THE HIGHLAND REGION

The Prospects for Fisheries and Aquaculture in the 1990's

Consultancy Report No. 41

21st November 1991

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SEA FISH INDUSTRY AUTHORITY

Seafish Technology

FINAL DRAFT

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1. INTRODUCTION

Part of the Highland Regional Council's structural policy is to make the best use of its natural and human resources. This includes investments in both fishing and aquaculture as well as encouraging development of these industries through the provisions in its Structure Plan 1990-99. Previously the White Fish Authority prepared an advisory paper for the Council in 1980 entitled 'The Fisheries in the Highland Region - A Study in Conservation and Development'.

Fishing and aquaculture when taken together are the Region's fifth most important employment sector after tourism, agriculture, manufacturing and forestry. In the rural coastal regions fishing and aquaculture become very much more important and in some areas represent the only significant source of income generation for the community.

The Highland Region is in close proximity to some of the most productive fishing grounds in the N.E. Atlantic and it also has some of the best water areas in Europe in which aquaculture could be developed. Unfortunately the Region remains peripheral to the British fishing economy as a whole and much of the fish from the Region is moved to other parts of the country, notably to Grampian Region, where it is processed. Thus the added value benefits are lost to Highland Region.

However there has been significant investment in the processing of shellfish and this continues to develop. This is a product of relatively high unit value and offers a continuity of supply.

The Region too cannot develop a structural policy for its fisheries and aquaculture industry without taking into account the global changes in these sectors especially over the last 10 years and how these are likely to continue in the future.

Most popular fish stocks in the N. E. Atlantic are overfished or fully exploited and the short term predictions for a recovery are not promising. A major effort to reduce fleet capacity and introduce conservation measures is essential if the fisheries are to continue at their present level. These arguments were put forward in 1980 but if anything the situation has deteriorated still further today.

The decline in production from the N. E. Atlantic region has led to the UK processors sourcing raw material from much further afield including the Indian and Pacific Oceans. This can be expected to increase through the 1990s. There is also a trend towards internationalisation of the fish trade and this will be consolidated still further in 1993 with the Single European Market and the setting of common standards of hygiene, packaging, labelling and quality.

Thus the small scale rural fisheries of the British Isles are becoming more and more marginalised to the main stream of industry activity. They are, however, important to the people who work in them and they need assistance to find a profitable and sustainable place in the economy of the Region.

Aquaculture is almost entirely dependent on salmon cultivation which has demonstrated remarkable growth through the 1980's. The salmon growers are now in a vulnerable position although there are several opportunities coming along for diversification. Salmon growers have had to face many difficulties since 1989, not least of which is over production for the World market by Norway. The prospects, however, remain good for aquaculture products and the industry as a whole needs a long term strategy with both financial and political support by local and national Government.

A key issue facing fishing and aquaculture is the question of coastal zone management. The use of coastal zones for a variety of purposes other than fishing and aquaculture such as leisure, dumping of waste, industrial and residential development combined with pressure from voluntary organisations no longer makes it possible for fisheries and aquaculture to be considered in isolation. Indeed there is potential conflict between fishermen and growers over water use. Inevitably if our coastal zones are to be exploited rationally the issues of management and planning will have to be brought together. There are also issues relating to the Common Fisheries Policy which if incautiously introduced could give greater access to coastal waters by other Member States of the EC. Highland Region have now produced a paper for submission to the EC based on early discussions with Seafish on this subject.

It is against this background that the Highland Regional Council asked Seafish to produce a study and a Fisheries Plan for the Region as a whole.

The objective of the study was to draw up the best forecast of likely trends in economic development in the 1990s which will affect the fishing and aquaculture industries including seaweed culture and show how the Region can take advantage of these considering its geographical position and its access to marine resources. On the basis of the forecast a Plan would be prepared selecting the most promising development trends and how the

Council's policies and strategies could best be shaped to help the industry achieve its full potential by the end of the decade. The Consultants Terms of Reference are included as Appendix 1.

This report consists of an overview of each important sector in fisheries and aquaculture and a forecast of needs in the future. These are then drawn together and recommendations made as to how the Council can best assist development.

2. LINKS WITH PREVIOUS STUDIES

In 1980 the White Fish Authority (the predecessor to Seafish) carried out a study for the Highland Regional Council entitled 'The Fisheries in the Highland Region - A Study in Conservation and Development'. M & D Report No. 450.

This report was written in the period following the accession of the UK to the European Community but before the formulation of the Common Fisheries Policy in 1983.

Although some progress has been made since that Report was written notably the spectacular expansion of salmon farming and processing, harbour development at Kinlochbervie and other smaller harbours and the retention of national control of fisheries up to the 12 mile limit; many of the other opportunities open to the Highland Region in making best uses of its natural resources still remain unfulfilled.

The 1980 Report stated that '... the Highland Region has been and still is a semi-traditional economy isolated from the market forces that regulate the modern economic sectors of the UK'. This has now been improved by better roads and the importance of the salmon farming sector in the national economy'.

There is also a substantial increase in the number of inshore fishermen operating vessels under 12m in length especially in the Mallaig district. This indicates new investment mainly in the Minch prawn fishery but there are still parts of the Region where the traditional attitudes have changed very little.

In parallel, significant investment in shellfish processing has taken place and further investment is currently being made.

Another key issue of 1980 was the question of local management of fisheries which again emerges with equal importance in the 1990s. The CFP gave a period of stability to the coastal zone up to 12 miles offshore and the Inshore Fishing (Scotland) Act

1984 provided the means of regulating the fishery up to 6 miles offshore although it denied the local authorities the ultimate power of decision making.

In the context of today the issue of coastal zone management is once again important in view of possible changes to the CFP in 1992, the need for integrated planning of coastal land and water zones, and the increased influence of the voluntary environmental organisations. The compelling argument remains as before that these zones are vital to the economic well-being of rural communities rather than their importance as a source of supply of fish. The importance of shellfish landings in 1989 valued at £15m a substantial proportion caught by locally owned boats is significant in the national context however.

The final important link with the 1980 study is the changing position of the main pelagic fisheries. In 1980 the herring fisheries were closed and the mackerel fisheries of the West Coast and North Sea were severely overfished. Today the herring fishery has re-opened albeit at a very restricted level. The North Sea mackerel stock is closed and the migratory path for the Western mackerel no longer passes through the Minch. The Eastern Bloc countries are undergoing traumatic economic changes of their own but this will eventually stabilise and the demand for pelagic species from the N.E. Atlantic will be resumed. Whilst there is little opportunity for the Highland Region to benefit from catching and secondary processing of these species, there are opportunities for some investment in facilities for prime processing and freezing especially on the East Coast which could benefit from any revival in trade with Eastern Europe.

As well as the 1980 study, Seafish during 1991 have carried out a separate study of the creel fisheries of Caithness and Sutherland. This is reported in CR No. 40 but the two reports are closely linked together.

3. ACKNOWLEDGEMENTS

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Highland Regional Council Officials and in particular Area Development Officers
Highland and Islands Enterprise
Association of Scottish Shellfish Growers
Mallaig and North West Fishermens Association
Federation of Highlands and Islands Fishermen
Loch Linnhe Fishermens Association
Scrabster Harbour Trust
Wick Harbour Trust
Mallaig Harbour Authority
Ullapool Boat Owners Association
Ullapool Harbour Trustees
Cromarty Firth Port Authority
Inverness Harbour Trust
Denholm Fish Selling Company
White Fish International, Scrabster
Lochinver Fish Selling Company
Cowie Seafoods, Scrabster
Kinlochbervie Fish Selling Company
Marcoak Limited
Norscot, Kinlochbervie
Amazon Sea Foods Limited
Fastnet Fish (Highlands) Limited
Bannerman of Tain
Crannog Seafoods
Scottish Pelagic Fishermens Association Limited
Scottish White Fish Producers Association Limited
Achiltibuie Shellfish Merchants
Scottish Fishermens Federation
Lawrie Brothers, Mallaig
Scottish Salmon Growers Association
Andy Race, Mallaig
Fisheries Development Officer, Ross & Cromarty

Seafish also acknowledge the help given by many individual fishermen, processors, fish farmers and officials which are to numerous to list here.

4. OVERVIEW

The study has examined developments in the Highland Region in the last few years and placed these in the changing context of the UK fishing industry and the European fish trade. In the wider scene some reference is made to the likely sources of supply of fish and fish products in the future and the state of fish stocks in the N.E. Atlantic.

The fisheries of the Highland Region are small when taken in such a wide range of activities, but it is important to record that they do provide a vital source of income and employment in rural areas where there are few alternatives. There is no reason why the fisheries and aquaculture sectors cannot be strengthened in certain areas where the Region has natural advantages which can be exploited.

This section sets the scene from which a forward look can be taken over the next 10 years or so.

4.1 The Fishing Fleet

The fishing fleet in the Highland Region is broadly subdivided into two groups :-

- Highland owned vessels of which 85% are under 12m in length and which are mainly engaged in the coastal fisheries. Many of these are open or partially decked boats. Of the larger vessels owned within the region most are between 12m and 15m engaged in the nephrop fisheries.

- The second group are the vessels mainly registered at East Coast ports which seasonally fish from Kinlochbervie, Lochinver and Scrabster for the white fish stocks on the West Coast or from Mallaig or Ullapool for pelagic fish and from Gairloch for nephrops. The crews generally are not resident in the Highland Region. These vessels are defined as visitor vessels although many are effectively based at Highland harbours for much of the year.

Typical vessels from both groups are shown in Figures 5 and 6. A list of ports and numbers of vessels operating from them are shown in Table 4. Table 1 on the other hand lists places within the Region which are the domicile of boat owners and the corresponding numbers of boats.

An analysis of the fleet using the Highland Regional Council's harbours and piers was carried out by the Roads Department concurrent with the study. The statistics include Highland owned and other vessels. In addition, the Scottish Office data for the vessels owned within the Region have been studied for the period 1986-89 Table 2 . Although the usage of the main HRC harbours of Kinlochbervie, Lochinver and Gairloch is dominated by visiting vessels most of these are not occasional visitors but seasonal fishers as mentioned previously.

The fleet in the Lochinver fishery district which includes two or three small landing places in Sutherland includes twelve boats locally owned of over 12m in length. This is the highest percentage of any of the district fleets owned locally. However, the Mallaig fishery district and the Wick fishery district both include larger numbers of locally owned boats of over 12m in length:- 31 boats and 20 boats respectively. This reflects the importance of nephrops trawling (prawn trawling) and white fish trawling in the two base ports respectively.

85% of the total Highland Region owned fleet comprises boats of less than 12m in length and 60% of these are boats of less than 9m. These boats are virtually all static gear vessels, fishing on the West Coast mainly with prawn creels and for some crabs and lobster and in North Sutherland and Caithness, crab and lobster. The East Coast fleet reflects a varied crab, lobster and white fish fishery.

Table 3 outlines the age structure of the locally owned fleet. With about 53% of boats of over 15 years old the structure of the fleet reflects that of Scotland as a whole. The exception to this is in the Wick fishery district where there are some 10% more vessels in the older age group.

Since 1979 there has been an enormous increase in the number of vessels of under 12m in length. In 1979 it was reported that in Highland Region there were some 107 vessels in this class and the present statistics show 349 vessels (+226%). Although the statistical regions have changed in the 10 year period the main growth is in the Mallaig district where the fleet of vessels under 12m has increased from 31 to 201 vessels with the consequent demand for a different type of harbour facility than in former years. In fact some 62 extra boats are listed as locally owned in the Mallaig fishery district over the period 1986 to 1989. This district includes Torridon to Kyle, the Isle of Skye and Ardnamurchan.

The Wick Fishery district extends from Brora just north of the Dornoch Firth to Portskerra near Strathy Point on the north coast. This district goes against the statistical trend with a decrease in numbers of locally owned boats of about 12% from 1986 to 1989.

4.2 Fishing Harbours and Other Landing Places

In the course of the study, visits were made to HRC harbours and other landing places throughout the Region. The Trust ports of Mallaig, Wick, Ullapool and Scrabster were also visited and discussions held with their management. Contact was made with harbour users as well as with the management of harbours. Users of the many Highland piers and jetties were consulted, particularly where the users requested the meetings. Contact was made with the Cromarty Firth Port Authority who are responsible for the port of Invergordon.

Reference was made to the most recent comprehensive document on HRC small harbours and contact with Roads and Transport Department was maintained.

It is important to restate that there has been a considerable expansion of the small boat fleet in the Highland Region throughout the 1980s and this results in a greater dependence on adequate landing places.

4.2.1 Major Regional Council Harbours

One of the main recommendations of the WFA 1980 report was for investment at Kinlochbervie, to serve a mainly visitor fleet, although there is considerable indirect spin off benefit to local fishermen. This is in the fact that with the establishment of a large port in the extreme North West, transport links have been developed to Aberdeen, Humberside and mainland Europe and, the roads, particularly the north/south A835/894 have been improved and upgraded.

Pressure has been created to improve the single carriageway roads:- east west Lairg to Ledmore and Lairg by Laxford Bridge and the Garve to Gairloch routes.

Reference should be made to the study of the shellfish fishery in Sutherland and Caithness Consultancy Report No. 40. Complaints were made by some creel men about contamination of the harbour at Kinlochbervie (where store pots are kept) by fish waste and a request was made for a dedicated area for their gear storage.

The considerable development presently taking place at Lochinver which will create deep water berthage of particular interest to East coast and foreign trawlers will significantly increase the pressure for continued improvement of the roads in the area. Difficulties due to congestion at Lochinver will be eliminated with the new development.

The main agents at Lochinver (Lochinver Fish Selling Company) expressed disappointment that the new market hall at the port would not be mechanically chilled. Although Kinlochbervie does not have chilling because it is mainly a white fish port, with catches going straight from the sale to reefer trucks, Lochinver on the other hand will handle large quantities of crustacea and fish from vessels mainly for consignment to other ports or markets. Consideration should be given in the design for a standard of insulation for at least part of the building compatible with the installation of chilling if desired at a later date. The agents also requested the facility of a secure lorry park and the provision of extra gear storage. Another suggestion was that a bollard or sheave be provided on the new jetty to allow warp wires to be 'stretched'. This is particularly important with the extra long wires used in deep water trawling.

Gairloch serves a small local fleet and a considerable, seasonal visitor fleet with some regular visitors. There is some conflict between some of the visitors and the locals as reported by Highlands and Islands Fishermen's Association members. Due to the south westerly exposure of the harbour there is a surge effect particularly at the outer berths and local fishermen claim that this is exacerbated by the existence of a rubble pile at the inner end of the fishery pier. They would also like to claim preference for their small creel boats at the inner more sheltered berths, but these are usually occupied by 'visitor' boats when the local boats are finished fishing for the weekend.

Badachro jetty, some five miles South of Gairloch is presently owned by the District Council and mainly used for leisure purposes. Some static gear fishermen claim that they would use this more sheltered pier in preference to Gairloch if the Regional Council took it over and maintained it.

4.2.2 Small Harbours and Landing Places

The Department of Roads and Transport report of 1987 shows expenditure over the period 1983 - 1986 inclusive of £605,599 on minor harbours.

In terms of allocation, sums of £93,000, £89,000 and £187,000 were spent annually on maintenance and £90,000, £126,000 and £149,000 respectively on other requirements.

Allocations of £100,000 for 1987/88, £200,000 for 1988/89 and similar sums for the years to the end of financial year 1990/91 were projected. These sums must reflect the major expenditure programme planned for the completion of Kinlochbervie and the commencement of work at Lochinver.

It is with this background that observations are made where real shortcomings exist or where new opportunities exist. For recommendations see Section 6.2 and comments under each of the places mentioned in the following pages.

Visits were made to the majority of HRC and independently owned harbours and landing places. Those not visited were either dedicated to other uses such as leisure boating or were of little importance. Typically these were used by a couple of seasonal boats and with no reports of problems from discussion with fishermen and reference to recent reports.

Highland fish landing places are a mixture of old 'steamer' piers e.g. Aultbea, historical sites such as Old Dornie and custom built harbours like John o'Groats. Generally speaking there is a fine range of sites for landing fish accommodating most small communities.

Small harbours and landing places visited included Balintore, Portmahomack, Lybster, Staxigoe, Ackergill, Keiss, Freswick, John o'Groats, Huna, Gills Bay, Harrow (Philips) harbour, Skarfskerry, Dwarwick, Portskerra, Port Grant, Skerray, Skullomie, Talmine, Portnancon, Rispond, Scourie, Kylesku, Culkein Drumbeg, Old Dornie, Badentarbet, Aultbea, Badachro, Shieldaig (Torridon), Kyle, Armadale, Broadford, Portree, Uig, Dunvegan, Carbost, Caroy and Fort William. The following comments are made as a result of these visits. Figure 1 shows most of these locations.

Balintore

On the north side of the Moray Firth, Balintore provides a seasonal base for over 30 boats mostly, small and part time. Since the Road and Transport Department report, a pontoon jetty has been installed and this is regarded as a great success. The harbour is, however, quite untenable in south east winds.

Ackergill

This landing is regarded as one of the most sheltered in the north east used seasonally by about a dozen shellfish boats. A port users' association has been set up to fund dredging and a request submitted for an extension of the breakwater to provide more berthage and, of course, shelter.

Keiss Harbour

A classical structure built of flat stones in the last century and consists of an outer 'entry' basin and a sheltered inner basin.

