1977 -  
Average by 5 Year Cohort (per cent)

Age Group	Under 55 <sup>1</sup>	Vessel Length Group	
		55-80 <sup>1</sup>	Over 80 <sup>1</sup>
16-20	9.0	11.2	9.7
21-25	12.4	14.4	11.7
26-30	14.7	17.1	13.0
31-35	13.0	15.0	11.5
36-40	12.6	12.9	10.4
41-45	11.0	9.8	10.3
46-50	10.0	7.7	11.0
51-55	7.4	5.9	11.0
56-60	6.0	3.7	7.2
61-65	3.4	2.0	4.1
Over 65	0.5	0.2	0.1

Source: Metra Survey



Table A42: British Vessels: Average Value of Principal Species Landed in Scotland, 1970-1980 (£ per tonne)

Species	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Cod	101.6	126.8	146.6	242.5	253.0	251.6	358.8	540.4	561.6	616.6	598.4
Haddock	66.9	87.4	124.6	172.8	204.9	212.2	256.0	380.3	472.1	489.4	412.3
Whiting	56.1	72.6	107.7	141.9	145.3	142.5	184.7	285.0	299.6	328.4	308.4
Herring	31.7	33.3	36.8	59.4	91.3	97.3	128.5	292.6	392.5	569.7	416.5
Mackerel	35.0	27.6	30.3	46.4	38.6	33.1	56.5	80.3	90.3	94.7	79.2
Sprats	15.4	18.1	16.9	26.6	30.9	27.8	38.6	51.6	51.4	72.1	79.3
Norway Lobster	243.7	234.3	357.3	512.4	462.2	476.2	577.2	806.1	975.3	1237.6	1072.3

Table A43

British Vessels: Average Value of Principal Species  
Landed in Scotland 1970-1980 in constant 1970 prices (£ per tonne)

<u>Species</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Cod	101.6	116	125.2	189.6	170.5	136.4	167	217	208.3	201.7	165.9
Haddock	66.9	61.2	106.4	135.1	138.1	115.1	119.1	152.7	175.1	160.1	114.3
Whiting	56.1	51.3	92	110.9	97.7	77.3	85.9	114.5	111.1	107.4	85.5
Herring	31.7	29.0	31.4	46.4	61.5	52.8	59.8	117.5	145.6	186.4	115.5
Mackerel	35.0	32.0	25.9	36.3	26.0	17.9	26.3	32.2	33.5	31	21.9
Sprats	15.4	14.1	14.4	20.8	20.8	15.1	18	20.7	19.1	23.6	21.9
Norway Lobster	243.7	223	305.1	400.6	311.4	258.2	268.6	323.7	361.8	404.8	297.3

Table A44 Output of Processed Fish in Scotland 1974-79. (tonnes processed weight).

	<u>Pelagic Species</u>			<u>Demersal Species</u>			<u>Shell-</u>	<u>Total of</u>
	<u>Cured</u>	<u>Frozen</u>	<u>Total</u>	<u>Cured</u>	<u>Frozen</u>	<u>Total</u>	<u>fish</u>	<u>all Species</u>
1974	52,970	57,366	110,336	10,563	25,828	36,391	3,880	150,607
1975	45,239	39,997	85,236	8,546	16,268	24,814	2,751	112,801
1976	30,192	35,619	65,811	9,340	22,767	32,107	5,155	103,073
1977	27,560	48,562	76,122	9,001	21,189	30,190	9,342	115,654
1978	23,938	29,101	53,039	9,959	18,071	28,030	7,508	88,577
1979	15,155	-	-	9,973	-	-	-	-

Average Retail Prices for Selected Foods in the U.K.,  
February 1975 to February 1980

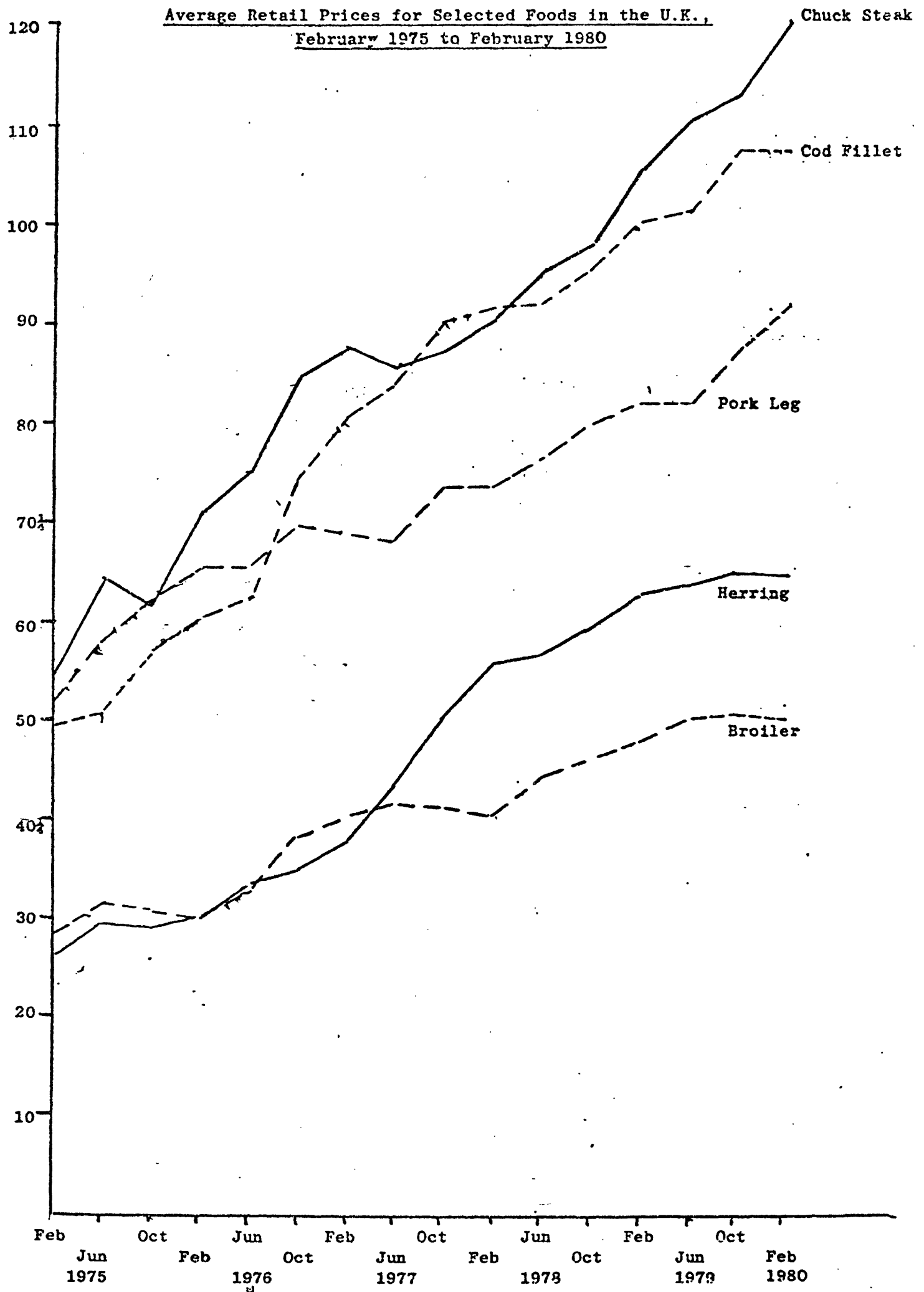


Table A46 Household consumption of fish (oz. per person per week)<sup>1/</sup>

Scotland

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
White, filleted, fresh	2.04	2.25	1.96	2.18	2.01	1.37	1.63	1.71	1.91	1.81
Cooked	0.56	0.36	0.36	0.45	0.40	0.30	0.21	0.18	0.33	0.25
Frozen con- venience products	0.37	0.31	0.45	0.45	0.43	0.42	0.49	0.72	0.43	0.46
Total fish	4.88	5.45	4.58	4.78	4.54	3.99	4.09	4.08	3.95	3.86

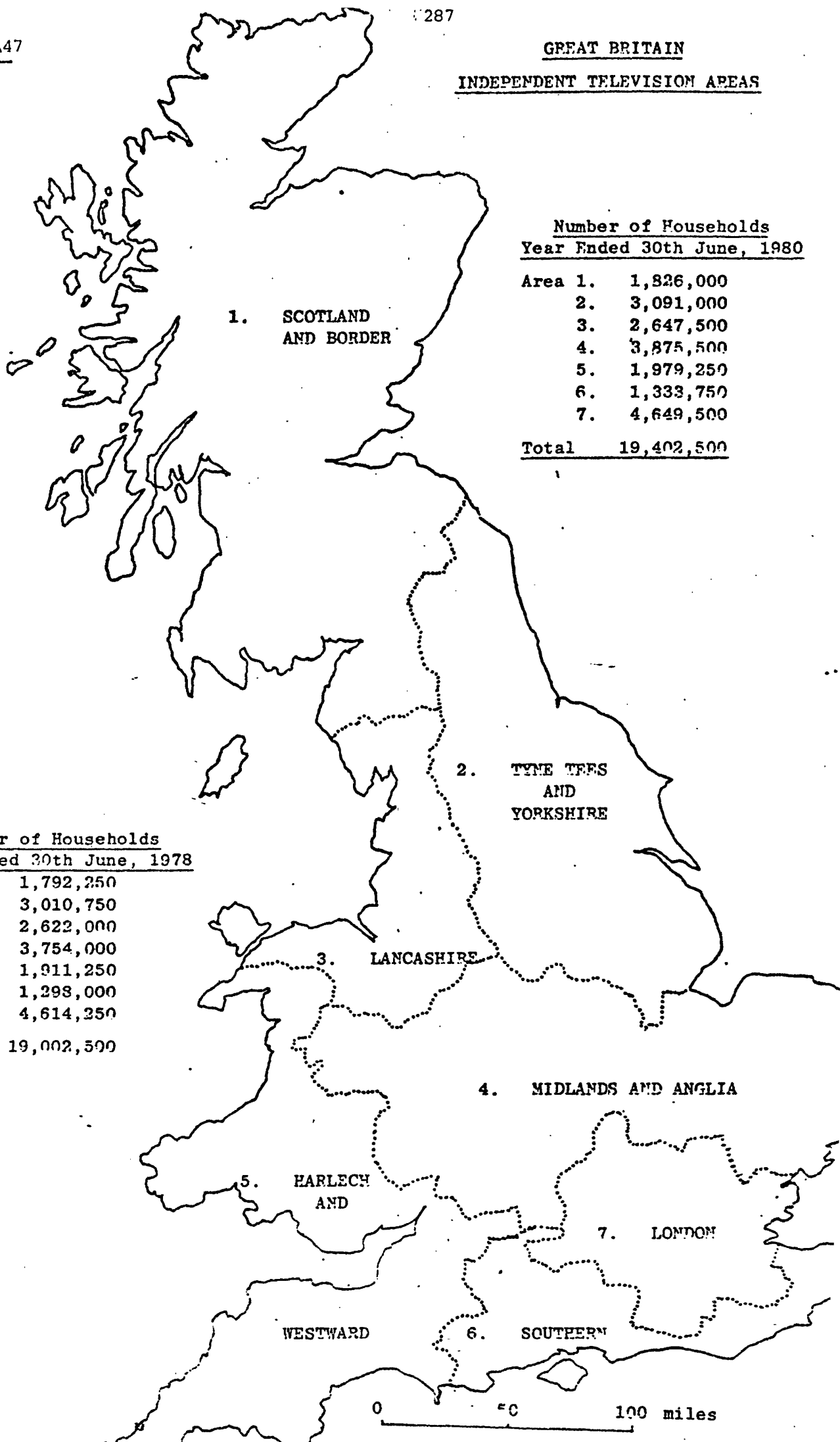
All G.B. Households

White, filleted fresh	1.07	1.10	0.97	0.76	0.69	0.68	0.78	0.79	0.91	0.92
Cooked	1.01	0.94	1.04	0.75	0.74	0.66	0.66	0.50	0.64	0.75
Frozen con- venience products	0.67	0.65	0.72	0.71	0.68	0.67	0.78	0.80	0.73	0.81
Total fish	5.35	5.15	5.05	4.71	4.33	4.46	4.58	4.13	4.25	4.51

1/ Household consumption refers only to food consumed in the home.

Source: National Food Survey

## GREAT BRITAIN

INDEPENDENT TELEVISION AREAS

Number of Households  
Year Ended 30th June, 1980

Area 1.	1,826,000
2.	3,091,000
3.	2,647,500
4.	3,875,500
5.	1,979,250
6.	1,333,750
7.	4,649,500

Total 19,402,500

Number of Households  
Year Ended 30th June, 1978

Area 1.	1,792,250
2.	3,010,750
3.	2,622,000
4.	3,754,000
5.	1,911,250
6.	1,298,000
7.	4,614,250

Total 19,002,500

## Frozen Fish and Fish Products in Great Britain by Television Area

Year Ended June, 1980

(a) Total - tonnes  
(b) Per household - grammes

	All Regions Great Britain		Scotland & Border		Yorkshire & Tyne-Tees		Lancashire		Midlands & Anglia		Harlech & Westward		Southern		London	
	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms
<b>Fillet Steaks &amp; Portions</b>																
Cod	22775.1	1,174	775.3	425	2863.8	926	3233.9	1,221	4698.8	1,212	3051.8	1,542	1531.1	1,148	6584.8	1,416
Smoked Cod	286.6	15	4.3	2	20.8	7	33.8	13	73.9	19	15.6	8	19.8	15	117.6	25
Total Cod	23061.7	1,189	779.7	427	2884.7	933	3267.8	1,234	4772.5	1,231	3067.6	1,550	1550.8	1,163	6702.5	1,442
Saithe	1743.2	90	2.9	2	24.2	8	72.4	27	297.3	77	84.7	43	178.1	134	1080.1	232
Haddock	7516.2	387	442.3	242	2113.9	684	719.6	272	1143.2	295	623.6	315	367.7	276	2102.3	452
Smoked Haddock	1664.7	86	37.7	21	79.3	26	129.5	49	219.5	57	136.7	69	125.6	94	933.0	201
Total Haddock	9180.8	473	479.9	263	2193.1	710	849.3	321	1362.8	352	760.3	384	493.5	370	3035.4	653
Hake	1004.4	52	-	-	23.1	7	146.1	55	211.2	54	228.1	115	66.8	50	327.2	70
Herring	77.2	-	1.2	1	-	-	2.5	1	7.1	2	6.3	3	6.5	5	53.4	11
Kippers	1168.5	60	40.5	22	133.7	43	118.1	45	158.5	41	154.1	78	81.0	61	479.2	103
Mackerel	504.2	26	15.1	8	85.4	28	40.8	15	51.3	13	83.1	42	32.5	24	195.8	42
Smoked Mackerel	566.5	29	17.5	10	109.7	35	65.4	25	83.3	21	80.6	41	18.8	14	190.4	41
Total Mackerel	1070.7	55	32.7	18	195.1	63	106.3	40	134.6	35	163.7	83	51.3	38	386.1	83
Plaice	5614.4	289	85.3	47	357.5	116	536.4	203	1368.8	353	852.8	431	393.9	295	2012.1	433
Other Varieties	2646.5	136	386.3	212	398.0	129	471.2	178	513.7	133	138.5	70	153.4	115	586.8	126
<b>Total</b>	<b>45565.6</b>	<b>2,348</b>	<b>1808.4</b>	<b>990</b>	<b>6209.5</b>	<b>2,009</b>	<b>5570.2</b>	<b>2,104</b>	<b>8826.6</b>	<b>2,278</b>	<b>5456.1</b>	<b>2,757</b>	<b>2975.1</b>	<b>2,231</b>	<b>14662.7</b>	<b>3,154</b>
<b>Processed Etc.</b>																
Fish Fingers/sticks	28469.4	1,467	2001.7	1,096	4361.9	1,411	3653.2	1,380	5885.8	1,519	3062.8	1,547	1776.7	1,332	7715.8	1,659
Fish Cakes	7776.7	401	678.2	371	1700.3	550	969.9	366	1347.2	348	940.9	475	468.9	352	1672.8	360
Other 1/	7435.7	383	364.5	200	917.6	297	1001.3	378	1425.6	368	899.9	455	491.8	369	2326.9	500
<b>Total</b>	<b>43682.0</b>	<b>2,251</b>	<b>3044.4</b>	<b>1,667</b>	<b>6979.9</b>	<b>2,258</b>	<b>5024.4</b>	<b>2,124</b>	<b>8658.4</b>	<b>2,234</b>	<b>4903.6</b>	<b>2,477</b>	<b>2737.3</b>	<b>2,052</b>	<b>11715.2</b>	<b>2,520</b>
<b>GRAND TOTAL</b>	<b>89247.6</b>	<b>4,598</b>	<b>4852.8</b>	<b>2,658</b>	<b>13189.4</b>	<b>4,267</b>	<b>11184.6</b>	<b>4,228</b>	<b>17486.0</b>	<b>4,512</b>	<b>10359.7</b>	<b>5,234</b>	<b>5712.4</b>	<b>4,282</b>	<b>26377.9</b>	<b>5,673</b>

1/ Includes shellfish and whole fish

Table A49

## Household Consumption of Frozen Fish and Fish Products in Great Britain, Year Ended June, 1978

In by Television Area

(a) Total - tonnes

(b) Per household - grammes

	All Regions Great Britain			Scotland & Border			Yorkshire & Tyne-Tees			Lancashire			Midlands & Anglia			Harlech & Westward			Southern			London		
	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms	(a) tonnes	(b) gms
<b>Fillet Steaks &amp; Portions</b>																								
Cod	18859.8	992	906.8	506	2856.0	949	2493.1	954	3845.4	1,024	1954.6	1,023	1231.9	949	5532.2	1,199								
Smoked Cod	191.0	10	2.4	1	28.9	10	15.6	6	71.6	19	10.6	6	13.2	10	48.5	11								
Total Cod	19051.1	1,003	909.2	507	2884.8	958	2511.7	958	3916.9	1,043	1965.2	1,028	1245.1	959	5580.9	1,209								
Saithe	2081.9	110	-	-	11.1	4	142.0	54	295.9	79	95.5	50	364.7	281	1166.5	253								
Haddock	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.								
Smoked Haddock	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.								
Total Haddock	8357.8	440	460.8	257	1708.5	567	916.8	350	1383.9	369	705.8	369	535.0	412	2634.0	571								
Hake	738.7	39	16.2	9	27.8	9	65.0	25	173.5	46	198.6	104	35.2	27	220.9	48								
Herring	135.1	7	14.5	8	5.0	2	1.9	1	39.8	11	6.1	3	12.8	10	56.3	12								
Kippers	1807.0	95	53.4	30	240.2	80	187.9	72	320.4	85	209.3	110	121.5	94	670.7	145								
Mackerel	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.								
Smoked Mackerel	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.								
Total Mackerel	548.7	29	1.2	1	14.0	5	42.3	16	118.5	32	48.1	25	54.2	42	269.1	58								
Plaice	4387.9	231	7.9	4	308.4	102	617.9	236	1020.7	272	434.0	332	318.2	245	1464.7	317								
Other Varieties	1517.1	80	113.4	63	262.0	87	304.4	116	225.1	60	119.8	63	38.6	30	448.1	97								
Total	38625.3	2,033	1576.6	880	5462.1	1,814	4789.6	1,827	7494.8	1,996	3982.5	2,084	2725.4	2,100	12511.2	2,711								
<b>Processed etc.</b>																								
Fish Fingers/Sticks	30107.2	1,584	1981.9	1,106	4701.5	1,562	3708.0	1,413	6532.8	1,740	3385.4	1,771	1739.6	1,340	8036.6	1,742								
Fish Cakes	8439.0	444	576.8	322	2039.7	677	963.0	367	1339.2	357	1111.1	581	598.2	461	1802.0	391								
Other <sup>1/</sup>	9575.6	504	541.7	302	1280.0	425	1164.1	444	1945.7	518	941.7	493	579.9	447	3100.4	672								
Total	48121.8	2,532	3100.2	1,730	8021.2	2,664	5833.3	2,225	9817.6	2,615	5438.1	2,845	2917.8	2,248	12938.8	2,804								
GRAND TOTAL	86747.1	4,565	4676.8	2,609	13483.3	4,478	10622.9	4,051	17312.4	4,612	9420.6	4,929	5643.2	4,348	25450.0	5,516								