It is the site of the oldest recorded UK crab fishery. It is presently used by three full time shellfish boats and several part timers and leisure craft. It suffers problems due to a build up of weed within the basins and requires regular cleaning out. Local opinion is that if rock boulders were removed from the inner basin, good secure berthage would be provided behind what is undoubtedly a substantial structure. Some 7 miles south of Duncansby Head it would provide a good harbour of refuge in prevailing westerlies. The estimated cost of removal of the rock boulders is £37,000. It is not possible to put a cost benefit on this development which is essentially the provision of alternative sheltered berthage in particular weather conditions. No increased regular usage is envisaged.

John O'Groats

This harbour was effectively constructed as recently as 1985 with the building of the west breakwater after the lengthening of the 90 year old pier. It is presently used by six fulltime boats and an Orkney passenger ferry. There is some surge within the harbour in easterly weather. To counter this would undoubtedly involve major expenditure with a breakwater extension into deepwater. This would be difficult to justify within the existing usage. However the addition of some additional rock armouring outside of the two piers would act as a wave break and reduce the possibility of seas topping the walls. In addition the removal of rock in the south east corner would allow extra berthage and or reduce the requirement for boats to lay alongside others. There is also a need for quayside lighting. The estimated cost of the removal of the rock in the south east corner is about £37,000 and the rock armouring a further £7,500. The main beneficiaries would be the present users of the harbour who may presently have small boats swamped in extreme weather and find access to boats hazardous. Savings would include pumping out and salvage costs and lost fishing time. The latter would involve a figure of about £2,000 per boat for say four times per annum. If this occurred to three small boats the figure would be £6,000 p.a.

Gills Bay

Community owned, a ferry terminal was recently constructed here. The future of the ferry links seem uncertain but alternative sheltered berthage for two or three boats is available within the basin to the east of the terminal. It is understood that the terminal is leased to Orkney Islands Council.

Harrow and Philips Harbour

This is an old quarry harbour with a substantial quay and extensive though shallow berthage. It is used by two fulltime boats and one seasonally. This is yet another haven, accessible only at high water but useful in easterly or south easterly weather. The sea wall on top of the pier was increased in height recently utilising mainly labour from a job creation scheme. Further protection would be secured by the addition of some rock armouring outside the wall. Dredging will be required if the full potential of the available berthage is to be secured. The estimated cost of the rock armouring is £7,500.

Dredging could allow boats to gain access and to leave the harbour with greater flexibility. This, with the rock armouring provision is essentially an improvement in safety provision, but as with Groats one boat losing four days fishing through storm damage repairs could incur losses of about £2,000 in earnings plus salvage/repair costs though these would probably be covered by insurance.

Skerray

Another substantial stone built harbour used by about five part time fishing boats and seasonally by a dozen pleasure boats.

Suggestions to increase the height of the wave wall on the eastern arm of the harbour have been considered by HRC. This would complete the protection already added to the north/south pier at a relatively low cost of about £10,500.

Similar benefits could be attributed by the provision of extra wave protection. This, however, is the completion of work already carried out and, therefore, these may not be so significant. A figure of £2,000 is therefore projected.

Culkein/Drumbeg

Three fulltime boats of between 10 and 12 metres in length operate from this remote landing in North Assynt. The road access from the A894 near Kylesku is difficult with its single track and with a series of blind summits. However the location is favoured because of its proximity to the fishing grounds. The more sheltered anchorage at Nedd is favoured by yachts and is quite congested during the summer. This place was considered in the HRC small harbours reports as an alternative landing.

The main shortcoming of Culkein Drumbeg at the moment is the lack of a secure (and tidy) gear storage area. A small investment in three garage/lock up premises with perhaps an adjacent compound for the storage of creels would both improve the environment and provide some security for the owners of fishing gear. The total cost would be about £2,000. The benefits are aesthetic rather than financial.

Old Dornie, Coigeach Slipway

This is 25 miles by road north west of Ullapool and opposite the Summer Isles and the nearest settlement is Achiltibuie. There is a fish landing used by 9 to 10 fulltime boats. This landing place is used as with Culkein Drumbeg because of proximity to grounds. The road access, though single track, is reasonable.

A new pier was built in 1976 to supersede the original 18th century slip which is isolated except at high water nowadays due to siltation. The new pier has several shortcomings. Due to its height and restricted length it is only easily used around high water. There is one ladder on the outer end for access and this is vulnerable to damage. Ideally, the pier should be lengthened by about 10m and additional ladders set in to both sides of the pier. It would be convenient to build these into the first metre of length of the new section to allow safe access across a wide tidal window. The HRC small harbours report contains a recommendation for expenditure of about £260,000 to lengthen the pier, although this represents substantial expenditure it is recommended that consideration be given to placing some priority on this work in the present situation it is only really usable around high water.

The extended slipway with the provision of proper access ladders would of course increase safety. It would, however, also allow boats to land their catch across a wider tidal window. This could allow boats to land directly to transport rather than to come alongside at a time dictated by the tide. Any time reduction between catching and onward transport is a quality bonus. Landings at Old Dornie in 1989 are estimated at about £300,000. Improved prices of say 50p/kg would increase local fishermens income by about £37,000 over the three high summer months. These comments are based on discussions held with Peter Drake of the 'LADY VAL' and others.

Badachro (Gairloch)

Mention is made earlier in comments on Gairloch of this pier. It is presently owned by the District Council. Local fishermen would prefer to use it rather than tie up near the larger trawlers at Gairloch but feel that it would have to be taken over by the Regional Council in order to ensure its regular maintenance.

Uig (Idrigill Ferry Terminal)

Uig has been a popular landing place for trawlers operating in the Minches and westward. It is convenient for these fishing grounds and enjoys a reasonably good road to the Kyle Ferry and good trunk roads thereafter.

Local interests reported some increased siltage alongside the original pier since the new ferry pier works which involved some infilling of the original structure were completed. The problem is most noticeable with the larger trawlers. Uig is reportedly a base for nine local boats and some 55 occasional visitors.

There is no provision for gear storage locally and it is suggested that currently superfluous space within the Caledonian MacBrayne warehouse be costed for rental for this purpose subject to mutual agreement.

The local fishing vessel agent reported that the absence of a slipway or drying out grid for repairs to vessels is a great inconvenience. During summer the nearest slipways at Stornoway and Mallaig are booked up months in advance.

The cost of dredging the silt from alongside the pier is estimated at £3,000 and the provision of a grid or drying out concrete slip about £80,000.

The provision of a 'drying out' facility could have considerable financial benefits to fishermen. If the nine locally owned boats each saved five days waiting time per annum this could save the local fleet some £22,000 p.a. HRC would, of course, obtain income to offset some of the costs.

Portree

With landings of some £650,000 of shellfish in 1989, Portree is a leading landing place. However, there are problems of siltation alongside the old pier which cause inconvenience and delays to fishermen and this problem should be addressed.

Elgol

The West and South coasts of Skye support a substantial small boat fishery in the absence of any real fishery harbour.

Dunvegan pier, privately owned, was used until recently when it became unsafe due to deterioration. The principal landing place is Elgol towards the South of the Island and opposite the smaller Island of Soay.

This jetty is used by 15 to 18 boats but is totally exposed and quite untenable in any weather when the users have to make two hours extra voyage time inwards and outwards to the Strathaird fish farm pier.

There is an unused distillery pier at Carbost on Loch Bracadale some 20 miles north of Elgol which would provide an excellent sheltered landing place for boats from Elgol to Dunvegan. It is presently privately owned and the road access would require upgrading. It is understood that the Council are aware of this possibility and are considering the position, in consultation with potential users. The substantial nature of the structure and its situation must be regarded as attractive though it is understood that some work is required.

There are obvious benefits from the point of view of safety for both boats and men which are difficult to quantify. At a conservative estimate if one extra day's fishing per week is possible from March to October for 15 boats, that is 420 extra fishing days and this could mean extra landings valued at up to £120,000 based on official figures which are probably underestimated.

<u>Applecross</u>

Applecross was not visited but during a visit to the West coast it was pointed out that a small fishing fleet of about 8 boats has been built up owned by former workers at the defunct Kishorn oil site.

There is a lack of a suitably sheltered landing place in the area although the boats use the pier at Toscaig. Although Kyle is a convenient landing place there is a lack of safe berthage locally near Applecross with Kyle being some 30 miles distant by difficult unclassified road. It is suggested that Camusterrach between Toscaig and Applecross would be a suitable site for a sheltered jetty. About £50,000 should be allocated to Applecross and Camusterrach to improve the facilities.

It is emphasised that this proposal is put forward with a lack of first hand knowledge of the feasibility of providing a sheltered mooring in the Applecross area.

Benefits in this case would appear to be mainly through increased safety provision, savings on travel and inconvenience in travelling to and from Kyle. The former is difficult to quantify but could involve extra insurance costs and the latter is surely a social cost.

4.2.3 General Comments

There is a general shortage of storage facilities for fishing and boat gear. This is indeed a countrywide problem by no means unique to the Highlands. Too many picturesque sites are cluttered with gear and from the fishermen's point of view equipment left on beaches or piers is vulnerable to theft or even vandalism.

The provision of gear stores or merely storage compounds is slowly being recognised throughout the United Kingdom as a necessary and indeed desirable investment. On the East Coast of England attractive gear storage 'units' have recently been erected at Blyth and Hartlepool and fish box compounds at Peterhead and Fraserburgh are other examples of making fishing ports more acceptable.

It is estimated that a small compound for say a couple of boats with a $30m^2$ concrete base and 3m high chainlink fencing would cost about £1,000 increasing correspondingly at about £35 m^2.

The introduction of a plastic box pool to north east Scotland is virtually complete and the operators of the Scottish Fish Box Pool GKN Chep Limited have indicated their intention to provide a full box service in the Highland Region. This will involve the provision of well built and secure compounds at the main harbours. These will be supervised, providing some local employment with box handling labour, perhaps three or four persons at each port. Highland Regional Council should be prepared to provide space as far as possible adjacent to fishmarkets typically of the order of $4000m^2$ at Kinlochbervie (all companies) and $2000m^2$ at Lochinver with fresh water and power supplies for rent to GKN, Caley box services or Kinlochbervie Fish Selling who all operate box supplies.

The provision of live holding facilities for shellfish are being considered by private interests at Kinlochbervie and at Scrabster. There will be an increasing interest in these as the activities of vivier boats from the South of England and an interest in this activity by local boats develops. Firm recommendations are made in Seafish Report CR No. 40 to the Highland Region Council on the creel fisheries of Caithness and Sutherland. The provision of cold storage for bait or fish and live holding facilities at a few strategically chosen landing places along the Caithness and Sutherland coastline is proposed in the same report. It is recommended that these facilities are also provided as required elsewhere on the Highland coast.

The provision of 8 cold stores would cost approximately £80,000 depending on site condition and live holding tanks at the same locations a further £100,000.

The involvement of the Regional Council in the transport of by-catch finfish and the provision of ice to remote 'creeks' is to be commended. It is not suggested that this activity in any way undermines established suppliers of transport and ice, but rather that it fills in to areas where private companies have not found it attractive to operate for a variety of reasons, but where nonetheless there is a need for the improvement in the handling and disposal of fish which would otherwise be discarded.

White fish to a value of £20,000 has been transported during the initial three months of operation and this is all extra income to the local fishing community.

The total projected capital investment at small ports and landing places is of the order of £700,000.

Where it is possible to estimate benefits in terms of extra income to the local fishing community this is estimated at about £190,000 p.a.

There are, however, a number of unquantifiable benefits, not least, in terms of safety and improvement in the quality of life.

The cost estimates are based on previous estimates by Roads and Transport with an allowance for inflation and/on estimates for recent similar work elsewhere.

4.2.4 Trust and Other Non HRC Ports in the Region

These include Mallaig, Ullapool, Scrabster, Wick, Invergordon and Inverness.

Inverness

Is of no significance today in fishing terms although in the past it used to be a landing place for sprats and herring from the Kessock fishery now closed for a number of years. The local Thornbush slipway is presently closed.

Wick

Has an extensive harbour with a fish market, an ice factory and slipping facilities.

It suffers from being constructed for a different era, that of large fleets of small herring smacks. Siltation is a major problem and the problems of the shallow entrance are exacerbated when south easterly winds are blowing.

It is the base for about 15 regular users, mainly trawlers of less than 17m, three of which are owned in Helmsdale. Two of the largest and most successful Scottish trawlers are owned by the local Bremner family. Although they have their stores and other shore facilities in Wick, these vessels land on the West Coast and at Scrabster, Peterhead and Aberdeen and only occasionally at their home port.

Wick's main asset is space both in terms of berthage and quayside. In fact when Danish gillnetters were operating off Orkney in the 1980s, these vessels with their cyclical fishing pattern dictated by tidal conditions preferred to use Wick for lay up purposes and found it convenient for net repair activities.

Wick is second only to Mallaig in terms of numbers of larger locally owned vessels of over 12m length.

Recent usage does not justify any significant expenditure on development related to the harbour although the harbour area does offer scope for processing development. There is also the availablity of a pool of experienced labour in this field.

Scrabster

The port of Thurso Bay was principally known until the late 1980s as the mainland terminal for the ferry on the short sea route to Orkney. It, however, offered sheltered deepwater berthage for fishing vessels and was a haven of refuge and convenient transhipment point for trawlers for stores and crew.

In the 1980s the local shellfish fleet grew in importance and vessels from Grimsby started using the harbour for the transhipment of boxed cod to Humberside.

It became the principal port for the new fleet of large circa. 28m trawlers built for Orkney owners. The demand for space outgrew both the berthage and the market capacities. The Harbour Commissioners submitted development plans for grant assistance to the Scottish Office and these have now been approved.

A new harbour basin with a fishmarket will be built and reclaimed land will become available for processing developments as a second stage development. There is virtually no land available at present (see however comments re. Wick).

Although the Grimsby visiting fleet has virtually disappeared, Scrabster is now regularly used by East Coast vessels and by occasional Faroese vessels, as well as the vessels from the Northern Isles (Orkney and Shetland).

<u>Ullapool</u>

Has very long connections with the Scottish fishing fleets and its development plans date as far back as the 18th Century. In the 1970s it became the landing place for the North Minch herring fishery and latterly within the sheltered waters of Loch Broom there developed the herring and latterly mackerel klondyking operation. In 1986 175,000 tonnes of pelagic catch was handled in Loch Broom and at Ullapool making it the leading port in the UK in tonnage terms. Although still a major base for this fishery the movement of mackerel shoals eastward has had an adverse effect on landings. Additionally, the opening up of new onshore processing both in Shetland and in Buchan coupled with the increased size and range of operation of the vessels involved has encouraged some vessels fishing west of Scotland to land in these places.

There seems little likelihood of the pair trawler fishery for herring being extended due to the existing quotas share out which favours the purse seiner fleet. Any increase in landings at Ullapool in the present situation of quotas would depend on that fishery. Development of cold storage and pelagic processing in Easter Ross could encourage increased landings at Ullapool seasonally as road connections are very good and if catches are diverted from klondyker outlets. Ullapool is now only about one hour by road from Dingwall.

Mallaig

Prospered like Ullapool with the pair trawler herring fishery in the 1970s. Unlike Ullapool it could not offer the extensive sheltered anchorage for klondykers. However, Mallaig has become second only to Fraserburgh as Scotland's prawn (nephrops) port. It also supports the largest locally based Highland Region fleet with 31 vessels over 12m in length and 47 vessels under that length. The harbour was recently extended by the building of a new breakwater/pier and there are plans to further extend the berthage, with the provision of a new breakwater. Mallaig represents the only major landing place from Skye to the Clyde a distance representing about one half of the west coast. It is the only harbour with support facilities serving the South Minch to Barra Head fishery and is, therefore, strategically very important in fishery terms. Plans exist to upgrade the ferry service to Skye accommodating the latest Ro-ro vessels by the provision of a 'linkspan' type jetty.

There is an urgent requirement for covered fish holding facilities. The existing 'prawn market' is inadequately protected from birds, weather etc and a temporary tent type market is presently in use. A new market is part of the development plan and is urgently required. Despite the fact that demersal fish to a value of £5.5m were landed, quality and prices have tended to be below average.

The 'road to the Isles' the A830 has been Mallaig's tourist attraction and embarrassment for far too long. Since World War II work has progressed the original single track road from Fort William to the point where there are some 15 miles of single track left. There are plans to complete this section funded jointly by Scottish Office and the Regional Council. The principal beneficiaries will be the tourist industry and Caledonian MacBrayne in particular but, of course, the fish industry will also reduce costs in terms of reduction in transport delays, insurance costs etc.

Mallaig has several small processing firms and some cold storage capacity originally set up to handle herring but now diversified into white fish and prawns.

Invergordon

Invergordon is owned by the Cromarty Firth Port Authority. It is not strictly a fishery harbour although it has handled significant quantities of frozen fish to and from the cold stores at Conon Bridge and Dalcross (Inverness). It has, however, sheltered deepwater berthage developed for the offshore industry and the aluminium smelting plant respectively. The infrastructure at Invergordon is substantial and will support further development.

The smelting plant is now closed down and berthage is available at the old Admiralty pier and the new offshore support jetty. There is also considerable industrial estate development in the area and a significant labour pool available.

Interest was shown in recent years by the Scottish Fishermens Organisation in investment in a pelagic grading and freezing facility. Several factors at the time militated against this development. Principal amongst these was the Ministry of Defence ban on East European and Soviet vessels using the roadstead for klondyking. There is now an increasing demand for onshore pelagic processing and cold storage and no longer a restriction on the Eastern European vessels. There is renewed interest by Scottish fishermen in the proposed development. The situation should be closely watched by the Council and dialogue encouraged betweeen interested parties. The harbour and its facilities should be promoted whenever possible for this type of development.