<sup>1/</sup> Includes shellfish and wholefish

N.A. Not Available

- Nil



FIG. A50: COMPOSITION OF LANDINGS (VOL.)  
WEST COAST

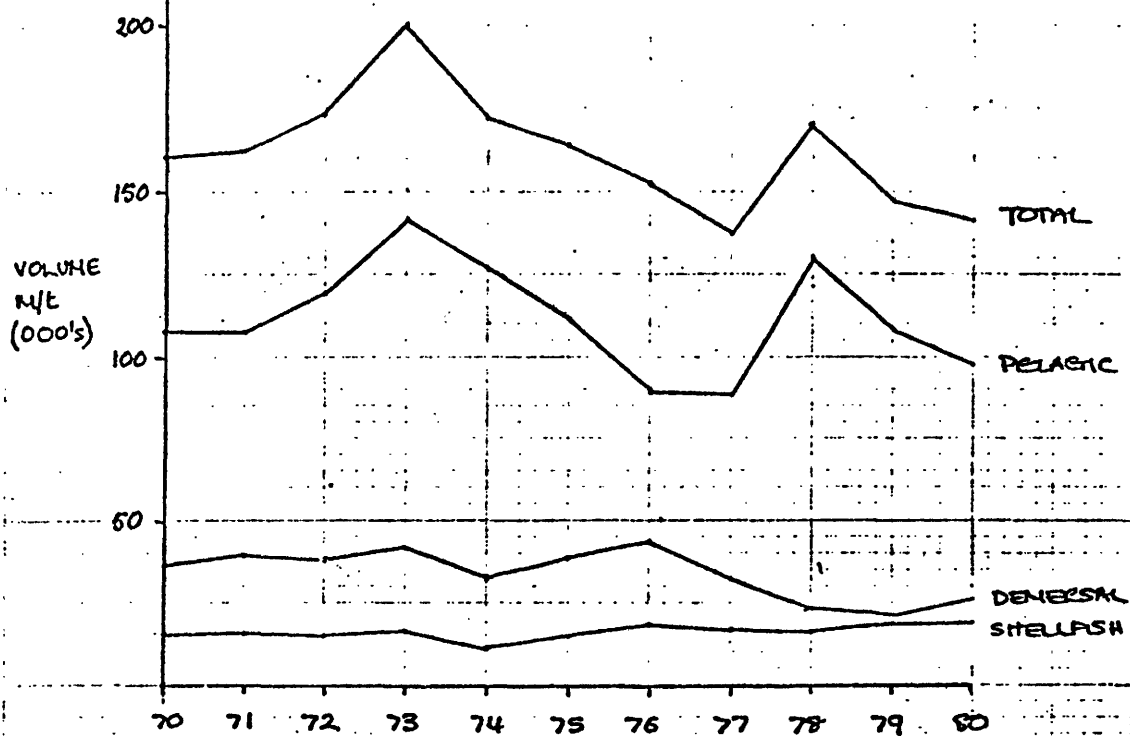
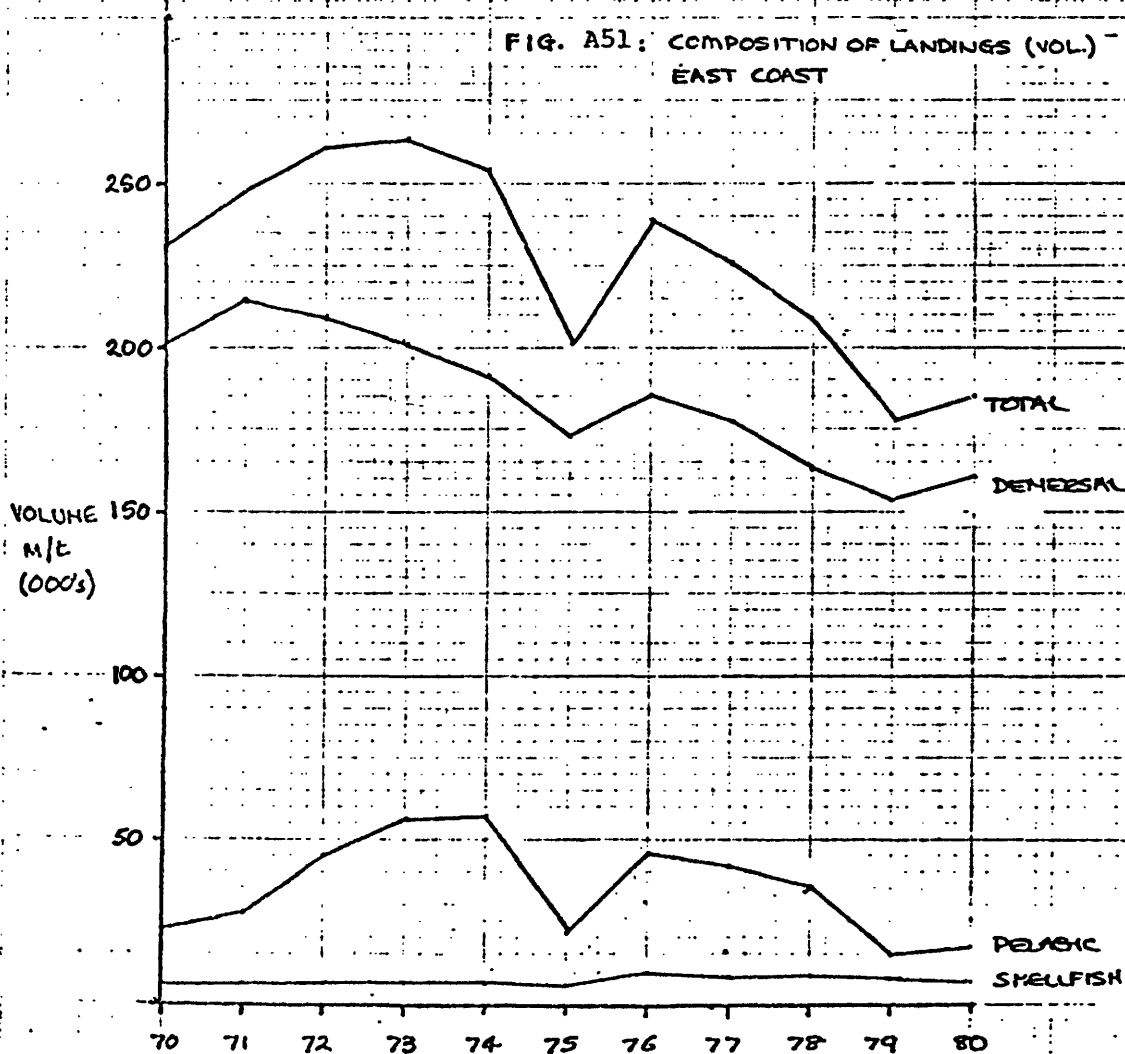


FIG. A51: COMPOSITION OF LANDINGS (VOL.)  
EAST COAST



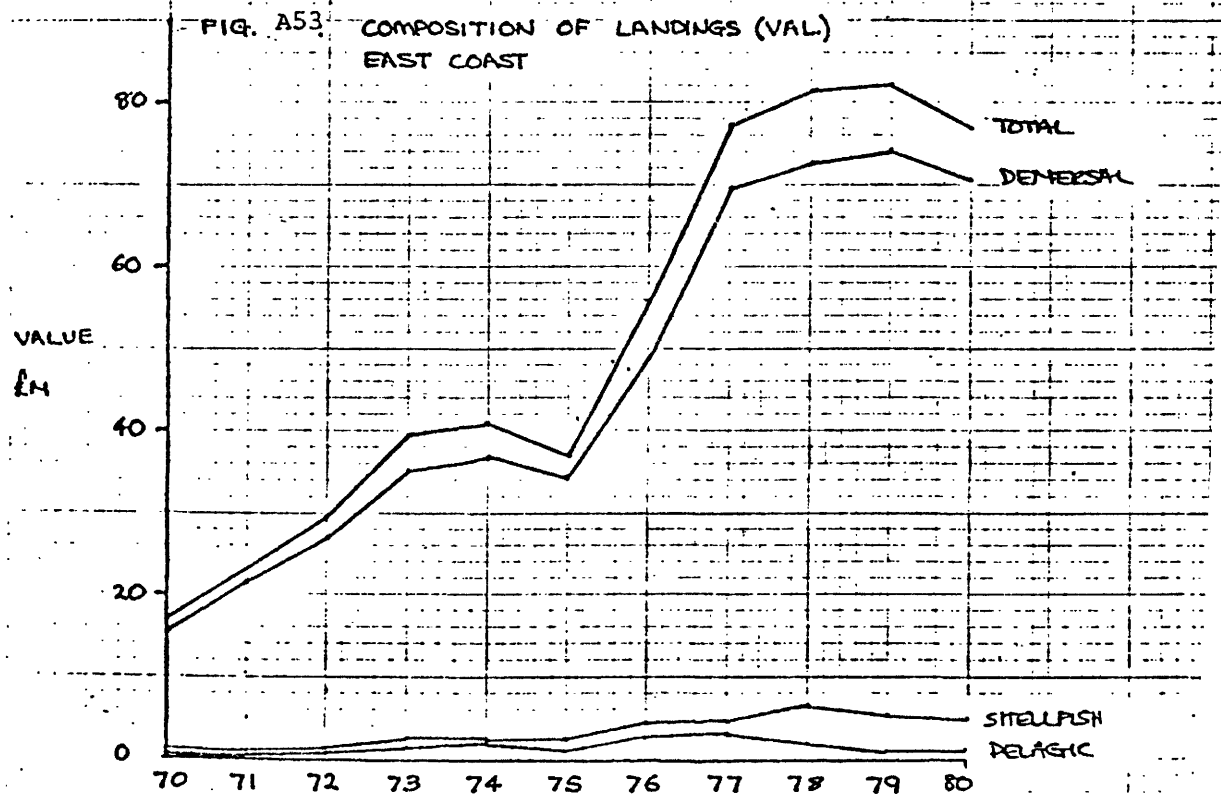
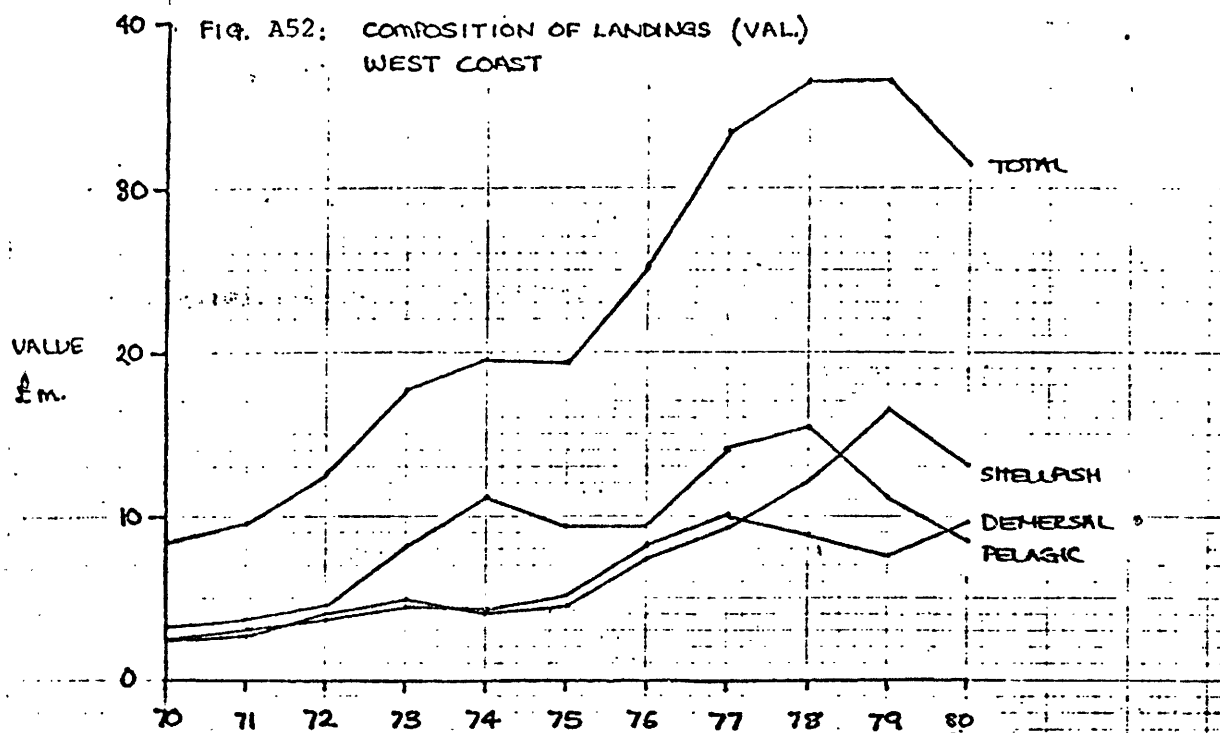