Invergordon is strategically situated for the mackerel fishing grounds now predominantly to the West of Shetland during the early part of the season and to the main road links both to the Buchan region, and to the South. A new transport ferry link to the Faroe Islands is being established. The principal Highland cold storage is available locally at Conon Bridge, 10 miles and Inverness 24 miles.

4.2.5. The Road Infrastructure

The Regional Council inherited a legacy of poor and inadequate roads. There has in the interim been a massive increase in fish related transport in particular to Kinlochbervie and Scrabster. Whilst the burden of the required expenditure on roads is acknowledged to be out of all proportion to the Region's income possibilities, suggestions can be made as to priorities, and other avenues of financing explored. In particular as far as the fish trade is concerned, the East West links from the A82 to Mallaig and the A9 to Kinlochbervie and Lochinver are the outstanding shortcomings of the network as they remain single track over many sections in each case.

The completion of the Dornoch Firth bridge will greatly improve the northern section of the A9 but the two difficult braes north of Brora remain problems for heavy traffic. The Mallaig trunk road is scheduled to be completed as double track with a financial contribution from the Council. The A9 is also the responsibility of the Scottish Office.

Harbour developments particularly at Lochinver and Scrabster will encourage additional fish landings by foreign vessels at these places. Mallaig is an alternative Ro-ro ferry port for Skye as well as being a thriving shellfish port in its own right. None of these activities in contrast to finfish landings by UK vessels is likely to decline in volume, on the contrary increased traffic is likely. Gairloch, similarly services the thriving shellfish outlets of the UK and Europe but depends heavily on overlanded raw material which again places demands on inadequate roads.

Traffic delays and increased transport insurance premiums are part of the cost of fish purchased in the Highland Region and investment in better communications is, therefore, a contributory factor in support of the fishing industry.

It has been suggested that rail freight might ease the problems of road access in parts of the Region. On a previous study Seafish examined the possibilities of rail freight from Mallaig but concluded that rail was not cost effective nor could offer the same reliability as road transport. It was not therefore considered in this study. It is possible in view of recent statements from the Secretary of State regarding improved services for freight by Scotrail that the question could be re-opened but this would necessitate a feasibility study to be carried out by Scotrail which would go beyond any casual remarks which could usefully be made here.

The Council have incurred a financial burden due to the heavy use of secondary routes serving fish farms the seaward location of which HRC had no authority over.

4.3 Fish Landings in the Highland Region

The latest official statistics available from the Scottish Office for fish landings in 1989 within the Highland Region are appended in Table 5. Report CR40 highlights inconsistencies between official statistics and anecdotal information on landings. A general underestimation of landings, should be borne in mind when these figures are studied.

Table 6 lists total landings by Fishery District of the three groups of species i.e. demersal, pelagic and shellfish for 1986, 1987, 1988 and 1989 respectively.

Nephrops (prawn) landings in Scotland as a whole are analysed in Table 7 for the years 1969, 1979 and 1989.

During the period 1986 to 1989 inclusive the overall tonnage landed peaked in 1987 mainly due to high pelagic landings at Ullapool. 1989 landings were down again mainly due to a drop of about 50,000 tonnes in pelagic landings at that port and the start of a decline in demersal landings.

'Lossiemouth' figures for shellfish are misleading as they mainly relate to mussel landings from the Dornoch firth and not to the crustacea dominant elsewhere. The most significant increase in shellfish (crustacea) landings is in the Ullapool district which, of course, includes Gairloch where crustacea to a value of just under £1m was landed in 1989. Dominant over the period in terms of shellfish, mainly prawn landings was Mallaig district with landings of a value of £8.3 million in 1989. This district includes, Torridon, Kyle, Sleat, the Skye landing places, Arisaig and Ardnamurchan, as well as, Mallaig itself. The value of shellfish landing there in 1989 was £4.7m. Several notable places with landings of shellfish of between £800,000 and £1m were Wick, Kinlochbervie, Ullapool and Kyle.

The importance of the shellfish fishery to the Highland region is demonstrated by the value of crustacea landed at places other than the main Highland harbours. In 1989 Torridon £465,000, Portree £642,000, Snizort £582,000, Strathaird (Elgol) £333,000 (£20,000 in 1979). Several other landings were between £100,000 and £200,000 value. 50% of all nephrops landings in Scotland take place in the Highland Region.

Some concern must be expressed about the incompatability between landing times and processing schedules. Landings of nephrops are usually made twice a week with the second occasion on a Friday. This necessitates the nephrops being held over until the Monday unless weekend working in the factory is authorised. This is a matter for the catchers and processors to resolve, but it is resulting in a substantial devaluing of the raw material through quality loss and represents a loss of revenue to those Highland Region processors involved in this trade.

Kinlochbervie dominates the landings table for demersal fish with landings in 1989 valued at just under £13m, Lochinver and Mallaig figures were both about £5.5m.

The principle demersal stocks of haddock, cod and whiting caught on the West Coast (ICES Areas VIa VIb and Vb) have been drastically reduced in quotas since 1986 (see Table 8). The percentage reductions of around 30% over the period have been reflected in the catches and the port of Kinlochbervie has suffered particularly badly from this trend as the following table shows.

Landings in the Kinlochbervie District 1989 and 1990				
	1989		1990	
	Tonnes	£'000	Tonnes	£'000
Demersal Species	15,338	12,700.6	10,101	10781.5
Pelagic Species	10	1.1	3	0.4
Shellfish	741	899.6	254	416.9
TOTAL	16,089	13,601.3	10,358	11198.8

The state of the roundfish demersal stocks is such that there is no likelihood of any short term change in this trend.

Ullapool values for pelagic landings in Table 6 reflects the changing pattern of these landings mainly due to a shift in the position of mackerel shoals in a north easterly direction favouring Lerwick rather than Ullapool.

4.4 Fish Processing

Traditionally the inshore waters of the Region have provided an excellent herring fishery and some of this has been processed locally. Latterly, however, whitefish, shellfish and mackerel have been landed from adjacent waters in substantial quantities. See Table 4. Over 90% of the landings of white fish and pelagic fish have been shipped to the Aberdeen area or elsewhere for processing. A local shellfish processing industry has however developed and a certain amount of fish packing has always been done locally.

The 1980s have seen the development of farmed salmon processing in the Region with added value smoked products securing an important market place.

4.4.1 Whitefish

As far as whitefish is concerned the problem is continuity of supply or more specifically continuity of the supply of specific volume species in demand for particular markets.

Humberside, the UK's centre for fish processing is able to draw supplies not only from a variety of UK sources but also from Canada, Iceland and Norway in fresh and frozen form. Aberdeen though less well placed geographically, nevertheless owing to the strength of demand locally brings in fish from all over Scotland, Ireland and the North of England. The recent announcement of a transport ferry link from Invergordon to and from the Faroes could significantly upgrade the potential white fish supply to Northern Scotland.

Some whitefish processing has been done around the Highland coasts but at best this has been relatively small scale and there is a history of frequent change in the level of activity.

Coastal fish salesmen must constantly 'play the market' where the factors are prices being offered locally, in the Buchan area or Humberside bearing in mind the considerable transport costs involved in the latter.

There has been a definite trend in recent years for consignments to the North East to increase at the expense of the Humberside market. This is due to the strength of Peterhead's market in particular and, of course, reduced transport costs in comparison with Humberside. It is also undoubtedly a reflection on the huge quantities of imported Icelandic fish now dominating Hull and Grimsby sales.

4.4.2 Pelagic Fish

Herring processing and particularly kippering has been carried out in the region for many years. Firms like Lawrie's of Mallaig still exist although MacRae's is no longer operational there despite the existence of a cold storage facility.

The demise of the ring net fishery and more recently the reduction in pair trawling for herring has affected Mallaig in particular. Ullapool caters mainly for bulk discharge of herring and mackerel to klondykers or to road transport. The whole fishery is now geared to favour the 'big buyer' whether onshore or offshore and kipperers will mostly purchase at second sale from the large operators like Croans. The Isle of Man and the Clyde are probably the remaining UK centres where traditional sales take place of boxed herring. We thus have a situation where kipperers may well find it as convenient to purchase herring from Granton, Edinburgh, Aberdeen or Hull as at local pelagic ports.

The only major pelagic 'processor' in the region is Highland Fish Processors at Conon Bridge. This firm which mainly cuts and freezes for onward processing has changed hands several times in recent years. It has established a useful link with the port of Invergordon where frozen pelagic fish is landed and ultimately re-exported in some cases. Fish is also bought in from Ullapool and Fraserburgh.

Kipperers in the Region have in several cases diversified into processing nephrops (prawns) white fish or into smoking salmon.

4.4.3 Shellfish

The huge growth of prawn landings particularly from the Minches and the West Highland lochs in the past ten years has, however, lead to prawn processing development. In particular the demand from the Spanish market has created considerable Spanish investment at Gairloch and Lochinver. Gairloch Seafoods, in order to satisfy that demand not only for prawns but also for crab are now buying in shellfish from all over the UK and Ireland. Marcoak, Lochinver are planning to move into new premises on reclaimed land as a result of the Lochinver port development. Some 40 new jobs are likely to be created. Fastnet fish operate a large scale prawn processing facility at the Fort William industrial estate and nearby is a successful very much smaller scale operation concentrating on supplying top quality to a niche market and incorporating its own local retail outlet. Amazon Seafoods are active at both Kyle and Gairloch.

Shellfish processing is a Highland success story though there are clouds on the horizon in terms of the lack of control of the expansion of this particular fleet allied to the diversification of effort by white fish boats on to prawns all creating a possible glut in supplies at least seasonally. At the time of writing the situation is being monitored closely by Fishermens' Associations and the Scottish Fishermens Organisation.

4.4.4 Salmon Processing

The main development trend of the 1980's has been, of course, the development of the processing and packing including smoking of farmed salmon.

Scottish salmon farmers are, however, presently beset with a major marketing problem that of competition from 'dumped' Norwegian produce as a result of overproduction in that country. Belatedly the Norwegians agreed to act by freezing down some 40,000 tonnes, but to some extent this can only 'put off the evil day' as the salmon industry is not protected within the CFP from third country imports as is white fish etc.

Therefore, a period of consolidation is the likely scenario for the salmon processing industry with some reorganisation and rationalisation of effort. In a recent survey 50% of the Region's fish processing workforce were employed in working with salmon. Of this total, about 50% were working within the Blar Mhor industrial estate at Fort William.

25% of the fish processing labour force were engaged in shellfish processing and of the balance the single most significant number were employed at Conon Bridge on pelagic processing and freezing.

4.4.5. Fish Processing (General Comment)

At first glance the illogicality of landing upwards of £50 million worth of fish in a region and trucking 90% of it 200 or even 500 miles for processing appears striking. The keen demand for fish supplies and the strength of the market to absorb fish from a variety of sources at good prices will always place local processors at a disadvantage.

However this largely reflects a white fish or demersal fish situation. The successful development of shellfish processing in the Highlands has only been inhibited by one of the factors affecting white fish processing. This factor is, of course, a shortage of labour and the associated housing shortage. Shellfish raw material, with a few reservations about the need to control fishing effort, will continue to be available for landing in the Highlands on a regular basis. The Spanish market in particular apparently justifies considerable investment at both Gairloch and Lochinver but concern about the housing shortage for both staff and management was expressed by interested parties at the port and elsewhere.

A number of smaller processors operating out of old generally stone-built premises are concerned about the implications of the EC food hygiene directive. These firms employ a small number of local people but nonetheless are significant in areas where only a handful of people work in agriculture and fisheries in any case.

The larger firms are bringing in supplies and, therefore, showing the way to some extent to these smaller firms. It may be that some co-operation in sourcing supplies for groups of small firms would be a useful exercise and would encourage the more efficient use of transport. There are small niche markets already identified by some companies which should be targetted by small shellfish firms but the emphasis must be on quality rather than quantity.

It is probably sensible for some of the older small firms to consider vacating old unsatisfactory premises and moving to units on industrial estates leased by Highland and Islands Enterprise Local Enterprise Companies, or HRC's Development department where this is possible. To effect such relocation it is essential that both Planning and Environmental Health adopt a more proactive approach in encouraging and facilitating such expansion opportunities on identified industrial estate locations throughout the Region. Several firms interviewed indicated their experience of a reluctance on the part of District Councils to permit fish processing take place on industrial estates.

A general problem is the ultimate disposal of offal owing to the nature of fish processing in the Region. The only fish meal factory on mainland Scotland is presently in Aberdeen. Small processors cannot justify daily delivery of offal and clearly the periodic uplifting of loads is the only sensible procedure. There is also the possibility of a greater quantity being taken for the bait market. Again the location of processors within industrial estates would permit a centralised offal storage unit to be built and supported by several users. Small custom built meal plants are available and could be operated viably on key industrial estates throughout the Region given that the question of unacceptable odour and related management is properly addressed.

The Highland Regional Council's Development and Planning Committees should immediately identify suitable locations within the existing estates network to accommodate the establishment of this vital element in the processing infrastructure.

In terms of future investment in processing it is in the possible development of pelagic processing and freezing in Easter Ross that any significant expansion can be envisaged.

The Scottish pelagic fishery was established around the availability of East European and African klondykers or factory ships to buy and process up to 80% of catches. This is despite the fact that a significant portion of this commodity was marketed elsewhere than in the Eastern bloc countries.

The political upheaveals of the last two years have seriously disrupted the situation. Eastern European countries are now being forced to operate their fleets on a commercial basis and much of the tonnage is being laid up and ultimately will be scrapped. Scottish fishermens representatives are finding it extremely difficult to obtain guarantees of price or quantities acceptable to their fleet operators. Nevertheless the demand for herring, mackerel and other pelagic fish has always existed in Eastern Europe and the Soviet Union. This can be expected to resume once the political situation has normalized.

Meanwhile several established fish companies have invested in processing in the Buchan area, Fraserburgh and Peterhead.

A Seafish report of 1985 advised that some four plants could viably operate in Northern Scotland. At the time there was keen interest in establishing processing at Invergordon but this was stopped mainly because of difficulties with Ministry of Defence over permission for East European vessels to lay in the Firth. These objections are no longer there and the requirement is in any case for onshore processing.

Processing of white fish may be possible for specialised high value products in certain locations provided there is reasonable regularity of supply and an opportunity to source raw material from a variety of places. Integration of specialised white fish processing with shellfish would make sense in some places.

The present problems of the salmon farming industry mentioned elsewhere militate against further large scale salmon processing for the present although small scale processing for specialist products should be encouraged. Local shellfish processors could benefit from the proposed building of a series of holding facilities on the coast as fishermen will be less reliant on immediate transport links which may or may not present the best marketing option.

The Region's processors do not have an overall representative association, and this denies them an effective voice within the Region. The Council should encourage the trade to put forward acceptable candidates for membership on the Fisheries Advisory Group of the Council.

Finally some confusion was evident during interviews with the trade in the roles of HRC and Highland and Islands Enterprise respectively. Clearly this is a serious matter and one which requires to be addressed, perhaps in the first instance through the medium of the Region's Fisheries Advisory Group, and thereafter through close liaison between Local Enterprise Companies and Development Department's Business Development Adviser network.

4.5 Aquaculture in the Highland Region

Since 1975 the Highland Region has benefited from the expansion of fish and shellfish farming in Northern Europe. The growth has almost entirely been in the area of salmon including smolt production but this has created an important springboard from which a more diversified industry can now develop.

The Regional Council should be able to play an important part in encouraging this industry to move forward by certain actions within the Structure Plan.

4.5.1 Atlantic Salmon

Scotland and Ireland are the only two Member States in the Community producing farmed Atlantic salmon (*Salmo salar*) on a commercial scale. There is one small production unit in France on the Brittany Coast, but the main competition comes from Norway and to a lesser extent Faroe. See Table 10.

Scotland produced 33,000 tonne of farmed salmon in 1990 valued at £150 million and Ireland 7,000 tonne. Of the Scottish production some 15400 tonne were produced in the Highland Region. The market demand in the Community is strong and is currently estimated at 110,000 tonne. UK demand is currently 36,000 tonne and has shown a growth from 0.3kg/person to 0.6kg in just 3 years.

Growers in Scotland and Ireland are threatened by the over-production by Norwegian salmon growers. In 1990 Norway produced 160,000 tonne, the bulk of which was destined for the international market, especially in the US and the European Community. Faroe produced about 13,000 tonne. Clearly demand exceeds production within the Community and even the UK is not self sufficient in salmon production and there is a need to import. At the same time there are allegations of dumping by the Norwegians at prices below production costs which has severely hit Scottish growers. Some 30 businesses in Scotland ceased operation in 1990 partly as a result of the fall in price although there were other contributory factors, such as disease and slower rates of growth.

Efforts by the UK and Irish Governments to impose a higher EC tariff on salmon imports from Norway of 11% over the existing 2% have not succeeded because of the strong demand for Norwegian imports especially in France and Denmark. It also appears that salmon is part of the very complex negotiations relating to trade between the Community and Norway, including the possible application by Norway to join the EC in 1993. Nevertheless, there has been some reduction of exports to the Community by

Norway and currently some 40,000 tonne of the 1990 production have been frozen, although this still poses a potential threat to Scottish and Irish growers. An additional threat is some 12,000 tonne of salmon refused entry into the US market except on payment of a 26% tariff when a dumping action was upheld. A further worry is the increasing levels of production in Faroes although most of this is sold to Denmark.

The freezing of excess production by Norwegian growers has again been a problem in 1991.

Norwegian salmon growers are generally better organised as a body than their counterparts in Scotland. The Norske Fiskeopp-dretteres Forening is one of a number of marketing cooperatives specialising in aquaculture. The ability of Norway to control the international supply in the market place has given it the edge over Scottish producers.