FIG. A54: COMPOSITION OF LANDINGS (VOL)  
ORKNEY AND SHETLAND

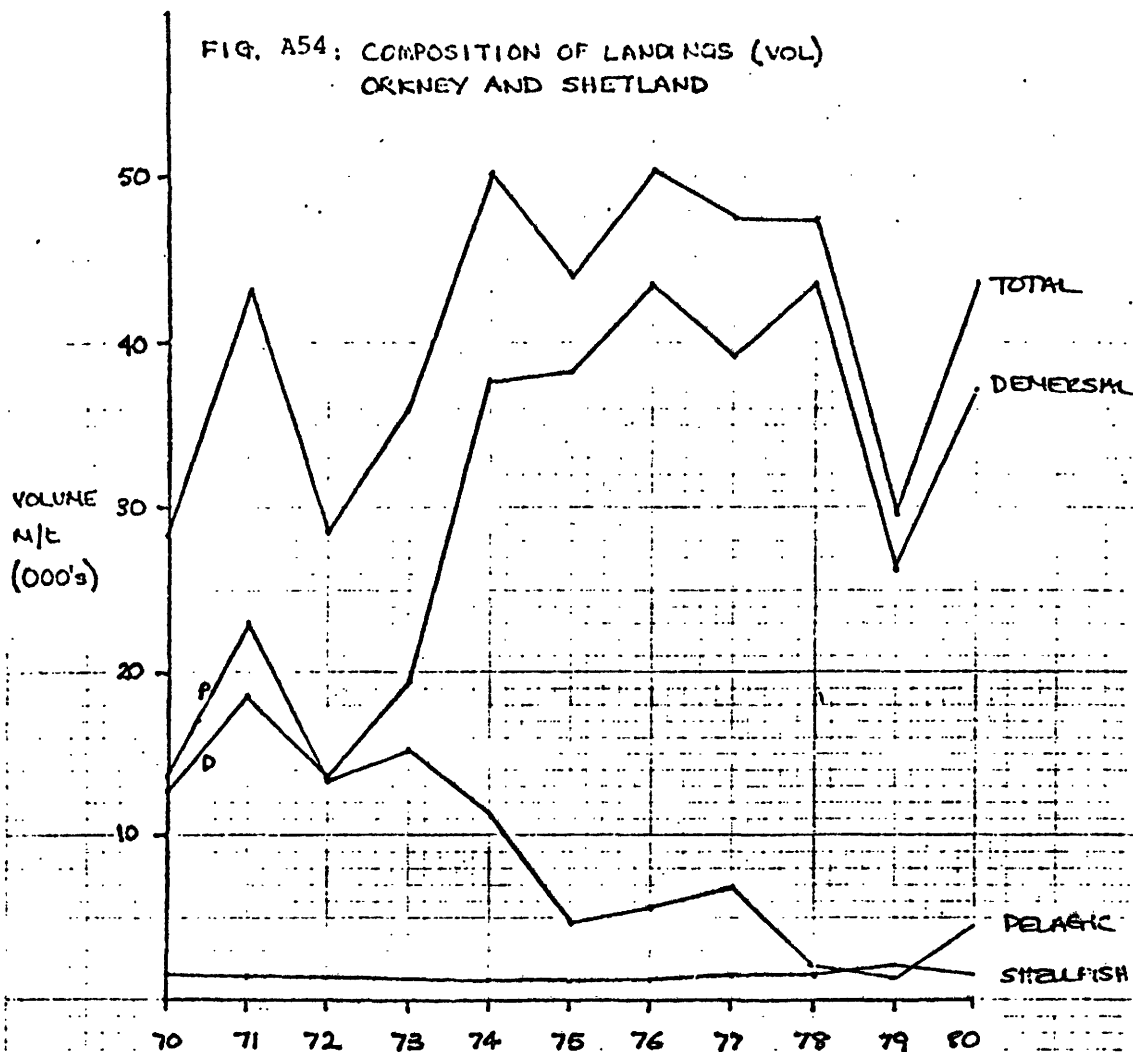


FIG A55: COMPOSITION OF LANDINGS (VOL)  
MAJOR N.E. ENG. PORTS

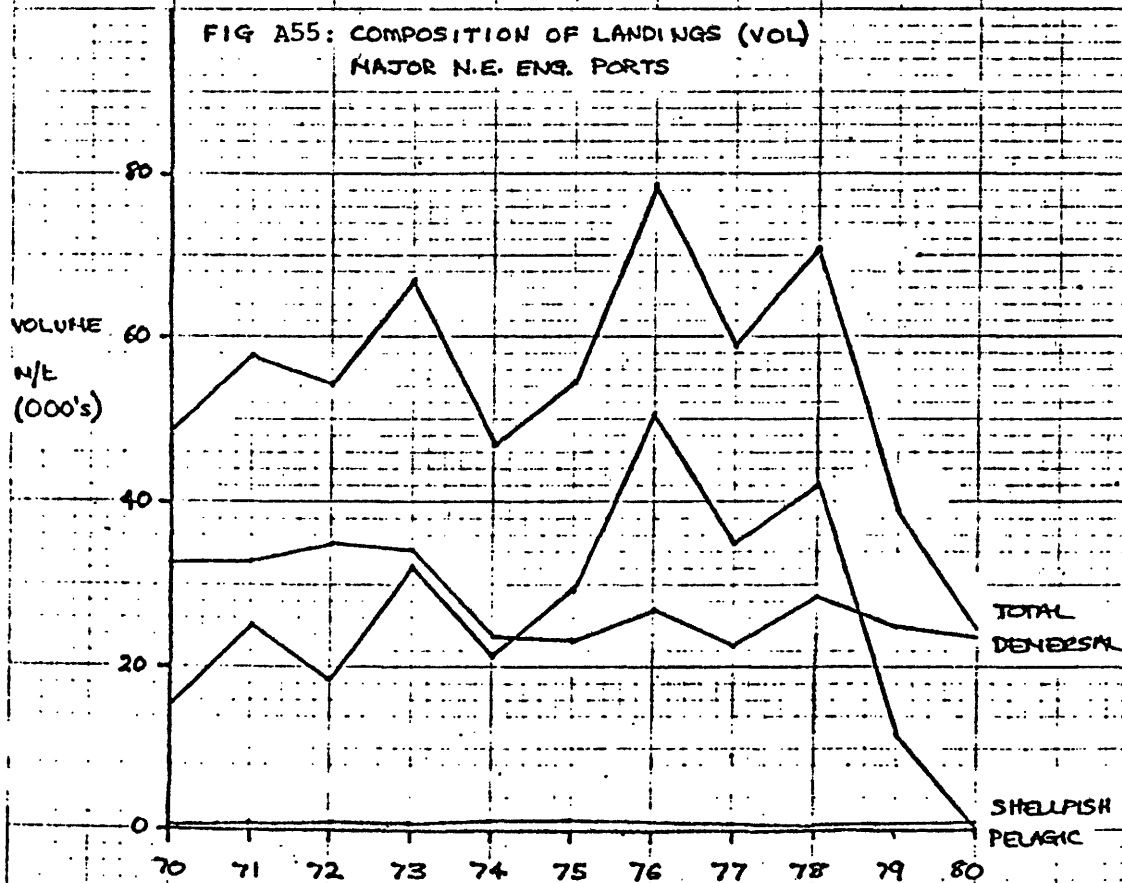


FIG. A56: COMPOSITION OF LANDINGS (VAL.)  
ORKNEY AND SHETLAND

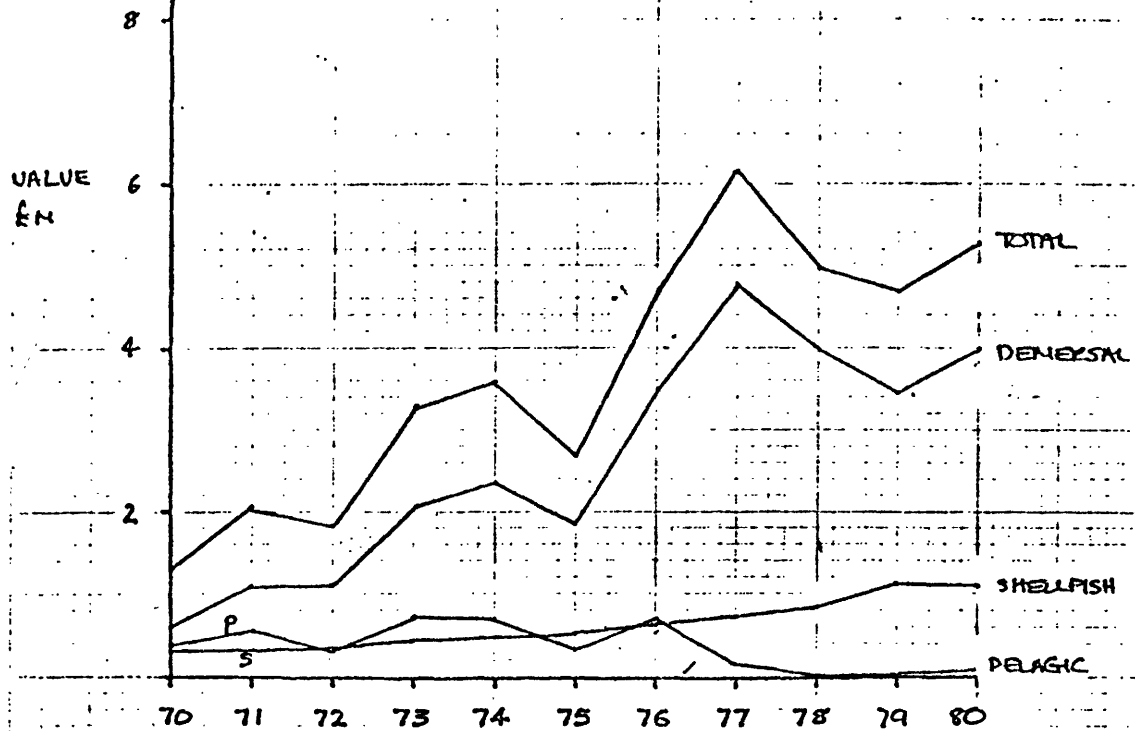
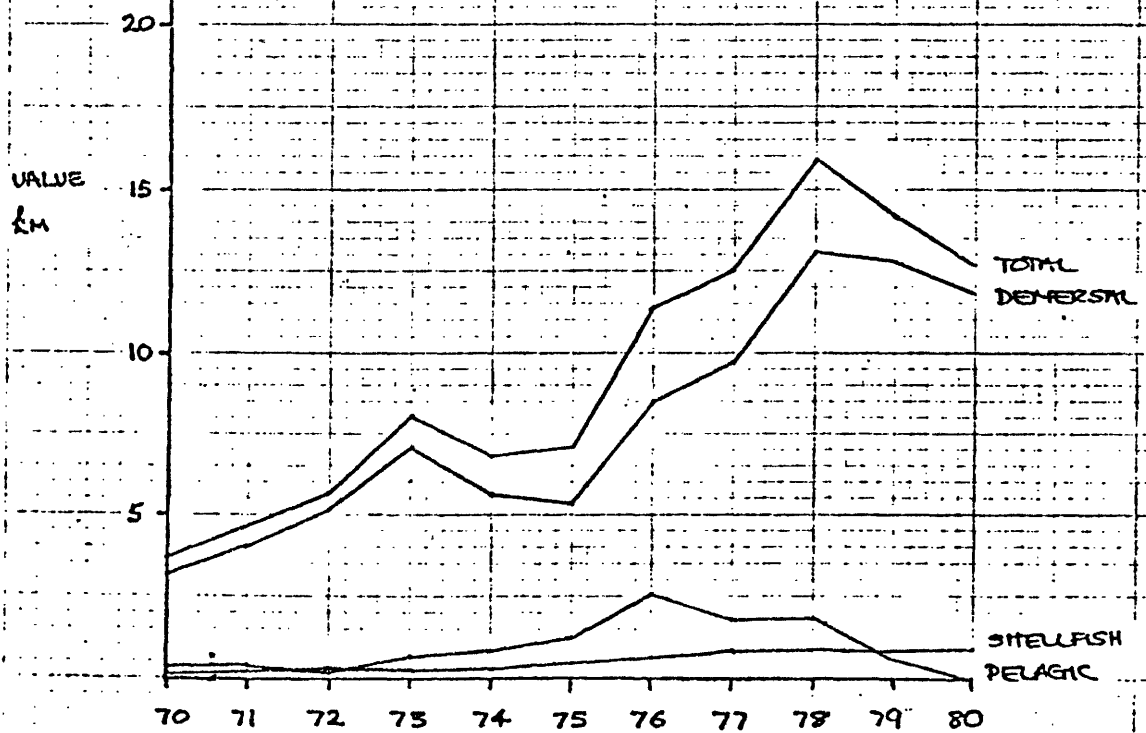


FIG. A57: COMPOSITION OF LANDINGS (VAL.)  
MAJOR N.E. ENG. PORTS



VOLUME 125  
m/c  
(000)

FIG. A58: DISTRIBUTION OF EAST  
COAST LANDINGS, BY  
DISTRICT. (VOL.)

1. ABERDEEN
2. PETERHEAD
3. FRASERBURGH
4. LEITH
5. BUCKIE
6. LOSSIEMOUTH
7. WICK
8. MACDUFF
9. EYEMOUTH
10. ARBROATH
11. ANSTRUTHER

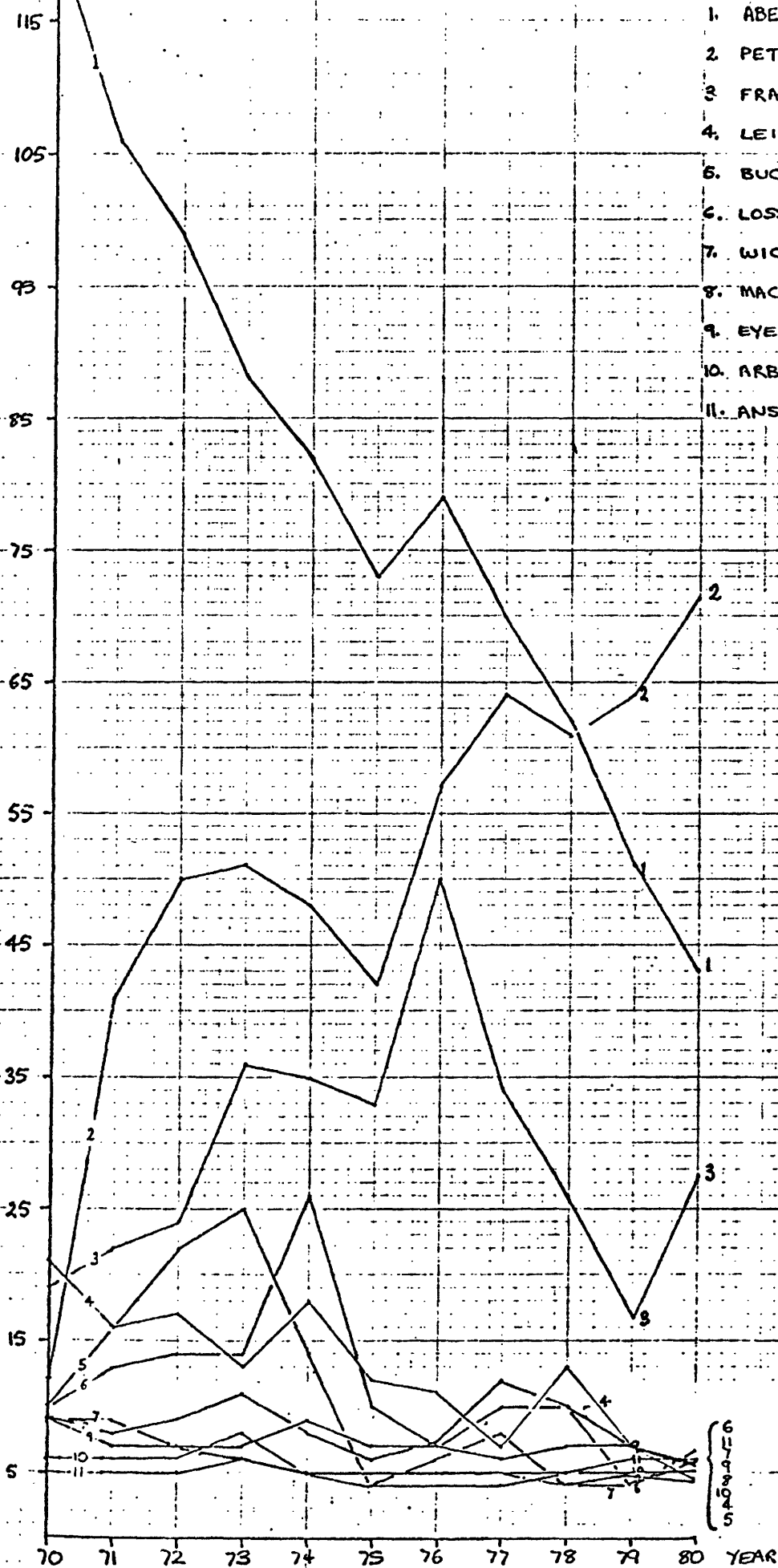


FIG.A59 DISTRIBUTION OF WEST COAST LANDINGS,  
BY DISTRICT. (VOL)

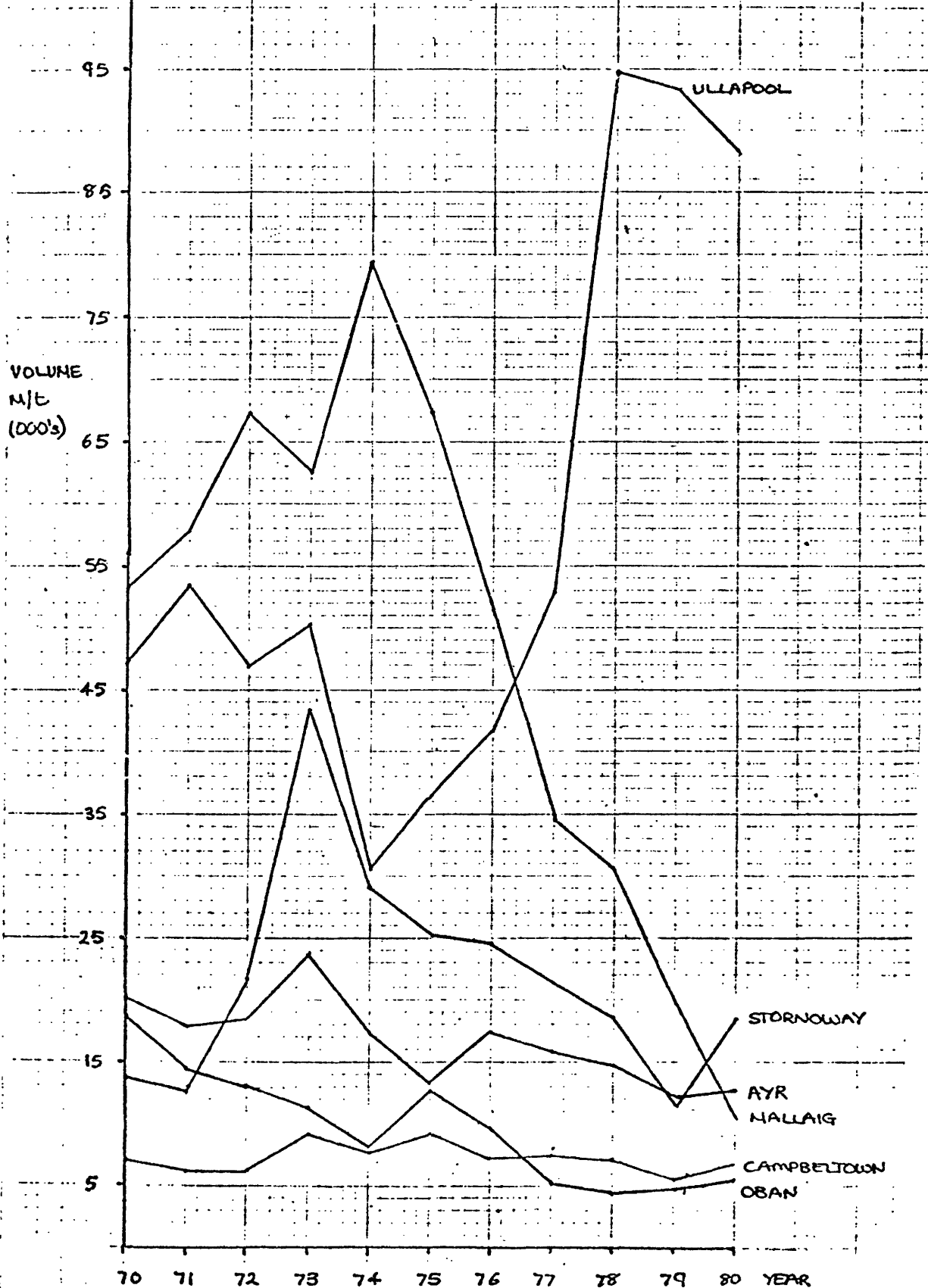


FIGURE A60: DISTRIBUTION OF N.E. ENGLAND LANDINGS BY MAJOR PORT (VOLUME)

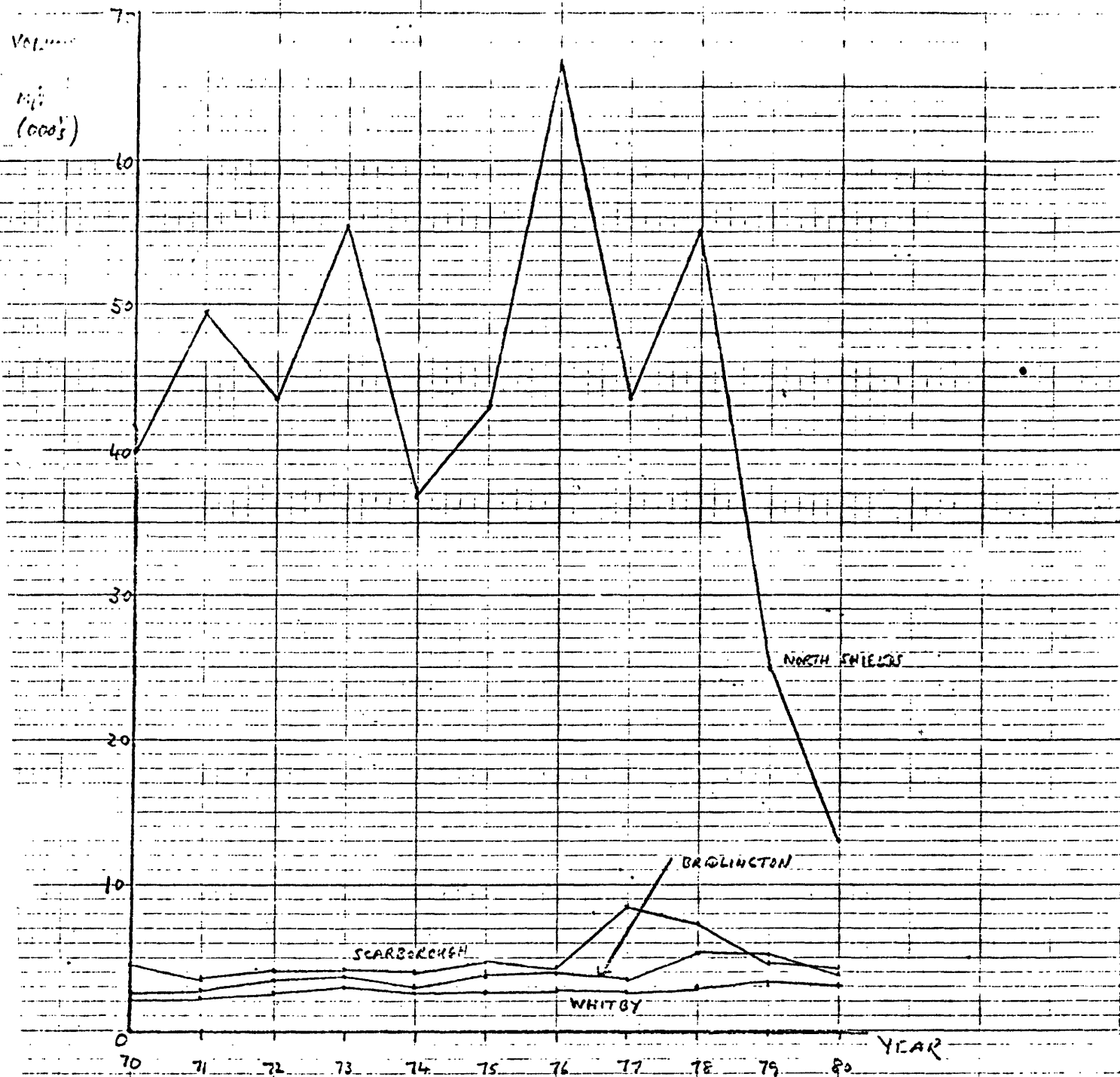


Table A61

Year	Herring Subsidy paid in Scotland	Herring Subsidy in 1970 prices	Value of total Pelagic fish landed In Scotland	Herring subsidy as % value of Pelagic landings in Scotland
			(£000)	%
1970	£183,128	£183,128	4,330	4.2
1971	£192,361	£175,994	4,894	3.9
1972	£154,589	£132,014	5,780	2.6
1973	£ 84,728	£ 66,245	10,645	0.8
1974	No subsidy	-	13,946	-
1975	£3,300,000*	£1,789,587	10,768	-
1976	No subsidy	-	12,522	
1977	No subsidy	-	17,873	
1978	No subsidy	-	17,538	
1979	No subsidy	-	12,396	

\* Represents the total subsidy available to both Herring and White Fish boats. No breakdown of the figures is available.