Close concentrations of salmon in sea lochs have created other problems such as disease and sea lice infestation. These are a complex interactions of water quality, feed control and stress and more time and research are needed to determine how these problems can be overcome.

Nevertheless, the long term prospects for salmon and salmon products remain good, provided the market can stabilise and provided there is European Community and Government support available to protect the industry.

Most growers rely on supplies of smolts provided by a separate hatchery rather than maintaining their own broodstock. In Scotland there are 75 such specialist hatcheries which produced about 21.4 million smolts in 1990. It is the large production capacity of the hatcheries which represents one of the strengths of the salmon industry. About 50% of the smolt production takes place in the Highland Region.

4.5.2 Halibut

Culture of Atlantic halibut is still in the experimental stage, but it shows distinct promise as a complementary species for the salmon growers. It is also a species particularly suited to Scottish waters where it is at the southernmost limit of its natural distribution. It has a high market value and there is a shortage of supply of wild stock. To a large degree the ongrowing facilities, husbandry knowledge, harvesting and marketing could be built up on those currently in place for salmon.

The considerable interest shown by the salmon growers in halibut is best reflected in the membership of the British Halibut Association which is a group dedicated to developing and promoting farmed halibut. The main competition, as with salmon, will come from Norway where substantially more investment is taking place to try to bring in halibut as a commercial species within 2 or 3 years. The UK research is carried out at the Sea Fish Industry Authority's Marine Farming Unit at Ardtoe, Argyll. Overseas the greatest investment in halibut research is undertaken by Norway with a limited amount of work being carried out in Canada, Faroe and Iceland, the three other North Atlantic countries where there is some potential for halibut culture.

At present most of the basic requirements of broodstock conditioning, egg production, incubation, larval rearing, weaning and ongrowing are understood. For two years now the MFU staff at Ardtoe have successfully brought juveniles through these critical phases. In 1990 it was 70 and in 1991 over 700 fish. This however only represents a basic understanding of the science and there is still much research to be done. One area of research is to improve egg quality which in turn results in more viable larvae and another is to increase survival rates, especially in the early larval stages including first feeding. Other critical work concerns offshore cage design and the development of low cost feed.

The salmon farming industry will continue to be the cornerstone of aquaculture in the Highland Region in the future and there is a need to restore confidence following the setbacks of 1989 and 1990. The importance of having an alternative species such as halibut lies in helping the industry to stabilize through the 1990s.

4.5.3. <u>Turbot and Turbot Hatcheries</u>

This species spawns in temperate waters such as Northern Europe, but the maximum growth is achieved in warmer waters of about 18°C such as are found in Spain. To compensate for this in the UK it would be necessary to use the waste heat from power station cooling systems, and these methods have been used with some success in the past at Hunterston in Strathclyde. Nevertheless it places UK growers at a significant disadvantage to growers in Spain where natural ambient temperatures are ideal. Turbot is, therefore, not regarded as a high priority commercial species for the Highland Region, although some salmon growers anxious for an alternative species are considering turbot as a interim measure.

Cultivation of turbot juveniles for export overseas for example to Spain and Greece is, however, a distinct possibility, especially if linked to other hatchery activities such as halibut, lobsters and other species.

The husbandry techniques which have been developed at Ardtoe permit out of season breeding by turbot broodstock and good survival rates and rapid early growth to the juvenile stage.

Current prices paid for 3gm turbot juveniles are £1,700 per 1,000.

4.5.4. Trout

Trout (*Salmo gairdneri*) is also a salmonid and is the second most important species farmed in Scotland, with present production around 3,000 tonne per year of which some 500 tonne are from Highland Region.

This level of production is surprisingly small in the context of the UK as a whole and in view of the fact that the UK still imports significant quantities of fresh and frozen trout from Denmark and France. The UK production has grown rapidly since the 1970s and is now about 20,000 tonne per year. Highland production is carried out on a small scale, largely servicing local hotels or the high value trade.

4.5.5. Other Finfish Species

There are no other finfish likely to show benefit at the present time. There are a number of candidates such as cod, plaice and lemon sole all of which can be cultivated, but the balance of production costs and revenue are not favourable whilst there are adequate supplies of wild stocks of these species in the EC waters.

This balance may change in future, but it cannot be assumed that these species could then be immediately farmed since some research is necessary to optimise husbandry techniques, survival rates and growth. Of the three species listed some work on lemon soles would be appropriate in the near future.

4.5.6. Shellfish

4.5.6.1 Lobsters

Work carried out by Seafish, MAFF Lowestoft and the North West and North Wales Sea Fisheries Committee, has demonstrated that juvenile lobsters reared in a hatchery will survive and grow to market size in the wild. The growth period is 5 years. What is not certain, however, is the relationship between numbers of releases and survivors and the impact of hatchery reared lobsters on existing colonies. This research is continuing at Ardtoe and in Orkney and there are now grounds for optimism that enhancement can play an important part in sustaining stocks in areas which have in the past been over exploited.

The lobster fisheries are crucial to the economic well being of fishermen on the Caithness and Sutherland coast. In Seafish Report CR No. 40 'The Creel Fisheries of Caithness and Sutherland - Prospects for Development' proposals are put forward for enhancement at a number of sites on the north coast.

The legal matters relating to ownership of the released animals and rights of access to the seabed are likely to be major barriers to this type of enhancement and are issues in which the Council could play a leading part. Each site will need to be surveyed, a Several Order obtained and the lessees organised in such a way that the cost of the hatchery reared lobsters are paid for from a licence fee. This is one of the issues which could be dealt with under coastal zone management which is discussed elsewhere in this report.

The market for UK lobsters is currently threatened by cheap imported lobsters from Canada. It remains to be seen if the favoured positioned of the native lobster in the market place is able to be sustained.

4.5.6.2 Molluscs

Mollusc production in the Highland Region is currently limited but there is considerable potential for expansion. The insignificance of the present industry is illustrated by the following figures:-

Farmed Mollusc Production 1990 - Scotland, Highland, France			
Species	Scotland	Highland Region	France
Oysters (mainly gigas)	114 tonnes	8 tonnes	130,000 tonnes
Mussels	500 tonnes	100 tonnes	45,000 tonnes Bouchot culture
Scallops and Queens	100 tonnes	15 tonnes	Insignificant

Whilst it is believed that the Scottish and Highland Region figures are very much understated there is clearly a substantial imbalance in production between Scotland and France with the exception of scallops. This has created enormous marketing difficulties and it will be essential for Scottish growers to establish a niche in the market capitalizing on quality and wholesomeness. Building up volume production will merely depress the trade price.

Shellfish farming has not developed as quickly as it was hoped in 1979, although there have been some new investments, notably in a scallop hatchery and new production. The main problem has been the absence of an integrated industry projecting the quality and wholesomeness of Scottish or Highland grown produce and aggressively attacking opportunities in the market.

Overproduction of gigas oysters and mussels in France in recent years has resulted in a sharp fall in price and there is little to be gained by Scotland trying to compete on the level of volume production. On a large scale, the bulk of production would have to be exported to France or Spain as the main consumers and the slower growth rate and higher transport costs would be wholly uncompetitive.

There is an opportunity to find niche markets in the EC including the UK for both gigas and the native oyster (edulis) emphasising quality produce. These will be relatively small and must be aimed at the restaurant and tourist trade. Scotland has bonamia free and suitable clean water for the edulis which is in short supply on many natural beds in France and the South Coast of England. Another difficulty faced by growers of oysters is the undercutting of market prices by some Member States in the EC possibly by the means of Government support.

Scottish rope grown mussels, too, can find market niches in the restaurant and tourist trade, but except for seasonal opportunities they cannot compete with bulk production in France or even from the wild stocks in the Wash. There are opportunities for small (circa 50mm) rope grown mussels when French bouchot cultivated mussels are in short supply between December and March. Wild mussels from the Dornoch Firth used for relaying elsewhere in the UK are now finding new markets for the fully grown produce in France and elsewhere. Systematic development of this fishery and its markets should be encouraged as part of the Highland Regional Council strategy.

The best opportunity in the Highland Region for molluscs may well be the scallop (King scallop or Pecten maximus). This species occurs naturally as spat in the Spring at various sites on the West Coast where it can be collected by net bags suspended on lines. The spat are sorted and can then be grown to a size of about 40-50mm in lantern nets also suspended from lines. There are three choices for ongrowing - continuing in the lantern nets, ear hanging (individual shells hung by the corner which is drilled for the purpose) or seabed relaying. The latter has considerable potential and, provided there are ownership rights to the seabed, this is probably the most cost effective way to proceed.

The French market is currently undersupplied from domestic production. In all mollusc production it is important to try to retain as much added-value in the Region rather than releasing the raw material into the distribution chain where it has to compete with wild stock and produce from the major growing countries.

The Association of Scottish Shellfish Growers are the main representative body with 80% of growers represented. The ASSG should be encouraged in its own initiatives to pull the shellfish sector together, but it will need political and financial support.

4.5.7 Strengthening the Aquaculture Sector

Throughout the World, aquaculture can be expected to play a greater part in fish supplies in the 21st century. It can take the form of straight forward cultivation or stock enhancement or a mixture of both.

Scotland and the Highland Region in particular possess some natural advantages in benefitting from aquaculture. The Regional Council can take a leadership role in bringing together all those concerned with aquaculture in the Region to work out a long term strategy and find means by which the barriers to expansion mentioned earlier can be broken down.

4.5.7.1 Confidence needs to be restored among the salmon growers. To a large extent these problems are matters for the growers themselves, but political support should be available to obtain EC legislation which gives growers the same protection as fishermen from overproduction or price cutting by other countries. If the Scottish salmon growers fail then aquaculture will be severely set back in the Region for many years. Current research into disease and its causes is taking place, but there is a need to be able to have access to more water area to avoid too close concentrations of cages and allow for some resting of sites. Research into offshore farming in sea cages requires financial support.

4.5.7.2 Diversification into other finfish species is an essential part of the strengthening of the aquaculture sector. The most favoured species at present is halibut for which most of the basic but nevertheless empirical work has been done. Additional effort and funding is needed to help make the transition from the research currently being carried out at Seafish Ardtoe into commercial production. There are few other finfish species which are likely to be commercially viable in the short term. In the longer term lemon sole may be a candidate but there is a need for some basic research.

4.5.7.3 Trout cultivation could probably be increased in the Highland Region since the UK and EC markets are relatively buoyant and UK production is below domestic requirements. One possible development which could be encouraged by the Region is to set up hatchery facilities. Most eyed ova and fingerlings are imported from Denmark, Tasmania and South Africa. The latter two mainly to provide out of season stock.

4.5.7.4 The coastal fishermen in the Highland Region are heavily dependent on lobster stocks and in some areas these are depleted. Lobster release of hatchery reared animals can probably enhance these stocks. The main barrier to overcome is to obtain a Regulatory Order for a site and then to organise the users of that site in such a way that it is properly harvested and income is generated from licences. Some protection is necessary to counter cheap imported lobsters from Canada.

4.5.7.5 The best opportunity in mollusc culture may well be scallops (Pecten maximus) and current research points to either growing on longlines or by laying out on the seabed. If, as is expected, seabed culture is more cost effective then there is an immediate need to simplify the processing of Several Orders, seabed management and orderly harvesting of these sites. The Regional Council could play an important part in helping this industry become established and these issues will be looked at again in Section 6 on Management of the Inshore Area.

Edulis or the native oyster too offers promise for the Region because of the bonamia free waters and the keen demand for this species.

Other molluscs such as mussels and gigas oysters must be seen in the context of international supplies. The Highland Region is capable of producing a high quality produce and it must try to emphasize this in establishing niche markets in the EC including the UK.

The EC Directives on classification of shellfish waters and health and hygiene relating to molluscs need to be considered in the context of the Highland Region and the catching and cultivation centres given every help to conform to the requirements. The Council should exercise strongly its influence on the Highland River Purification Board to maintain and impose water quality criteria in coastal zones.

4.5.7.6 The most important assistance which could be rendered by the Regional Council is to take a lead in developing a strategy for aquaculture for the West Coast and Islands, which aims to remove the barriers to expansion and to promote the industry on the basis of its quality and wholesomeness. The Regional Council should establish an Aquaculture Development Unit (ADU) to co-ordinate activities in the Region and which would become a focal point for development. The ADU would consist of a small full time team of development officers to co-ordinate the planning of shellfish and fish farm projects including onshore and offshore aspects. They would also prepare the case for Several and Regulating Orders and progress these through the Scottish Office as expeditiously as possible, and they would give advice to the Council and other grant aid bodies on the most sensible use of funds. It is suggested that the ADU should be based in the Fort William area and it should be closely associated with the Seafish Marine Farming Unit at Ardtoe who are already carrying out much of the supporting research and extension work.

The existing Area Development Officers should also become involved in the work of the ADU and be the first point of contact for new and existing growers.

The strategy for aquaculture would be developed by the ADU and an advisory Committee consisting of the Scottish Salmon Growers Association, the Association of Scottish Shellfish Growers, the Seafish Marine Farming Unit, Ardtoe, the Highlands and Island Enterprise, Marine Laboratory, Aberdeen of the Scottish Office and Stirling University and selected voluntary bodies such as the Marine Conservation Society. The Committee would meet not less than twice a year to assist with the implementation of the strategy.

4.6 The International Trade in Fish

Although the international trade in fish supplies may seem, at first sight, to be far removed from the Highland fishing and aquaculture sectors it is important to take account of the main trends so that the Region can make best use of its opportunities.

A secondary study has taken a detailed look at the Nordic group of countries where it was possible that some similarities with Highland Region might provide useful ideas. Iceland, Faroe and Greenland depend heavily on being able to export fish and fish products into the European Community. The study is reported in Seafish Internal Report No. 1415. The issues relating to salmon production in Norway are described in 4.5.1.

Whilst acknowledging that there is a potentially dangerous gap between the presentation of past trends and the prediction of future developments, aggravated in this instance by the absence of data for the last two or three years, it seems likely

(a) That the UK will continue to rely heavily upon imported supplies of fresh and frozen fish in order to sustain its processing industries and consumer markets; and

(b) That the Nordic countries will continue in their role as leading suppliers of whole fresh and frozen fish to the EC;

(c) That the search for alternative supplies outside the North Atlantic will have only a marginal impact on the overall situation in the UK.

The North Atlantic region is unlikely to share in the global expansion of catches. Most stocks of commercial food fish in the North Atlantic are already fully exploited and, in many cases, overexploited. New resource management policies, based upon sound conservation practice, are unlikely to yield any significant improvements to stocks in the short term. This is reflected in the quota position shown in Table 8. At best, it is likely to be nearer the end of the 1990s before the benefits of such policies are realised. The level of catches, therefore, seems certain to be held at, or even below, existing levels for most national fishing industries within the region. Economic and political pressures to expand the fishing industries of the North Atlantic may succeed in moderating the resource management strategies, but the underlying poor state of the stocks will prove a major barrier to significant increases in catches.

There is no reason to expect a decline in the level of consumption except where supplies fail and/or prices are subject to unusually sharp increases. On the contrary, consumer demand is expected to grow throughout both the developed and less developed world regions during the 1990s, as supplies become more accessible and as the dietary value of fish products becomes more widely recognised. The rates of increased demand are likely to vary between regions partly in response to differing population growth rates and the structure of consumption will change in line with increased purchasing power.

From the Highland Regions point of view with the exception of farmed salmon and shellfish the Region is unlikely to be able to make a major contribution to the international trade. The primary benefit of fishing activity and aquaculture in the region is as a source of income and employment. Consumer demand will remain good and there could be an increased demand for quality fresh products both from fisheries and aquaculture. The Region should, therefore, seek to capitalize on certain high quality markets for those products it can economically produce.

4.7 Common Fisheries Policy and Coastal Zone Management

4.7.1. Origins of the CFP

The Common Fisheries Policy (CFP) was introduced in 1983 setting out Community legislation in the field of conservation and management of fishery resources and structural programmes for the fishing fleets, port facilities and processing. The process started in 1983 will be completed with the creation of the Single European Market in 1993, in so far as that applies to fisheries and fish products. The management and structural programmes though due for a review in 1992 was established to run through to 2002.

The CFP, however, has its origins in the Treaty of Rome in 1957 which envisaged Fisheries as part of the common agricultural policy. Article 39 of the Treaty of Rome summarised the Community aims in fisheries :-

- to increase productivity
- to secure the future for the industry and adequate living standards for those working in it.
- to stabilize markets
- to guarantee fish supplies to the consumer at reasonable price

The Treaty of Rome also incorporated the principle of non-discrimination between Community citizens and this was originally taken to denote free access to all Community waters by all Community fishermen. With the accession of Denmark, Ireland and the UK into the Community in 1973, an exception was made and this resulted in the situation we understand today in which the UK has jurisdiction out to 12 miles, but with the recognition of historical rights of access between 6 and 12 miles.

With the accession of Spain and Portugal in 1986 to the Community the exceptions to free access have been challenged and the recent European Court of Justice ruling that Spain could operate vessels in UK waters under the British flag provided they have a pressure stock or multi species licence shows the vulnerability of UK historic rights to control its coastal zone.

4.7.2 **The CFP in the Future**

The Commission is now required by Community legislation to forward to the Council by 31st December 1991, a report on the fisheries situation in the Community, the economic and social development in the coastal areas and the state of the stocks and their likely evolution in the future.