Source:

Derived from data contained in Fisheries of Scotland Reports 1970-1979 and Scottish Sea Fisheries Statistical Tables 1970-79, both prepared by the Department of Agriculture and Fisheries for Scotland.



Table A62

White Fish Subsidy Paid in Scotland in Nominal and Real Terms

Year	Inshore Boats		Deep Water Boats	
	Nominal Value £	Real Value £	Nominal Value £	Real Value £
1970	649,687	649,689	255,521	255,521
1971	703,738	643,859	235,151	215,142
1972	666,552	569,216	3,300	2,818
1973	416,718	325,815	95,676	51,349
1974	No subsidy			
1975	* £2,300,000 = £1,789,587 at 1970 prices			
1976-79	No subsidy			

\* This represents the total subsidy available to both Herring and White Fish Boats. No breakdown of the figures is available.

Source:

Derived from data contained in Fisheries of Scotland Reports 1970-79 and Scottish Sea Fisheries Statistical Tables 1970-79, Department of Agriculture and Fisheries for Scotland.

GRANTS APPROVED TO THE SCOTTISH FLEET BY THE WHITE FISH AUTHORITY

Table A63:

(Year to 31 March)

	Total	Total at constant 1971-72 Prices	Inshore	Inshore at constant 1971-72 Prices	Inshore as % of Total
1971 - 72	£2,605,514	£2,605,514	£2,246,374	£2,246,374	86
1972 - 73	£2,577,067	£2,406,225	£1,993,442	£1,861,290	77
1973 - 74	£2,873,727	£2,456,177	£2,758,630	£2,357,803	95
1974 - 75	£2,530,686	£1,863,539	£1,594,683	£1,174,288	63
1975 - 76	£1,494,395	£ 885,830	£1,243,718	£ 737,237	83
1976 - 77	£1,903,954	£ 968,440	£1,803,468	£ 917,329	94
1977 - 78	£4,090,895	£1,795,827	£3,103,466	£1,362,364	75
1978 - 79	£3,490,411	£1,414,840	£3,120,036	£1,264,708	89
1979 - 80	£2,289,348	£ 818,501	£2,096,540	£ 749,567	92

Source: Derived from the Annual Reports of the White Fish Authority

Table A64

Grants Made by the Herring Industry Board

	Nominal Value	Real Value	As % of Pelagic Landings in North Britain
1970	£ 384,193	£ 384,193	8.2
1971	£ 315,560	£ 288,710	5.9
1972	£ 584,693	£ 499,310	9.7
1973	£ 906,536	£ 708,785	8.0
1974	£ 937,226	£ 631,554	6.3
1975	£1,928,057	£1,045,584	16.1
1976	£ 692,780	£ 322,373	4.7
1977	£ 542,334	£ 217,805	2.8
1978	£ 897,711	£ 332,979	4.6

Source : Derived from data in the Annual Reports of the Herring Industry Board.

Note : The Figures for grants relate to the whole of the U.K. fleet, so that the grant figures overstate the aid in the North British Fleet. Prior to 1977 the distortion is unlikely to be great, since the North British fleet accounted on average for well over 80% of the pelagic catch by value..

Table A65: FEOGA Grants Received in Scotland under EEC  
Structural Regulations 17/64 and 1852/78

YEAR	PROJECTS			AMOUNT OF AID (£'s)
	Reg. <sup>n</sup> /	TYPE	No.	
1973	17/64	Vessels	10	394,178
1974	"	"	13	516,390
1975	"	"	42	1,739,842
1976	"	"	41	2,777,910
1977	"	"	5	310,354
1978	"	"	30	2,116,215
1979	1852/78	"	12	1,318,576
TOTAL			153	9,173,465
1979	1852/78	Fish Farms	-	73,642
Total Value of Grants: £9,247,107				

Note: In 1979, the only year for which we have details, North East England received £263,952 under regulation 17/64 and £204,714 under 1852/78.

Table A66: FEOGA Grants received in North Britain under EEC  
Marketing and Processing Regulation 355/77<sup>1</sup>

YEAR	No. OF PROJECTS	AMOUNT OF AID (£'s)
1978	2	229,884
1979	9	524,609
1980	9	487,266
TOTAL		1,241,759

1 All projects involved either construction of processing factories or provision and installation of plant and/or equipment.

Table A67

TAC s for the North Sea (ICES Area IV)  
( '000 tonnes)

Year	1976			1977		1978		
Species	Rec. TAC	NEAFC TAC	Actual catch	Rec. TAC	Actual catch	Rec. TAC	Agreed TAC	Actual catch
Cod	130-210	236	214	220	185	210	236	261
Haddock	106-155	206	208	165	151	105	109	90
Whiting	160	189	197	165	120	111	168	103
(1) Saithe	200		320	210	195	200	230	142

Year	1979				1980			1981
Species	Rec. TAC	Agreed TAC	Revised TAC	Actual catch*	Rec. TAC	Agreed TAC	Rev. TAC Jul. 80	Rec. TAC
Cod	183	183	247	252	200	200	-	190
Haddock	83	83	-	85	66	69	90	120
Whiting	85	85	111	133	100	105	150	150
(1) Saithe	200	200	-	115	129	129	-	127

\* Preliminary

(1) Including Division IIIa

Table: Source: Advisory Committee for Fisheries Management Report, 1980.

Table A68:

TAC s for the West Coast (ICES VIA)  
( '000 tonnes)

Year	1975	1976		1977		1978	
Species	Actual Catch	Rec TAC	Actual Catch	Rec TAC	Actual Catch	Rec TAC	Actual Catch
Cod	13.2	12.7	17.5	8.0	12.5	11.0	14.9
Haddock	13.7	13.5	18.8	10.0	19.3	10.0	16.5
Whiting*	20.0	13.0	25.0	21.0	17.0	17.0	16.2
Saithe*	31.0	30.0	41.0	20.0	30.0	32.0	31.0

Year	1979		1980		1981
Species	Rec TAC	Actual Catch	Rec TAC	Revised TAC (7/80)	Rec TAC
Cod	9.2		10.9		9.5
Haddock	8.5		9.0	13.0	15.5
Whiting*	12.0	16.4	10.5	13.0	14.0
Saithe*	32.0	21.6	31.0		27.0

\* Figures for Whiting and Saithe are for whole of Area VI.

Table: Source: ICES Co-operative Research Reports

Table A69:

Recommended TACs and Actual Catches for the North Sea Mackerel Stock ('000 tonnes)

1977		1978		1979		1980	1981
Rec. TAC	Actual Catch	Rec. TAC	Actual Catch	Rec. TAC	Actual Catch	Rec. TAC*	Rec. TAC
220	261	145	153	145	158	0 (50) <sup>1</sup>	?

Source: ACFM Report, 1980.

\* Preliminary.

1 A nil TAC preferred; not more than 50,000 tonnes if this unacceptable.

Table A70:

Recommended TACs and Actual Catches for the Western Mackerel Stock

	1975	1976		1977		1978		1979		1980	1981
'000 tonnes	Actual Catch	Rec TAC	Actual Catch	Rec TAC	Actual Catch	Rec TAC	Actual Catch	Rec TAC	Actual Catch	Rec TAC	Rec TAC
Mackerel Area VI, VII and VIII <sup>(1)</sup>	491	295	507	250	326	450	507	435	606	330	293-353

Source: ICES Co-operative Research Report 1980.

TABLE A71:Recommended TACs and Actual Catches for Sprat ('000 tonnes)

1977		1978		1979		1980	1981
Rec. TAC	Actual catch	Rec. TAC	Actual catch	Rec. TAC	Actual catch*	Rec. TAC	Rec. TAC
450	304	400	378	400	380	400	400

\* Preliminary

Source: ACFM Report, 1980.