It is worth restating at this point the principal elements of the CFP :-

- fixing total allowable catches and allocation of national quotas

- technical conservation measures to protect young fish

- inspection and monitoring to ensure that the Community legislation is being observed

- organisation of the market, setting standards of quality, formulation of producer organisations and fixing of guide prices

- external trade policy to stabilize the market

N.B: (None of the marketing policies have any direct bearing or benefits on salmon. Salmon does not come within the scope of the CFP).

- structural policies to assist modernisation but only in relation to opportunity

- scientific and technological research

- international relations and especially fisheries agreements with third countries

Access to coastal waters is likely to be one of the key issues in the mid-term review. Changes to the CFP can, therefore, pose threats to the Highland Region but they can also create considerable opportunity for inward investment.

Indiscriminate fishing by other Member States in coastal zones could be disastrous for the well being of stocks in the future. Equally increased fishing effort by unlicensed vessels of under 10m on behalf of buyers from other Member States would result in serious damage to stocks. Seafish advise it is absolutely essential to retain management of the coastal zones and with a strong local involvement to ensure that whoever fishes there is abiding by the same technical measures.

On the credit side the proximity of the Highland Region to fishing grounds which sooner or later are likely to be used more frequently by other Member States such as Spain and Portugal and the current strong demand for crustaceans and some molluscs by these countries creates an opportunity for joint ventures with Highland investment. The basis of such joint ventures, however, should be closely controlled and the maximum wealth and job creation retained within the region.

It should be noted that the non-discrimination policy of the Community already permits foreign investors to set up anywhere in the Community and with the latest ruling of the Court of Justice, they can now operate vessels subject to having a pressure stock or multi species licence. This situation should be turned to advantage wherever possible.

4.7.3 Peripheral Regions

Enshrined in the Common Fisheries Policy is clear support for the fisheries of coastal regions where communities depend on fishing for employment with few alternative opportunities. The West of Scotland has already received preferential grant status for building aid for boats. It follows that in the coastal waters of such a region CFP policy should favour the indigenous fishers of the coast. It is suggested that the Council should press for a policy which favours the continuation of and protection from predation of the fishery within the twelve mile limit prosecuted by local fishermen. This policy should, however, recognise the historical pattern of the local fishery and should not, therefore, limit the existing effort by other larger UK vessels except where independent scientific advice can prove undue interference with the inshore fishery.

Due to the drawing of UK base lines to the West of the Hebrides the Minches are retained as an exclusive UK fishery zone.

Essential to the orderly management of such a policy is a degree of local involvement on a formal basis much more akin to that exercised in England and Wales through the Sea Fisheries Committees but involved in the wider aspects of coastal zone management from sewage disposal to extraction of sand, gravel, natural gas, oil and in the future minerals.

4.7.4 Management of the Inshore Areas

The Inshore Fisheries Scotland Act of 1984 established the direct control of the Secretary of State for the waters around Scotland out to the six mile limit.

Various measures were taken at that time which on the one hand removed the old three mile limit to trawling and on the other hand established a series of restricted areas where only static gear fisheries could take place for part or all of the year. A system of consultation with interested parties was established.

On the other hand England and Wales have had in place Sea Fisheries Committees with responsibility for the management of sea fisheries within the three mile limit since the last century in some cases. These committees are funded by local Government.

They may propose byelaws which must be approved by MAFF and they have regulatory powers and their own surveillance staff.

The Minister has recently approved the request by Committees to extend their jurisdiction to six miles if they should wish to.

The shortcoming of the SFC approach in the 1990s is that they are specifically set up to control inshore fisheries. The challenges facing Regional authorities now involve the much wider issues of the use or misuse of inshore waters. These include the question of allocation of the licences to farm fish; to extract aggregates from the seabed; to dump sewage and other effluents; oil/gas and mineral extraction, property development and conservation zones.

Meanwhile a multitude of voluntary bodies has been established to promote their own interests in the coastal area from birds protection to the monitoring of radiation.

It is, therefore, suggested that the Highland Regional Council establish a pilot scheme in close association with the Western Isles, Orkney Isles and Shetland Islands Councils to take on the wider role in the management and development of these important coastal waters. In other words coastal zone management (CZM). Such a scheme should include a large measure of local control. What is undoubtedly true is that the fishing industry almost unanimously subscribes to the view that more effective control of their activities is necessary. The principal concern is the absence of licensing and monitoring of the activities of the fleet of boats of less than 10m overall length. This sector comprises some 60%-70% of the Highland owned fleet. The second principal area of concern is the unlawful landing of fish excess to quota at remote or underused piers, thus undermining basic conservation policies.

Under existing law, various Government Departments and the Crown Estate Commissioners exert their powers over inshore waters. The onshore zone is the responsibility of local and Regional

Councils. Of interest is the precedent set by Shetland Islands Council where they have a degree of planning authority within territorial waters.

Whilst under existing legislation, the Regional Council, have no jurisdiction in offshore areas it is acknowledged that they have endeavoured to influence orderly development within the coastal zone. In particular the production of 'Fish Farming Framework Plans' including site evaluation and comment on environmental impact across a number of sites.

Other countries have already faced up to the question of inshore management, most notably the United States with the Chesapeake Bay Agreement and a similar conservation approach in Queensland over Great Barrier Reef waters. These initiatives have, however, been carried through under quite different legal regimes and cannot necessarily be used as models for the Regions in the North of Scotland.

With a declared policy of conservation and orderly development supporting funding from EC should be sought for administering a scheme of CZM. Within the wider issues, the fundamental approach to conservation of fish stocks and the orderly development of fishing and fish farming in the Highland Region will require liaison with the three Island Councils and if possible a common approach to Brussels as well as discussions with the Scottish Office. The Western Isles Council have proposed the extension of the Shetland box to areas west of the Hebrides in EC waters outwith the UK exclusive zone. This is an issue which needs to be considered by all Regional Councils in northern Scotland.

On the question of licensing and monitoring of the effort of the fleet of small vessels the Council should lobby for the extension of the present regulations to cover this fleet and be willing to take some responsibility for a licensing scheme.

The licensed net fishery for wild salmon, originally a seasonal occupation for a large number of local fishermen particularly in the Black Isle, Caithness and Wester Ross has all but disappeared.

The Atlantic Salmon Trust has succeeded in reducing the commercial fishery to only a handful of fishermen on the grounds of their arguments for conservation. Indeed the Trust has recently purchased the rights of Faroese fishermen to take salmon at sea around these islands.

The Northumberland/Yorkshire drift net sea fishery for salmon is due to close by the revocation by HMG of all licenses in five year's time. Figures which are published for the latter fisheries by MAFF do not indicate that fishermen obtained a major part of their income in North East England from the salmon fishery but nonetheless the diversion of effort from the white fish fishery in summer months was significant and cannot be disregarded in these times of severe constraint at effort on whitefish stocks. The total commercial catch of salmon in Scotland in 1990 was about twice that in Northumberland/Yorkshire nevertheless the same comment must be made that any alternative fishery in the present circumstances is to be encouraged, all other things being equal.

It is doubtful if this consideration was taken into account however in the deliberations of the Trust.

The question of the wild salmon fishery is surely another appropriate subject for the forum of the proposed Coastal Zone Management Group.

Concurrent with the preparation of this report, Highland Regional Council have presented a submission to Brussels outlining a policy of support for conservation and the development of the inshore and offshore fisheries of this 'peripheral region'. The concept of Coastal Zone Management with significant local proposals by the neighbouring Islands Councils for 'Shetland Box' type fishing limitation in offshore areas.

4.8 TRAINING IN THE HIGHLAND REGION

4.8.1. Introduction

The training needs of the fish industry as distinct from aquaculture in the Highland Region are currently met by a variety of training institutions, regional and national bodies and other training providers. A wide variety of courses are available including short and long college courses, in-house courses and Open Learning courses for fishermen and the onshore sector.

The needs of the fish industry for training may be broadly grouped into those courses leading to mandatory qualifications e.g. safety and boat handling certificates, those courses leading to other qualifications, and training courses for specific needs, such as fish filleting, that do not necessarily lead to a specific qualification.

The training situation in the Highland region has undergone changes recently. Courses such as the Class II ticket offered by Thurso College have been lost, but provision for this training is available in the Grampian region. Safety training for fishermen became mandatory several years ago and training courses are currently available from the Fish Industry Training Association (FITA). Training courses for the aquaculture sector have been available from Inverness College of Further Education for more than 10 years, while short courses are often available from other institutions in the region. With the welcome development of the Kishorn Sea Field Centre, aquaculture training in the region should compare favourably with that available anywhere else in the country. There is a wide variety of shorter courses available from various training institutions, FITA and private training providers which should be able to satisfy the majority of the training delivery needs of the fish industry for the future.

Trends in the fish industry have been discussed in detail elsewhere in this report and it is apparent that despite the recent expansion in the numbers of non licensed boats operating in the region, and a recession in the aquaculture sector, there are unlikely to be any major changes in the composition of the workforce of the fish industry over the period this study represents. The need for training should come from existing staff, and the need to provide appropriate training more closely matched to the requirements of Vocational Qualifications, rather than any expansion in the industry.

4.8.2. <u>The Needs of the Region</u>

While it appears that the training needs of the fish industry in the region are well catered for there are a number of problems that need to be addressed.

A characteristic of the fish industry in the Highlands region is the high degree of geographical dispersal. This has created a problem due to a lack of local training centres and training deliverers offering training courses for the fish industry. Typically trainees have to travel long distances within the region to attend training courses which are often not organised to minimise the disruption to persons in employment.

While there are a number of Highland Regional Council training centres throughout the region few offer training courses to the fish industry at the present time, although many have resources that could be used to support fish industry training. The flexible use of all training resources in the region should be encouraged to provide training at the most convenient time and place possible.

The standard of training available to the fish industry in the region is generally very high although it is apparent that there are problems with transferring information from the classroom to the workplace. This need to make courses more applicable, with more positive learning outcomes, will be given greater impetus with the introduction of Vocational Qualifications.

There will need to be a continuation of the development and refinement of training courses to meet these demands, and such development will be assisted by the existence of regional bodies to facilitate training. The various sectors of the sea fish industry are assisted by the Fish Industry Training Association (FITA) (Highlands) but no equivalent body exists to represent the training interests of the salmon and trout and shellfish growers.

FITA's role is a varied one, providing direct training in safety and hygiene courses, commissioning training delivery from third party providers, assisting the placement of trainees with training bodies, supporting Open Learning, assisting with the development of occupational standards and implementation and administration of Scottish Vocational Qualifications and, in general raising the profile of training within the sea fish industry in the Highlands and Islands region.

A number of initiatives are under way at present including the Kishorn Sea Field Centre, Seafish Training's Maritime Open Learning project and a proposed study into Open Learning for the aquaculture sector. Such initiatives are to be commended.

There is also a need to increase the relevance of some training courses to the practical requirements of the fish industry. With the advent of Vocational Qualifications for the industry there is increasing pressure for training courses to lead to definite competence based outcomes and there will be a need for existing training courses to be evaluated and adapted to meet these standards. If current training materials are unable to meet all of the requirements of Vocational Qualifications then new materials and courses will need to be produced, a task that organisations such as Seafish Training are addressing for the sea fish industry.

The development of occupational standards based on competence and leading to nationally recognised Vocational Qualifications is possibly the single most significant development in training at the present time. Seafish Training in conjunction with the sea fish industry is completing the development of a range of Vocational Qualifications for the catching, processing, retailing and frying sectors and is developing a system of assessment and verification which will operate around the network of Training Associations. A range of similar Qualifications for the aquaculture sector is under development by the Joint Council for Fish Husbandry and Gamekeeping in cooperation with the relevant Industry Associations.

4.8.3. Training and Associations and FITA

The Seafish funded network of Training Associations which draws it membership from the sea fish industry has the responsibility for representing the training interests of the industry in each region, for providing a forum for the discussion of training issues, and for facilitating appropriate training for the industry.

The Highland and Islands region has the Fish Industry Training Association (FITA), recently formed as an amalgamation of the North West Scotland Fishermen's Training Association and the Highland and Islands Fish Processors Training Association. FITA is jointly funded by Seafish and Highland and Islands Enterprise and its remit is to be widened to include retailers and fish friers.

FITA's role of facilitating training includes the provision of direct training in the form of mandatory safety courses, the organisation of a variety of short training courses such as food hygiene, supervisory skills, net mending etc. to meet the specific needs of industry members, the administration of Seafish training support grants and maintenance grants for voluntary training, liaison with regional bodies including LEC's for funding support for training, support of Seafish Training's Open Learning Programme, and the development of new training courses to meet changing needs and legislative requirements. FITA has had some involvement in the development of Vocational Qualifications and will provide essential administrative support for the implementation of the system of assessment and verification for Vocational Qualificiations for the sea fish industry. FITA could perform the same service for the aquaculture industry in the Highland and Islands region.

Future roles for FITA will be greatly influenced by the introduction of further mandatory training requirements (food hygiene regulations) and the take up of Vocational Qualifications. Seafish has identified a need to provide more flexible and appropriate training, increasingly directed towards job functions and complementary to the structure of occupational standards. This need for more appropriate training with positive learning outcomes has also been supported by comments from the aquaculture sector.

Although there is a great deal of commonality between the fish catching and processing sectors and the aquaculture sector regarding training needs (eg.. Boat handling, Safety, Hygiene, Supervisory skills), FITA does not have a remit to provide training to the salmon and trout growers except on commercial terms. If FITA's role is expanded to accommodate the needs of the aquaculture sector then additional (non Seafish) funding support could be made available and members of this part of the aquaculture sector would receive the same level of training support as other members of the fish industry.

The proposal to form an Aquaculture Development Unit (ADU)) outlined elsewhere in this report indicates a logical point of contact with FITA since the ADU would be best placed to identify the timing and location of courses and to be a link with growers and the Seafish MFU.

The provision of this level of training support may go a long way towards solving the aquaculture industry's perceived need for a variety of management related training courses, while FITA would also be able to act to facilitate the provision of more accessible short husbandry courses for the industry.

4.8.4 <u>Industry Audit</u>

A number of surveys and studies have been carried out by various bodies during the last two years, examining aspects of the fish industry in the Highlands. One such study soon to be completed, is a Workforce Audit commissioned by Seafish Training. The Workforce Audit is intended to provide a definitive study of the sea fish industry workforce, to enable strategic planning of training needs to be carried out for each sector of the sea fish industry for each region of the UK. In some regions it will be necessary to conduct a follow up structural study using face to face interviews with members of the industry.

Seafish Training is currently evaluating the need for a structural study of the Highland and Islands region, for the sea fish industry. Although a number of other studies have examined aspects of the fish industry in the Highlands, it appears that the data collected by these studies would not provide the same range of data or the same degree of uniformity that would be achieved by a properly structured study. Such a study would interview approximately 20% of all companies involved in the industry in the region and would provide workforce data on age and sex distributions, training and educational achievements and needs, rates of staff turnover etc. and could be carried out under the direction of FITA.

A recently completed study of the fish farming industry of Scotland has produced valuable information concerning this industry's training needs. The results of this study will have to be evaluated in the light of the proposed structural study of the sea fish industry in the Highlands and Islands. There may be advantages to be gained by adding the aquaculture industry to the scope of the proposed structural study. A recommendation regarding this will be made after suitable consideration.

If the aquaculture industry is to be included in the study then it is outside of the Sea Fish Industry Authority's remit to directly recomend the inclusion of the salmon farming sector. The Council may wish to press Highlands and Islands Enterprise to either carryout such a study or provide the funds for its completion.

4.9 <u>Seaweed Development</u>

A separate study into the potential for seaweed cultivation and processing in the Highland Region has been carried out by Dr. Julian Clokie of the Sea Vegetable Company. This study is contained in a separate report and the main points are summarised as follows.

4.9.1 The wild growing seaweed resource in the Highland Region is already being exploited on a small scale and there is potential for a cultivated resource. Sales of raw material however will be at a disadvantage in the World markets because of subsidized production elsewhere. Wild or cultivated seaweed from the Highland sources can be high grade, pollution free but effort must then focus on added value products. About 15% (65 species) of seaweed growing in the Highlands have commercial potential.

4.9.2 The World markets for seaweed products are considerable.

Sea vegetables - in excess of	£3.0 billion
Alginic acid and its derivatives	£380 billion
Extracts	£10 million
Fertilisers	£10 million
Thallassiotherapy and beauty aids	£40 million

Finding opportunities in the World market for Highland product will be critical to the success of the development plan. Harvesting of wild seaweed in the Highlands currently is worth about £0.1 million and there is an additional £1.2 million added to the Regional economy by way of alginic acid production using imported material.

4.9.3 The study of sea weed utilisation recommends the simultaneous development of added value industries - chemicals, whole extracts, sea vegetables, bulk and fermented fertilisers and soil improvers, thallassiotherapy, health and beauty aids, craft and artistic material and nutrient strippers for use with sewage and agricultural effluent. Some of these processes require high levels of supervisory and workplace skills and quality control. As well as local training it would be necessary to include some technology transfer probably from Japan and France.

4.9.4. The study also recommends a system of control of seaweed harvesting and allocation of cultivation space to producers. (This matter can be dealt with as part of the Highland Region coastal zone management). Removal of seaweed from the shore or littoral zone can be ilelgal under the Wild Life and Countryside Act 1981.

4.9.5. There is a need to investigate the economic viability of a seaweed industry and determine which activities are most promising. The recommendation that only added value products would be competitive from the Region is consistent with the findings elsewhere in the main report. The author of the seaweed study argues that most, if not all, other seaweed producing countries have some form of subsidy which place Highland at a disadvantage in major bulk markets. However there is scope for the development of products for niche markets.

5. LOOKING AHEAD

The terms of reference required a forecast to be made of important trends so that the Highland Regional Council could relate its structural policies to a background of changing fortunes for the fishing and aquaculture sectors.

5.1 The Resources

Section 4.3 reported on the fish landings in the Region and how these had changed in the years since 1986 (Table 6). Table 8 shows the quotas for the main species in the ICES Areas directly relevant to the Region.

As regards the demersal stocks there are little grounds for optimism in the near future. Almost all the demersal stocks are overexploited and the fishing effort is gauged to be too high.

The situation particularly as regards cod and haddock is clearly of a downward trend with quotas chasing catches and predictions of a continuation of this trend unless and until fishing effort is reduced. This is in spite of the imposition of conservation measures such as the eight day per month tie up and increased net mesh sizes. In fact, the 1990 year class of North Sea haddock was one of the best for several years, but predictions are that an insufficient number of these fish will survive to maturity with existing mesh sizes remaining an option. Unfortunately what was until 1989 regarded as a North Sea problem for these stocks is now equally a problem on the West Coast. The problem there is exacerbated by the fact that though Area VIa, West Scotland haddock stocks are known to be weak, less is known of the Rockall stock Area VIb. The regulatory bodies claim that it is not practical to separate these areas for this purpose of control. Therefore, reduction of effort in one subdivision immediately affects the other and conversely, any relaxation of restriction allows a general relaxation across the area.

Stocks of megrim and anglers (monkfish) are being taken in increasing quantities by Scottish vessels generally fishing along the slope at the edge of the Continental Shelf instead of on the shelf itself. These fish are making a valuable contribution to landings in Northern Scotland and to some extent making up for the shortfall in quantity of the lower priced value species. Landings into Scotland from Areas VIa and VIb in 1980 totalled 1056 tonnes of monks and 432 tonnes of megrims. In 1989 the totals were 2545 tonnes and 1282 tonnes respectively. Indeed monks had become the fourth most important species by value.

The West of Scotland herring stock and mackerel appear to be in good standing but the home market is still weak and the political situation in Eastern Europe has affected the klondyking operations. The herring roe market in Japan is also uncertain. The resources are available but until the market stabilizes it would be advisable to avoid major West Coast investment. There is, however, an increasing trend in landings for onshore processing in Scotland see Sections 4.4. and 6.3.

The nephrops fishery of the Minch is apparently falling short of the UK quota allocation although it is believed the precautionary TAC which decides the quota is probably too high. Nevertheless the nephrops resource can probably be sustained through the 1990s, but it is the view of Seafish that the resource needs to be better managed to avoid waste and reduced value to the Region.

Insufficient information exists about the crustacean resources in the coastal zones but it is prudent to assume that many areas are overfished and the coastal fleet will have to consider working further offshore (see also Seafish report CR40).

5.2 Fleet Capacity

The UK fleet is some 40% over capacity in relation to the multi annual guidance plan targets set by the UK Government in accordance with EC policy. Unless there is some reduction, the pressure on demersal stocks in particular will continue and the possibility of a recovery will be continually put back.

The reduction in capacity hinges on an acceptable de-commissioning scheme. Both Government and industry see the merits of a scheme but disagree on how it should be funded. The scheme would however only apply to the pressure stock licenced vessels (above 10m overall length) and as indicated in Section 4.1 there has been a growth in the unlicensed group of vessels. A consequence of de-commissioning of the larger class of vessels could be a further increase in the unlicensed group as fishermen decide to continue the only profession they really know and enjoy.

The combined effects of reduced catches and a smaller fleet of larger vessels (20-24m) could have an adverse effect on the viability particularly of Kinlochbervie. The increased number of small vessels will correspondingly increase the usage of small ports and landings places in the Region.

5.3 <u>The Common Fisheries Policy CFP</u>

Major changes are unlikely until the year 2002. In the short term there could be some changes in 1992 in the access by other Member States to UK waters and this report recommends that the Council oppose such moves on the grounds that the coastal zones urgently need an adequate management regime if they are to be protected.

It is the right of every Community citizen to be able to live and work in any Member State. This could include investments in fishing and currently there are some 90 vessels registered in the UK, but owned by Spanish nationals. This trend could continue provided that licences can be purchased or obtained in some way. Inward investment in the Highland Region especially in shellfish processing is needed and should be encouraged.

5.4 Coastal Zone Management

Interest in Coastal Zone Management (CZM) is likely to assume greater momentum through the 1990s. The relationship between fish farming and fishing is important and as more farm sites are approved the possible conflict with fishermen will increase. Nevertheless some fishermen are now actively turning to farming. Both sectors are likely to come into conflict with voluntary and statutory organisations. The coastal zone too will be exploited for a variety of purposes such as leisure, property development and conservation zones.

It is in the interests of the Council to exercise influence on CZM at an early stage.

5.5 Aquaculture

The opportunities for aquaculture depend very much on the short term future of the salmon industry. There is considerable potential in developing new markets provided the industry is supported and encouraged to improve and become more integrated. Halibut culture should during the period of the Structure Plan become a viable addition to salmon culture. Shellfish is likely to remain relatively small with the best prospects in scallops and to a lesser extent native oysters (edulis).

6. CONCLUSIONS AND RECOMMENDATIONS TOWARDS THE FORMULATION OF A STRATEGY

6.1 Conclusion

The primary benefit of fisheries in the Highland Region is that they provide a source of wealth and employment in rural areas where there are few other opportunities. Production from the regionally based fleet, as distinct from the visiting fleet, will always be relatively small as will the volume of demersal fish processing in the Region. For this reason it is important that the coastal zone resources are safeguarded and that maximum added-value is made within the Region to fish and shellfish within the constraints of supply. It is also important to recognize that in the period of the 1980s there has been a significant increase in the number of inshore fishing boats owned within the Region and depending for their livelihood on the coastal zone and this has important effects on the need for harbours and landing places.

Aquaculture is dominated by salmon cultivation and although the prospects for salmon remain good there are some short term problems which if not solved could set back the aquaculture sector by several years. The region has good potential for aquaculture and this also applies to the Islands and parts of Strathclyde. The Regional Council should consider forming an Aquaculture Development Unit located at a convenient location and working closely with Seafish Marine Farming Unit, Ardtoe and other bodies involved in aquaculture. The ADU's first priority should be to develop and implement a strategy for aquaculture in the Region into the 21st century.

In both fisheries and aquaculture the Highland Region enjoys the benefits of clean, pollution free waters and a healthy atmosphere. These need to be emphasised within existing promotion of fish, shellfish and products. The future demand for fish, shellfish and products is good, but the Region has to find a special place in the quality markets of the EC.

6.2 Small Harbours and Other Fish Landing Places

The Highland Region has a multiplicity of small landing sites. The main direction of investment in recent years has been in developing Kinlochbervie and Gairloch and currently Lochinver as harbours serving the large fleet of visiting East coast fishers and a few local boats. The principal harbours for local boats are the two trust ports of Mallaig and Wick. 460 of the local fleet of 573 boats are of boats of less than 12m in length and of these about 400 boats use HRC small landing sites.

The ownership of this latter fleet is located at numerous villages and hamlets along the coasts of Highland Region including Skye, and the adjacent islands.

There has been a 200% growth in this fleet since 1980 which has correspondingly increased the use of small landing places. There are very good practical as well as social reasons that these boats should work from these small centres of population.

It is, therefore, recommended that the upgrading of facilities at these landing places where required is given priority and where alternative sites are suggested in the Report that these are considered. It is acknowledged that the Roads Department are well aware of several of the shortcomings mentioned and are already considering solutions. The total investment in this process of upgrading is estimated at about £530,000. In 6.2.2 the priorities identified are listed.

A related area worthy of consideration for investment is the provision of fish/shellfish holding facilities.

The increasing demands for quality products in the market place which given the right interface can undoubtedly be supplied from Highland allied to the new fish hygiene requirements dicate support for investment in holding facilities.

Seafish Report NO. CR40 recommends the provision of live storage and cold storage facilities for the use of fishermen to be strategically placed along the coastline of Caithness and Sutherland. It is the Seafish recommendation that the Regional Council consider investing in these facilities along the entire Highland coastline.

The cost of these developments should be recovered over a reasonable period by charging for their use. Capital costs are estimated at about £80,000 for cold storage. Vivier storage capital costs are very dependant upon availability of suitable sea water supplies etc.

6.2.2. Priorities Identified

The study has identified priority areas for investment in small harbours other fish landing places and associated infrastructure.

6.2.2.1. The Provision of a Suitable Fish Landing Place to serve the fleet operating off West and South West Skye

Discussions have already taken place between Highland Regional Council and Skye and Lochalsh Fishermen's Association. Top priority should be given to the proposal to reactivate Carbost Distillery Pier. A large fleet of some 15 local boats plus several visiting boats at present mainly operating out of Elgol is seriously disadvantaged and indeed is vulnerable from the point of view of safety due to a lack of sheltered berthage in the area. Carbost Distillery Pier is an attractive alternative to the present pier at Elgol.

6.2.2.2. The Extension of the New Jetty at Old Dornie, already under consideration by Roads and Transport should be given priority

The local fleet are seriously disadvantaged in terms of being able to land safely across an adequate 'tidal window'.

The existing situation has adverse implications in terms of fish quality deterioration as well as safety aspects.

6.2.2.3 Investment in Cold Storage for Catch and/or Bait and in Live Holding Facilities for Shellfish

The benefits of the availability of holding facilities at selected landing places along the Highland coastline cannot be overemphasised.

The Highland fishery requires to maximise on the quality of the catch 'taken from unpolluted waters' and retention of this quality can be greatly improved by the availability of conveniently placed temperature controlled stores. These can also be used to hold bait for creel fishermen.

Equally the ability to hold shellfish live in controlled clean tankage easily accessible to transport links will transform the efficiency and profitability of the crustacean fishery sector.

6.2.2.4 Priority must be given to additional protection for berthage at John O'Groats

This modern harbour supports about a dozen shellfish boats. Facilities are good but due to the exposed position of the harbour overtopping of the breakwaters is a problem. There is considerable rock foreshore outside both arms of the harbour and wave protection could be enhanced by the provision of rock armouring over these intertidal areas.

6.3 Fish Processing

The Regional Council should encourage the movement of small processing firms into industrial estates and influence District Councils who are responsible for environmental matters to overcome traditional resistance to fish businesses.

Estates should provide proper fish offal disposal storage facilities. Small firms unable to obtain suitable local estate premises should receive sympathetic consideration for assistance to upgrade. The attraction of more central areas with appropriate infrastructure such as Fort William, Wick and the Inverness-Nairn area for fish processing should be advertised. The dialogue with the fishing industry to promote pelagic fish processing and freezing at Invergordon should be reopened.

Where shellfish processing is well established and developing every encouragement should be given to the provision of housing and other necessary infrastructure. The importance of the provision of adequate housing and associated infrastructure to support the rapidly growing shellfish process industry cannot be over emphasised.

Both the pelagic and shellfish industries are truly international and therefore joint venture business opportunities should be sympathetically treated bearing in mind the ultimate benefits to the Region as a whole. It is suggested that the Council should make more use of the Region's Business Development Advisers as the local contact point in assessing the Council's support services for the industry, thereby avoiding confusion in terms of local businesses seeking the Council's expert help and assistance. This could be for infrastructure or business related advice support obtainable from either the Development Department or other appropriate Public Agency source. The comment on roads and on the Region's involvement in coastal zone management apply equally though indirectly to fish processing as well as to the catching sector. The feeling of isolation of processors from HRC decision making should be addressed by the Council through adequate representation on the existing Fisheries Advisory Group.

6.4 Fisheries in the Coastal Zones - The CFP and Management Issues

The fishing industry of the Region is regulated through the Common Fishery Policy of the European Community and the Inshore Fishing (Scotland) Act 1984. The Minches and the 12 mile limits of other coasts are, however, exclusive UK fishery zones as defined under the CFP. The EC favours the fishing industries of peripheral regions, the West of Scotland included, in terms of allocation of grant monies for restructuring and a degree of local preference in terms of the share of fish quotas and beneficial restrictions on certain fishing methods etc.

In addition coastal waters are the subject of increasing environmental concern as the sea is increasingly being used for disposal of sewage and industrial waste and for mineral and hydrocarbons extraction. In the Region there has been a massive expansion of fish farming during the last 15 years.

A range of bodies, (Scottish Office, Crown Estate, Department of Transport, Highland Rivers Purification Board) control various activities within the coastal zone dealing with individual organisations and companies.

The Regional Council's powers over planning extend to the low water mark, beyond which it is the responsibility of the Crown Estate Commissioners.

It is recommended that the Council set up a pilot scheme with the Island Councils and working through existing legislation and the Scottish Office establish a means of more effective coastal zone management (CZM).

6.5 Aquaculture

Seafish recommend that an Aquaculture Development Unit (ADU) be set up to help expansion within the Highland Region - See Appendix 2. The ADU would be a focus for development embracing planning procedures, processing Several Orders, sensible application of grant aid, equity contribution to projects, co-ordination of research and an information service on all relevant aquaculture issues. The Unit could also liaise with the Fishing Industry Training Association on training in the aquaculture sector and be the point of liaison with voluntary bodies and the public on environmental concerns. The ADU would have a full time staff of development officers and work closely with existing organisations involved in aquaculture.

Seafish recommend that a strategic plan for aquaculture on the entire West Coast and Western Isles be developed to stabilize the industry and encourage development in certain directions. These are likely to be in salmon, alternative finfish species especially halibut, trout and certain species of molluscs where Scotland would have natural advantages. The Council should lend its support to this initiative.

6.6 The Road Infrastructure

It is recommended that the Council press for the continuation of improvements between Wick and Dornoch and Fort William and Mallaig and the Council should progressively upgrade the east-west road links in the far north of the Region to two lane carriageways. Support should be sought through the Scottish Office to help finance the expenditure on secondary or minor roads experiencing excessively heavy transport loads as access to fish farms.

6.6.1. Priorities Identified

6.6.1.1 Top Priority must be given to the completion of the A830 as a two lane road to Mallaig

Mallaig in the top ten of United Kingdom fishing ports in terms of value of landings in 1989 has received several million pounds worth of UK Government investment for necessary development works to meet demand for berthage since 1980. A further development proposal to provide additional berthage and a new fish market is being studied at this time. Meanwhile the upgrading of the original single track road from Corpach near Fort William on which upgrading commenced just after World War II is still incomplete.

Existing Scottish Office plans are for completion in 1995. Only 15 miles or so remain to be completed, admittedly over very difficult terrain, but the utmost pressure must be exerted to meet these deadlines. In the meantime the A830 will became an important part of the fish 'road' to Europe in 1993 with the opening of the Channel Tunnel.

6.6.1.2. **The north south link between Scrabster, Wick and Inverness, the A9 trunk road must be completed without delay**

The completion of the Dornoch Firth Bridge allows fast safe travel for the largest of vehicles from the South as far as Brora. There remain, however, two gorges through which the road negotiates via hairpin bends in the Helmsdale, Berriedale area. The effective completion of major upgrading of the Edinburgh to Thurso trunk road depends on these two major developments. The Port of Scrabster is rapidly becoming a major fish landing place not only for UK but also for foreign vessels and approval has been granted and recently work started on major harbour development.

6.6.1.3. **Work must continue as a priority on the main east west roads linking the A9 to the north west Sutherland ports and Gairloch to upgrade these to two lane roads**

The Lairg, Kinlochbervie and Lairg Lochinver links, the A838 and A837 respectively and the A832 Achnasheen to Gairloch routes carry considerable fish traffic.

Kinlochbervie, sixth port in the UK with landings of 16,000 tonnes in 1989 is dependant upon a poor single track road from Richonich to Laxford Bridge and a single track road almost as far as Lairg. Virtually all of 16,000 tonnes of fish is transported on this road.

Lochinver is rapidly developing with major harbour works and like Gairloch will bring in much of its shellfish prior to re-export along the single track road via Ledmore junction.

Gairloch is served by the A832 which is single track and particularly difficult between Loch Maree and Gairloch at Slattadale.

The Regional Councils' Road and Transport Department plan to upgrade the worst sections i.e. Laxford Bridge to Richonich and Slattadale between 1992 and 1994 with completion of major upgrading of these roads by 1995-6.

Seafish recommendations are entirely in support of this programme and these priorities.

6.6.2. <u>The maintenance and upgrading of access roads to fish farms the seaward location of which are outwith the control of the Regional Council presents a particular problem. In the circumstances and in view of the importance of the fish farming industry to the Region it is recommended that external funding be sought from Central Government and/or the European Community to support maintenance and upgrading where necessary</u>.

Fish farm locations are dictated by a range of factors mainly to do with marine considerations, quality of water, depth, shelter, tidal flows etc and as a result these businesses are often served by minor and unclassified roads.

6.7 Training in the Highland Region

Training initiatives are primarily the responsibility of the HIE but the HRC is able to provide facilities and give advice on the appropriateness of training within its Structural Policy.

It is recommended that every possible encouragement be given to the salmon, trout and shellfish growers to join with the existing Fish Industry Training Association (FITA) to expand the Associations' responsibilities into the aquaculture sector. This will give the sector the benefits of membership of an industry wide and regional network concerned with the facilitation of trainfing and the improvement of standards at all levels.

The links with FITA and the aquaculture sector will be best served through the proposed Aquaculture Development Unit ADU.