Table A 72Alleged Infrastructure Deficiencies of Ports

Eyemouth	F	(1)	Restricted access to port because of tides and siltage
	F	(2)	Inadequate berthings
Dunbar	F	(1)	Restricted access due to tides
Port Seton	F	(1)	Restricted access due to tides
Pittenweem	F	(1)	Insufficient room for berthing vessels and landing fish
Aberdeen	F	(1)	Labour for unloading controlled by Dock Labour Board and therefore expensive
	P	(2)	Labour system detrimental and inefficient; some vessels must wait for second auction
Peterhead	F	(1)	Shortage of space for gear storage
	F	(2)	Congestion in harbour basin
	F	(3)	Ice shortage in midsummer
	P	(4)	Processors in Peterhead tend to be small. Would-be processors have accommodation problems.
Fraserburgh	F	(1)	Lack of slipway facilities
	F	(2)	Ice shortages
Macduff	F	(1)	No slipway
Lybster	F	(1)	Poor state of pier
	F	(2)	Access to port restricted to smaller vessels
Scalloway	F	(1)	Poor shelter
Oban	F	(1)	No slipway
	F	(2)	No ice supplies
Campbeltown	F	(1)	No covered market
	F	(2)	No ice supplies
Carradale	F	(1)	Insufficient berthing space

Table A72 (Continued)

Tarbert	F	(1)	Slipway recently closed
Ayr	F	(1)	Too little berthing and unloading space
Girvan	F	(1)	No ice supplies
Kirkcudbright	F	(1)	No ice supplies
	F	(2)	No slipway facilities
Bridlington	F	(1)	Too little berthing space
	P	(2)	No auction hall
North Shields	F	(1)	Poor berthing facilities and unsafe
	P	(2)	Congestion in market area

TABLE A73

NET EARNINGS (£000s) OF U.K. DEEP SEA FLEET 1973 - 1977  
BEFORE AND AFTER DEPRECIATION - AVERAGE PER VESSEL

Length Class	1973		1974		1975		1976		1977	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
80 - 110 feet	+12.2	-26.3	+ 3.1	-42.4	- 8.5	-67.9	- 3.7	-72.3	+11.6	-63.4
110 - 140 feet	+26.9	-34.7	+19.2	-53.5	+0.8	-94.3	+12.3	-97.4	+21.6	-98.4
140 +	+53.9	-87.1	+58.1	-108.6	+26.4	-191.7	+30.2	-221.1	+36.9	-238.1

Source:

derived from 'The Catching Sector of the Fishing Industry: A Case for Aid' 1978

Note: the (a) columns give net earnings before depreciation, while the (b) columns give net earnings after allowance for depreciation.

Table A74:SCOTTISH INSHORE COST AND EARNINGS

		<u>Average Per vessel</u>				
		<u>1970</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
<u>30 - 39.9 FT.</u>	: No. of Vessels in Sample	83	26	19	12	14
		<u>£</u>	<u>£</u>	<u>£</u>	<u>£</u>	<u>£</u>
EARNINGS		9,115	18,093	38,807	28,954	31,809
LABOUR COST		3,779	7,200	16,811	13,039	12,785
OTHER VARIABLE COSTS		3,778	7,849	13,802	9,591	13,194
DEPRECIATION		695	1,259	1,807	1,852	2,554
TOTAL COSTS		8,252	16,308	32,420	24,482	28,531
INSURED VALUE		6,950	12,590	17,200	20,600	29,800
		<u>1970</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
<u>40 - 49.9 FT.</u>	: No. of Vessels in Sample	173	37	55	29	2
		<u>£</u>	<u>£</u>	<u>£</u>	<u>£</u>	<u>£</u>
EARNINGS		12,950	40,116	60,330	66,878	50,9
LABOUR COSTS		5,107	15,080	22,658	24,874	18,8
OTHER VARIABLE COSTS		5,688	17,084	25,006	28,743	24,9
DEPRECIATION		956	2,698	4,105	6,203	4,2
TOTAL COST		11,751	34,862	51,769	59,820	48,0
INSURED VALUE		9,560	26,980	34,700	63,000	42,1

	<u>1970</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
<u>50 - 59.9 FT.</u> : No. of Vessels in Sample	188	50	65	51	61
	<u>£</u>	<u>£</u>	<u>£</u>	<u>£</u>	<u>£</u>
EARNINGS	17,132	49,298	69,401	74,661	73,576
LABOUR COST	6,351	17,863	25,756	27,202	26,445
OTHER VARIABLE COSTS	7,558	22,137	29,528	34,170	40,467
DEPRECIATION	1,486	4,028	5,151	6,802	7,773
TOTAL COSTS	15,395	44,028	60,435	68,174	74,685
INSURED VALUE	14,860	40,280	50,100	67,700	77,800

	<u>1970</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
<u>60 - 69.9 FT.</u> : No. of Vessels in Sample	140	39	103	67	83
	<u>£</u>	<u>£</u>	<u>£</u>	<u>£</u>	<u>£</u>
EARNINGS	23,942	78,674	95,070	110,628	109,404
LABOUR COSTS	8,510	29,241	36,569	41,173	40,333
OTHER VARIABLE COSTS	11,181	32,598	39,833	49,948	54,746
DEPRECIATION	1,903	5,724	6,191	9,712	10,405
TOTAL COSTS	21,594	67,563	82,593	100,833	105,484
INSURED VALUE	19,030	57,240	74,400	97,100	104,000

	<u>1970</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
<u>70 - 79.9 FT.</u> : No. of Vessels in Sample	24	28	68	65	75
	<u>£</u>	<u>£</u>	<u>£</u>	<u>£</u>	<u>£</u>
EARNINGS	44,122	148,278	152,773	185,766	175,006
LABOUR COST	16,865	54,535	58,179	70,581	62,425
OTHER VARIABLE COSTS	16,906	66,400	67,241	78,542	87,355
DEPRECIATION	3,584	10,077	13,800	23,036	28,362
TOTAL COSTS	37,355	131,012	139,220	172,159	178,142
INSURED VALUE	35,840	100,770	149,400	230,900	283,600

Source: White Fish Authority

Table A75

SCOTTISH INSHORE COST AND EARNINGS

	<u>Average Per Vessel</u>				
	<u>1977</u>	<u>1978</u>		<u>1979</u>	
		(i)	(ii)	(i)	(ii)
<u>30 - 39.9 Ft.</u>					
EARNINGS	100	75	69	82	66
TOTAL COSTS	100	76	69	88	71
INSURED VALUE	100	120	110	173	140
<u>40 - 49.9 Ft.</u>					
EARNINGS	100	111	102	84	68
TOTAL COSTS	100	116	106	93	75
INSURED VALUE	100	182	167	*123	*100
<u>50 - 59.9 Ft.</u>					
EARNINGS	100	108	99	106	86
TOTAL COSTS	100	113	104	124	100
INSURED VALUE	100	135	124	155	125
<u>60 - 69.9 Ft.</u>					
EARNINGS	100	116	106	115	93
TOTAL COSTS	100	122	112	128	104
INSURED VALUE	100	131	120	140	113
<u>70 - 79.9 Ft.</u>					
EARNINGS	100	122	112	115	93
TOTAL COSTS	100	124	114	128	104
INSURED VALUE	100	155	142	190	154

Source: White Fish Authority

Note: \* The decline in insured value is due to a change in sample. Of 29 boats covered in 1978 and 1979 only seven were common to both samples. The insured values of these seven vessels rose by 4% between 1978 and 1979.

(i) In nominal terms

(ii) In real terms.

Table A76

SCOTTISH INSHORE COSTS - PERCENTAGE BREAKDOWN OF COSTS -  
AVERAGE PER VESSEL

	<u>1970</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
<u>40-49.9 feet</u>					
Labour Costs	43.4	43.2	43.7	41.6	39.2
Other Variable Costs	48.4	49.0	48.3	48.0	51.8
Depreciation	<u>8.2</u>	<u>7.7</u>	<u>8.0</u>	<u>10.4</u>	<u>9.0</u>
Total	100	100	100	100	100
<u>60-69.9 feet</u>					
Labour Costs	39.4	43.3	44.3	40.8	38.2
Other Variable Costs	51.8	48.2	48.2	49.5	51.9
Depreciation	<u>8.8</u>	<u>8.4</u>	<u>7.5</u>	<u>9.6</u>	<u>9.8</u>
Total	100	100	100	100	100
<u>70-79.9 feet</u>					
Labour Costs	45.1	41.6	41.7	41	35
Other Variable Costs	45.2	50.7	48.3	45.6	49
Depreciation	<u>9.6</u>	<u>7.7</u>	<u>9.9</u>	<u>13.4</u>	<u>15.9</u>
Total	100	100	100	100	100

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Table A77:

SCOTTISH INSHORE FLEET: PROFIT AND PROFIT AS A PERCENTAGE  
OF EARNINGS. AVERAGE FOR VESSELS OF DIFFERENT LENGTH GROUPS

	<u>1970</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
<u>30 - 39.9 feet</u>					
Profit	£863	£1785	£6387	£4472	£3276
Profit as % of earnings	9.5	9.9	16.5	15.4	10.3
<u>40 - 49.9 feet</u>					
Profit	£1199	£5254	£8561	£7058	£2899
Profit as % of earnings	9.5	13.1	14.2	10.5	5.7
<u>50 - 59.9 feet</u>					
Profit	£1737	£5270	£8966	£6487	-£1109
Profit as % of earnings	10.1	10.6	12.9	8.7	- 1.5
<u>60 - 69.9 feet</u>					
Profit	£2348	£11,111	£12,477	£9795	£3920
Profit as % of earnings	9.8	14.1	13.1	8.9	3.6
<u>70 - 79.9 feet</u>					
Profit	£6767	£17,266	£13,553	£13,607	-£3136
Profit as % of earnings	15.3	11.6	8.9	7.3	- 1.8



List of Widely Used Abbreviations

AWP	autonomous withdrawal price
ACFM	Advisory Committee on Fisheries Management
DAFS	Department of Agriculture and Fisheries for Scotland
FEOGA	French initials for European Agricultural Guidance and Guarantee Fund
F	instantaneous rate of fish mortality
Fmax.	the rate of fish mortality that maximizes yield per recruit
HIB	Herring Industry Board
ICES	International Council for the Exploration of the Sea
MAFF	Ministry of Agriculture Fisheries and Food
NEAFC	North East Atlantic Fisheries Commission
OWP	official withdrawal price
PO	producers' organization
RP	Reference price
SFIA	Sea Fish Industry Authority
SFST	Sea Fisheries Statistical Tables
SSFST	Scottish Sea Fisheries Statistical Tables
TAC	total allowable catch
WFA	White Fish Authority



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