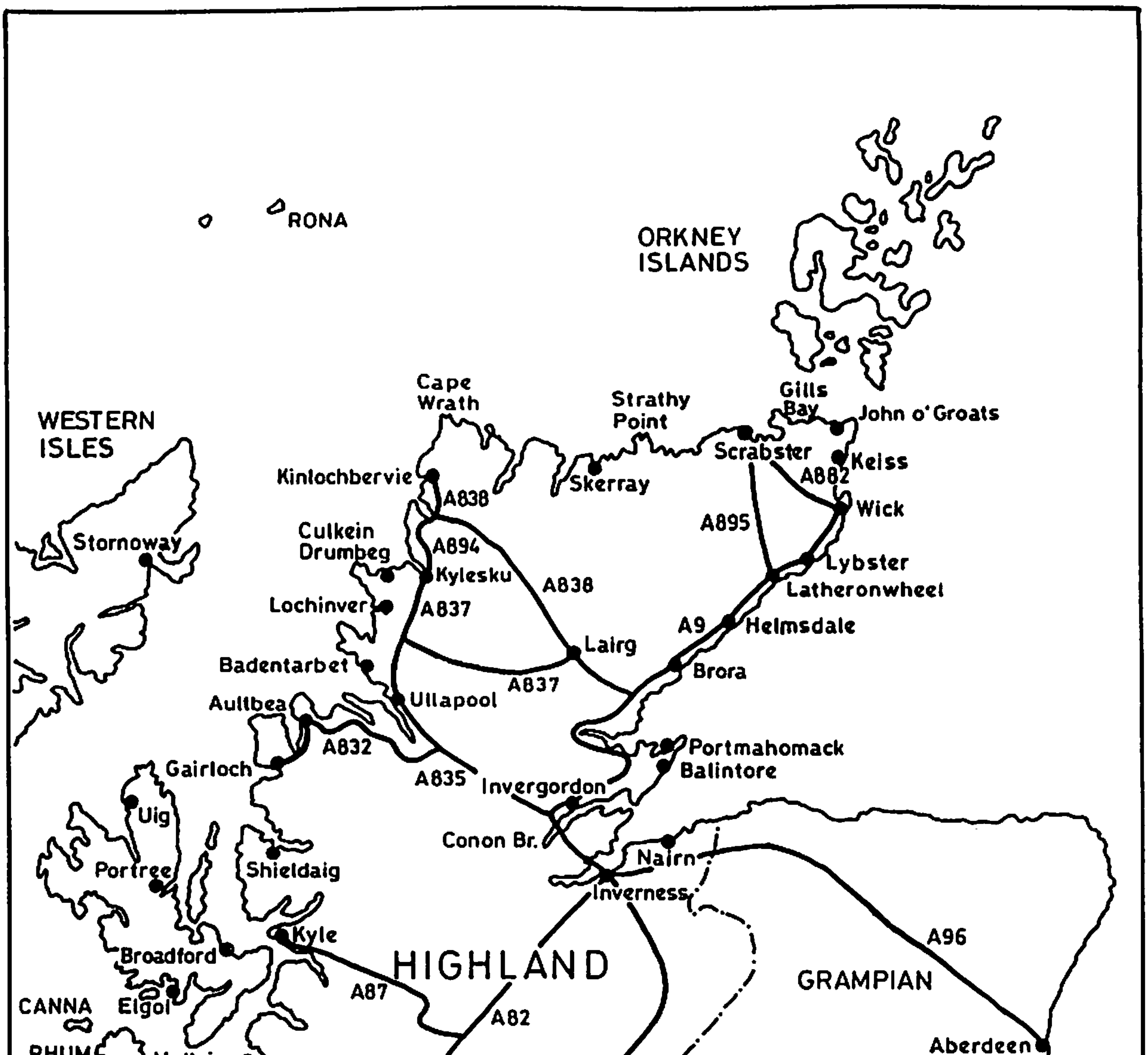
Subject to evaluation of a recently completed survey of Fish Farming in the Highlands and Islands it may be necessary to carry out a detailed work force audit in this sector. The Highland Region should lend its weight to this study which should be carried out by the HIE for the Highlands and Island Regions as a whole.

6.8 Seaweed Development

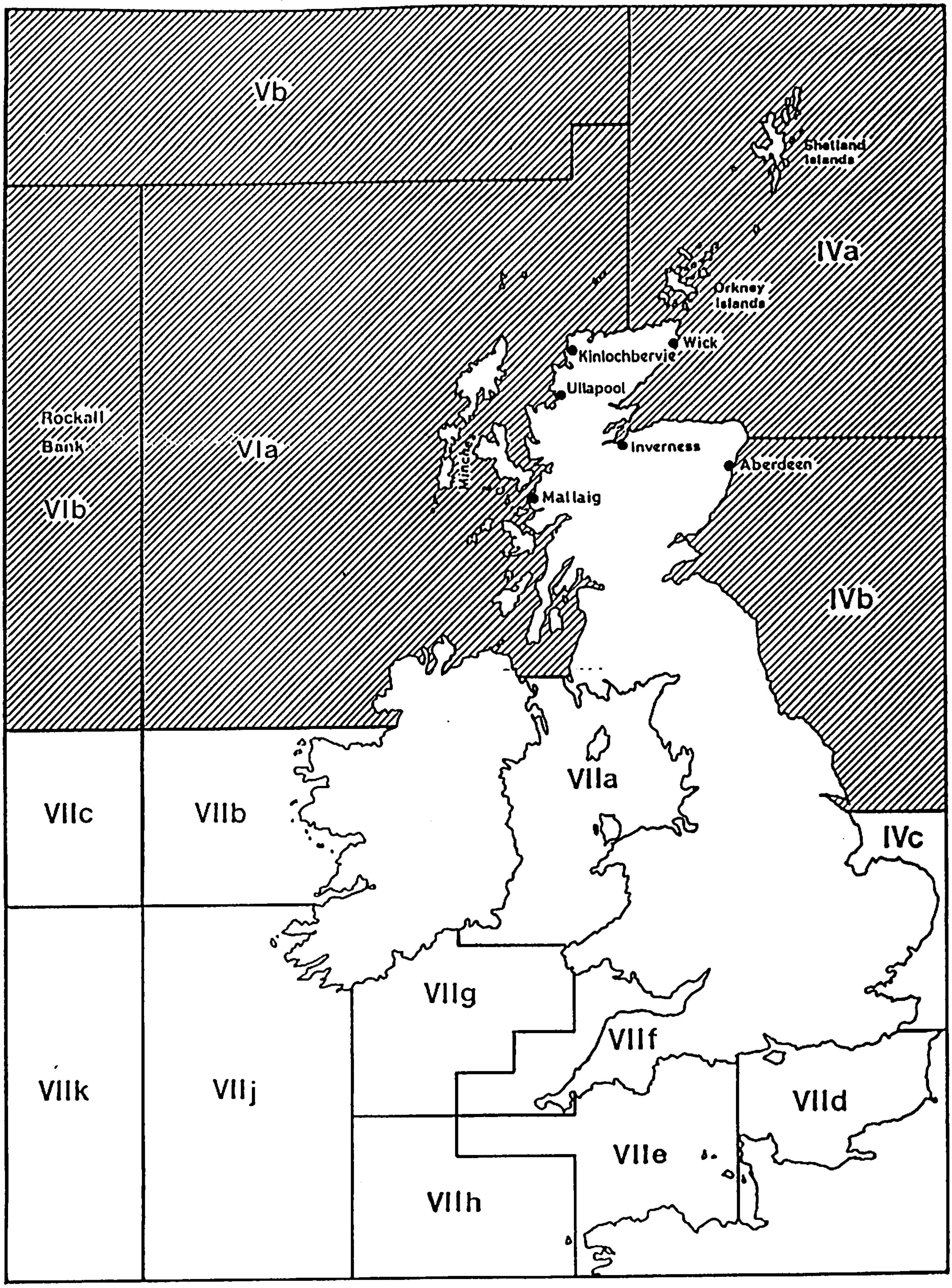
The consultant has identified employment and investment opportunities in the Highland Region. The recommendations are for the establishment of an 'independent sea weed resource control committee'. This could form part of the proposed Coastal Zone Management Group. Marketing and business initiatives should be supported by the various development agencies presently active in the Region.

6.9 Implementation of the Structure Plan Proposals

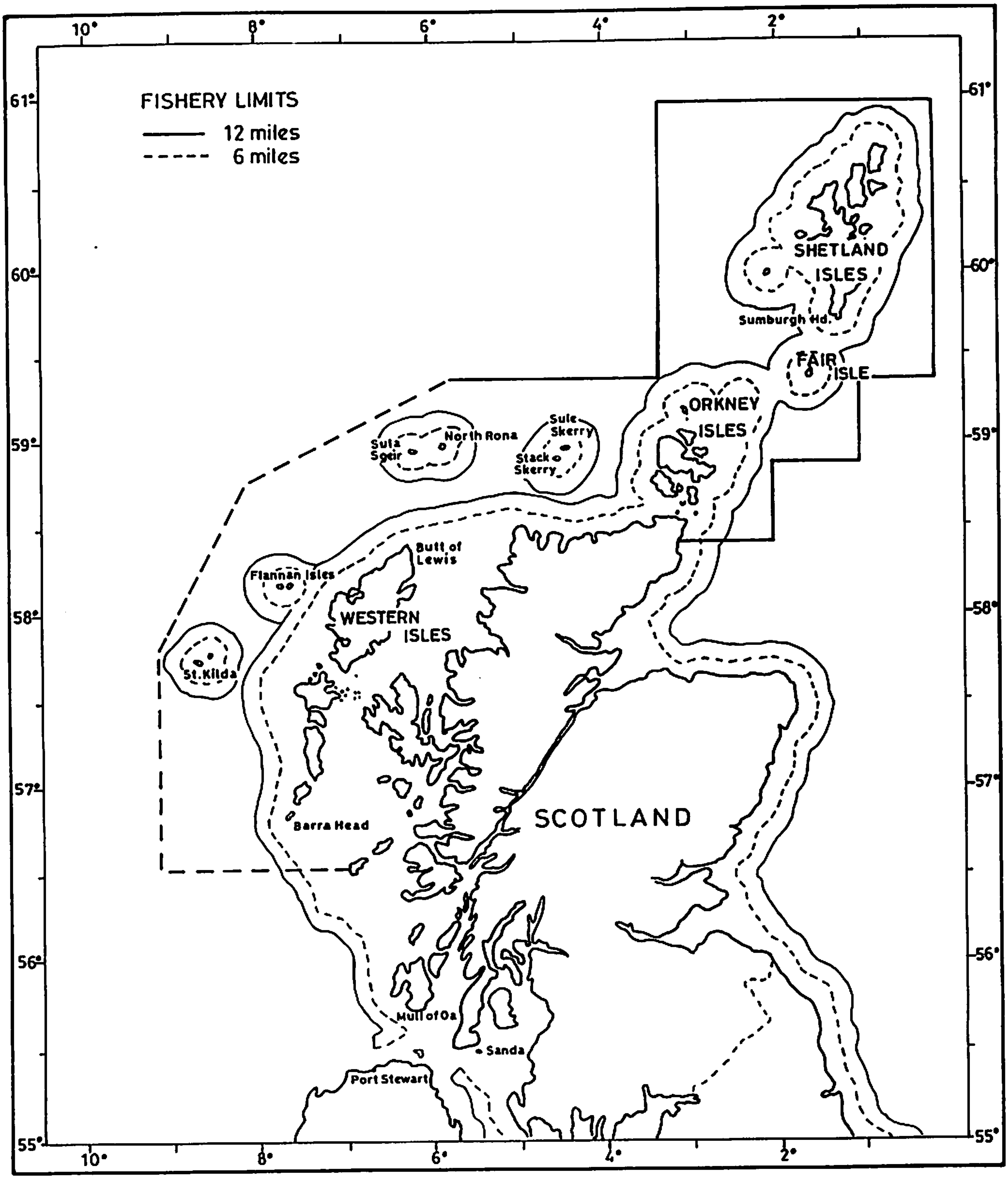
The Fisheries Advisory Group of the Highland Region Council as a sub-committee of the Development Committee is the best body to steer through the main proposals in this report. It should pay special attention to the development of Coastal Zone Management and Aquaculture. The Group, however, should be strengthened to include processors who can effectively represent shellfish, white fish and pelagic fish procesing. In the initial stages it should meet on a more regular basis to familiarize itself with the details and give the Council officials the necessary support and guidance to implement the recommendations.



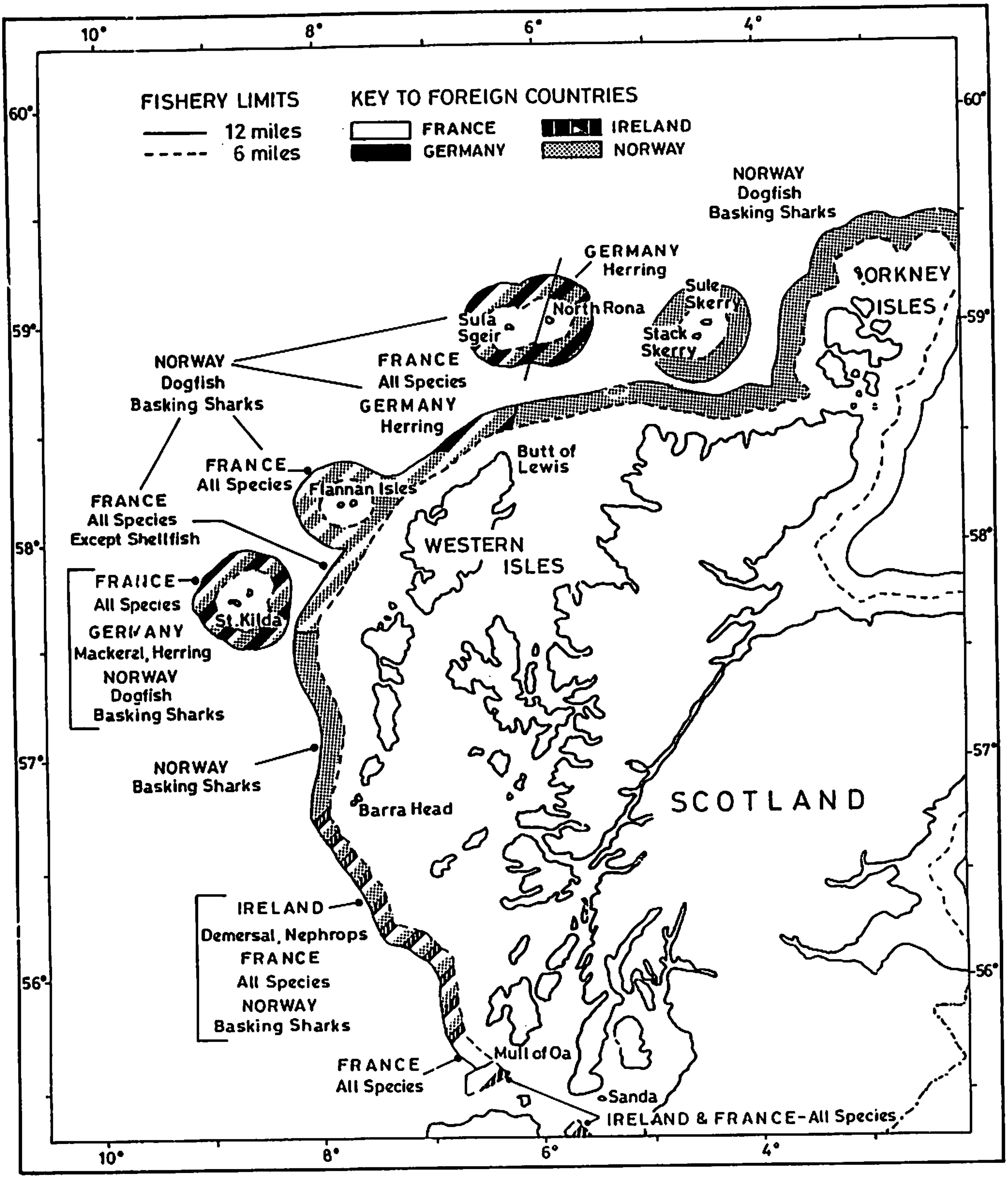
Highland Region Fig.1



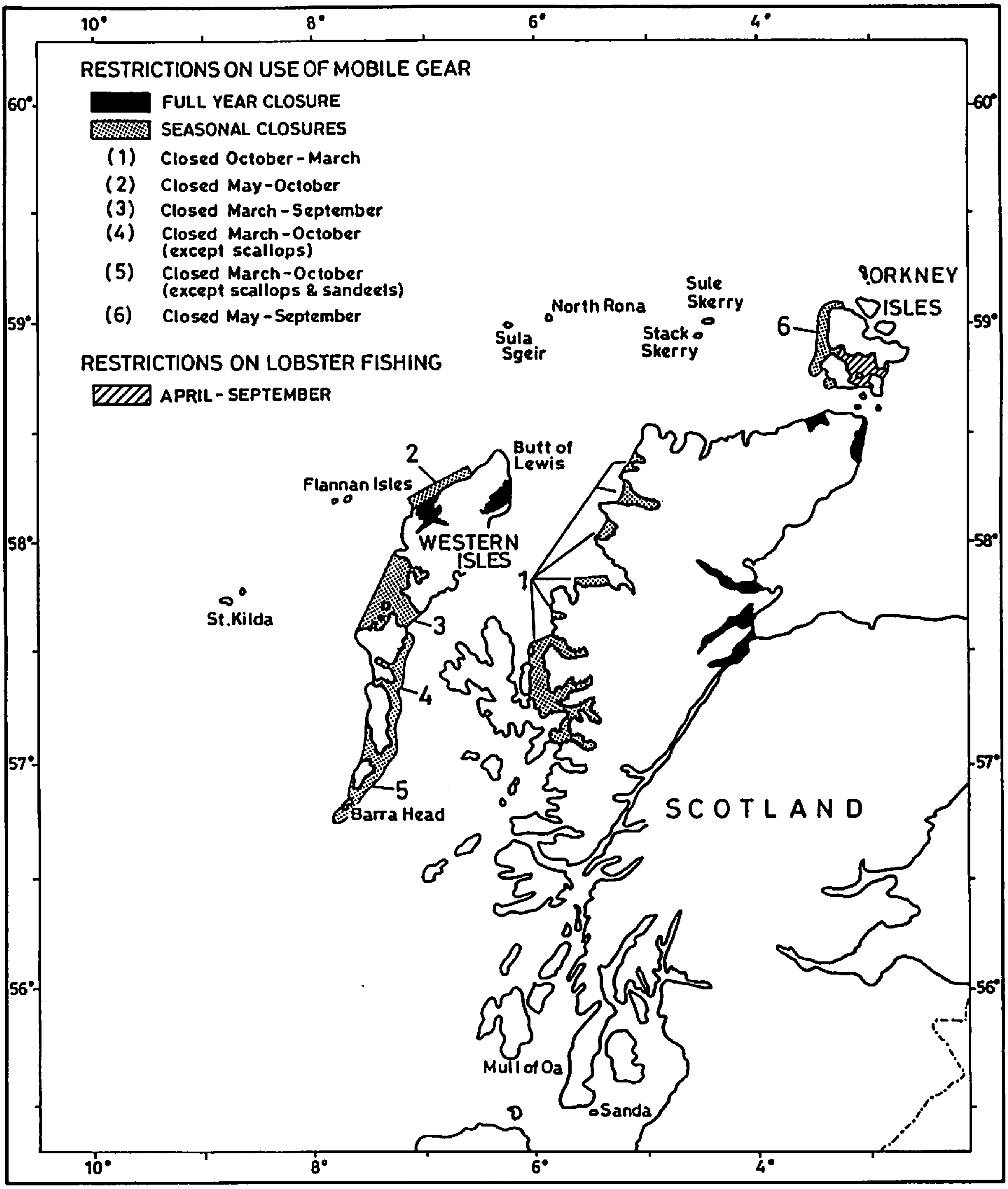
ICES Areas and Main Fishing Grounds Accessible to Highland Regions Fig. 2



North Scotland 6 -12 mile limits, Shetland box and proposed extension. Fig.3



North Scotland 6-12 mile limits, access by foreign fishing vessels. Fig.4



Inshore fishing (Scotland) Act 1984. Prohibitions on fishing. Fig.4a

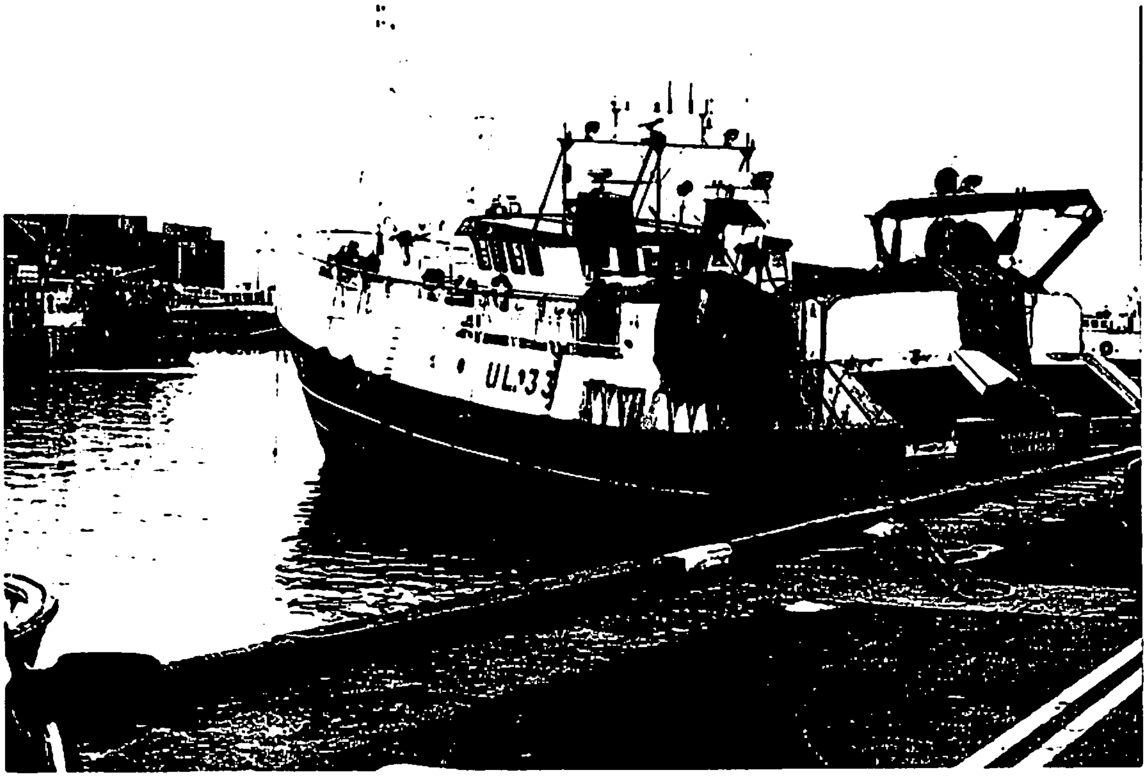


Figure 5 - Mallaig Fleet

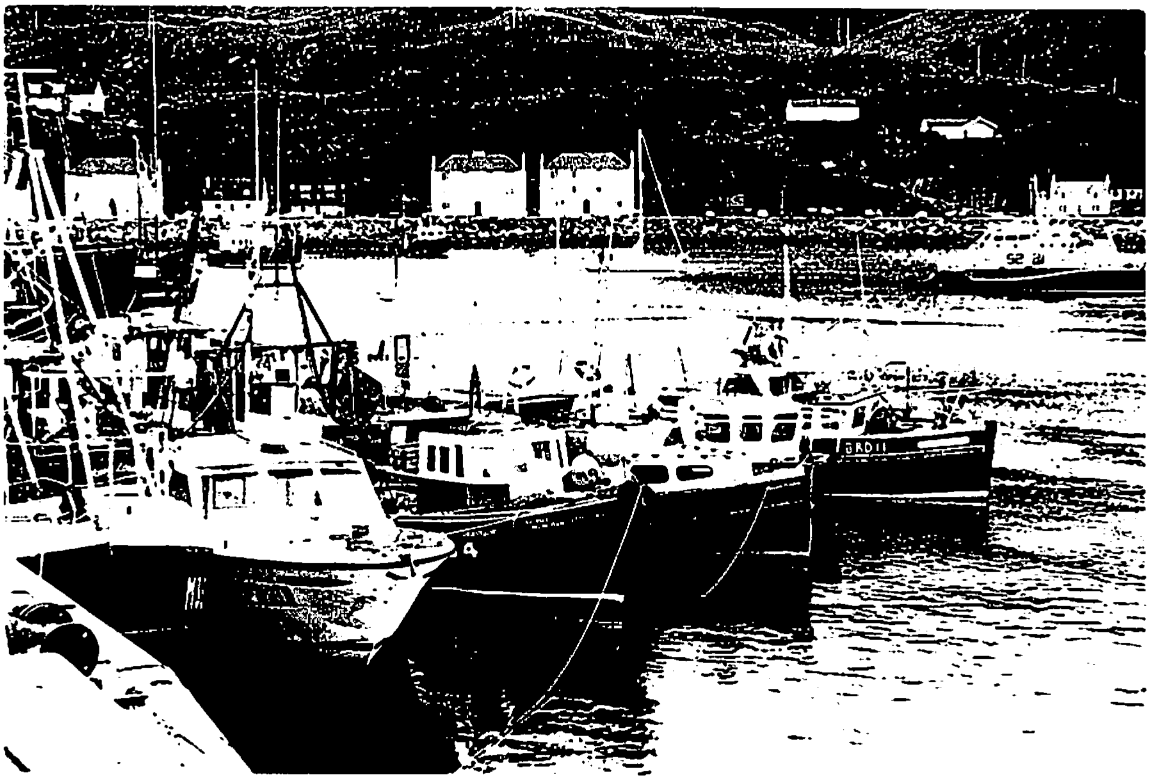
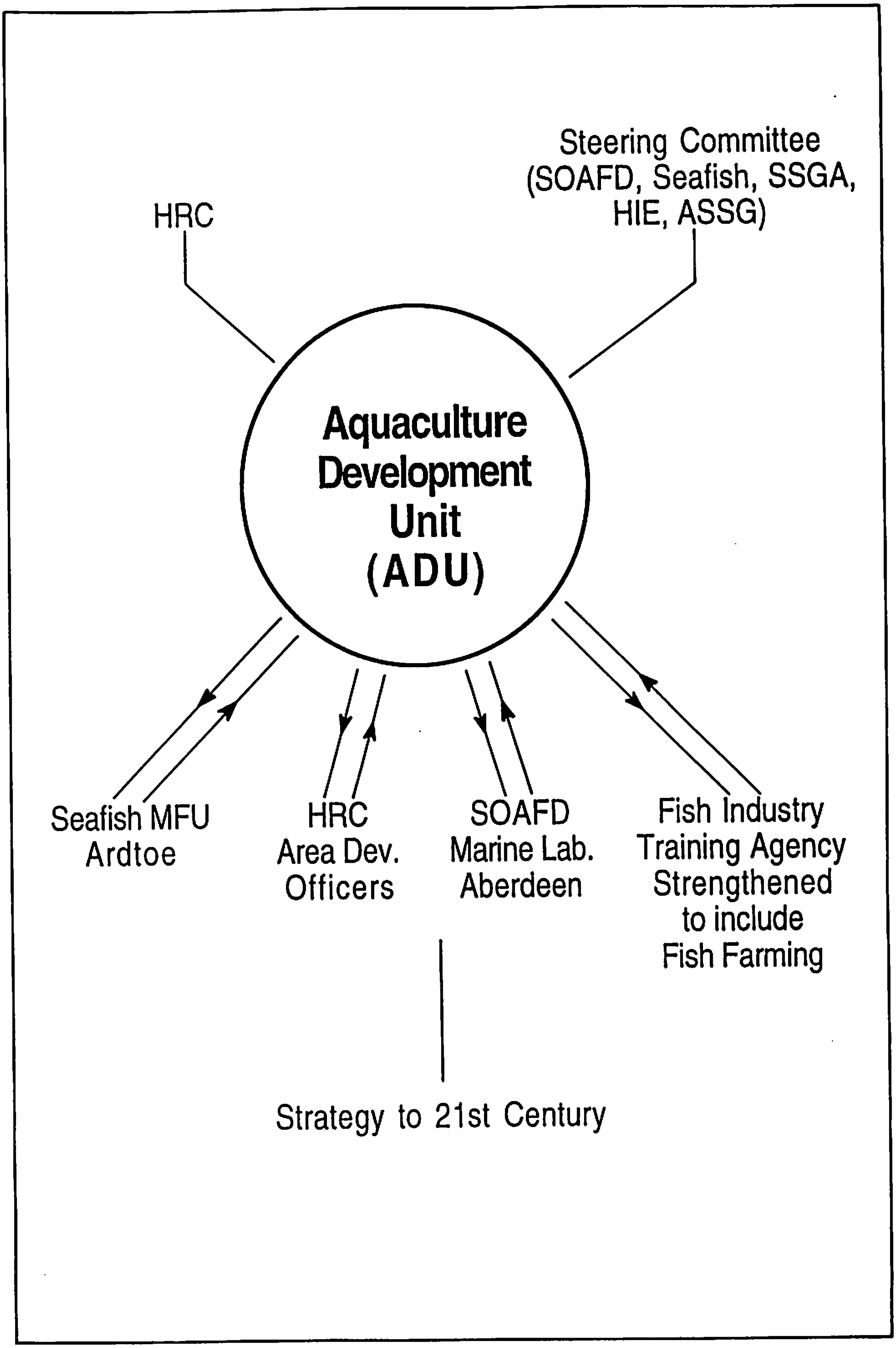


Figure 6 - Ullapool Registered 24m Trawler



Aquaculture Development Unit Fig. 7

TABLE 1

Boats Owned in the Highland Region 1990

	Total Fleet	
	Total No. Boats	Over 9m in length
MAINLAND		
Acharacle	7	1
Achiltibuie	12	
Achnasheen	3	1
Alness	3	1
Applecross	10	4
Ardtoe	6	
Arisaig	4	1
Auckengill	1	
Aultbea	8	3
Avoch	11	10
Ballachulish	1	
Bettyhill	2	1
Braehead	2	1
Brora	5	3
Brough	1	
Carris Bay	1	
Cauna	1	
Carron	1	1
Castletown	2	1
Cromarty	2	1
Culkein	2	1
Dingwall	5	3
Dornoch	1	
Drumbeg	3	1
Dulnain Bridge	1	1
Dunbeath	5	
Erisort	2	1
Evanton	1	1
Fearn	13	1
Fort William	12	4
Fort Rose	1	1
Gairloch	22	10
Garve	3	1
Glenborrodale	1	
Golspie	2	1
Halkirk	1	
Helmsdale	13	7
Inverasdale	2	
Invergordon	2	1
Inverinate	1	1
Inverness	6	2
John O'Groats	7	1
Keiss	9	3
Kiltarlity	1	
Kinlochbervie	5	5
Kinlochewe	2	1
Kirtomy	1	

TABLE 1 (cont.)

Boats Owned in the Highland Region 1990

Kyle	16	9
Lairg	8	6
Latheronwheel	6	
Lochaline	2	
Lochinver	17	9
Lybster	10	2
Mallaig	43	35
Morar	10	8
Morvern	1	
Muir of Ord	2	
Nairn	6	2
Plockton	6	3
Poolewe	1	
Portmahomack	13	1
Portskerra	1	
Rosemarkie	1	
Scarfskery	1	
Scourie	2	
Scrabster	8	3
Shieldaig	3	1
Sleat	9	
Snizort	1	
Staxigoe	1	1
Stromeferry	2	
Tain	12	7
Thurso	25	3
Torridon	3	
Ullapool	32	18
Wick	40	15
Total	492	199
SYKE		
Broadford	16	6
Dunvegan	8	1
Isle of Skye	21	3
Kyleakin	7	5
Portnalong	3	2
Portree	20	10
Skye	1	
Staffin	2	2
Uig	3	3
	81	32
Isle of Eigg	2	
Isle of Muck	1	
	3	

Source: UK Register of Fishing Vessels

TABLE NO. 2

The Highland Based Fishing Fleet

1986 - 1989 Length x Base District

Length Group Ft	Wick				Kinlochbervie				Lochinver				Ullapool				Mallaig				1989 Totals
	86	87	88	89	86	87	88	89	86	87	88	89	86	87	88	89	86	87	88	89	
0-29.9	61	59	58	48	2	2	2	3	2	5	8	10	19	20	25	27	80	83	101	123	211
30-39.9	19	23	21	20	5	5	7	8	7	7	6	8	23	29	26	24	60	70	79	78	138
40-49.9	3	3	3	3	-	-	-	-	2	3	2	2	5	5	4	2	11	10	11	12	19
50-59.9	10	10	9	9	4	4	3	3	2	3	2	2	3	3	4	4	13	13	16	16	34
60-69.9	6	6	6	6					1	2	1	2					3	2	2	2	10
70-79.9	2	1	1	1					3	3	5	5					1	1			6
80-89.9		1	1	1								1					1				2
110+											1						1	2	1	1	1
TOTALS	101	103	99	88	11	11	12	14	17	23	25	30	50	57	59	57	170	181	210	232	421

Source : DAFS <u>The base district is defined as the district in which the majority of the owners</u>

TABLE NO. 3

The Highland Based Fishing Fleet

1986-1989 Age Group x Base District

Age Group	Wick				Kinlochbervie				Lochinver			
	86	87	88	89	86	87	88	89	86	87	88	89
0-4 yrs	10	8	6	7	3	1	1	2	2	4	4	7
5-9 yrs	12	15	11	13	2	4	6	4	2	3	4	4
10-14 yrs	17	11	11	12	3	2	2	3	6	4	5	4
15-19 yrs	15	18	19	16	2	3	2	2	3	5	5	5
20-24 yrs	3	6	6	6				1		2	2	4
25-29 yrs	8	6	5	3		1	1		1	2	2	2
30+ yrs	21	25	27	19	1				2	3	3	3
Not Known	15	14	14	12				1	1			1
Totals	101	103	99	88	11	11	12	14	17	23	25	30

Age Group	Ullapool				Mallaig				1989	
	86	87	88	89	86	87	88	89	Highland	Scotland
0-4 yrs	6	8	6	8	22	21	22	24	49	278
5-9 yrs	7	8	10	7	37	46	55	46	74	367
10-14 yrs	4	6	8	10	31	25	28	43	72	389
15-19 yrs	7	10	11	11	23	26	33	36	70	440
20-24 yrs	9	4	5	4	14	10	15	21	36	226
25-29 yrs	4	9	5	3	12	20	18	15	23	175
30+ yrs	12	12	12	12	31	27	31	30	64	386
UK	1		2	2		6	8	17	33	163
Totals	50	57	59	57	170	181	210	232	421	2424

Source: DAFS The Base District is defined as the district in which the majority of the owners live

TABLE 4

Vessels using HRC Harbours and Piers and Trust Ports - 1991

Place	Length: under 10m	Length: 10m to 16.5m	Length: over 16.5m	Usage: Irregular and Seasonal	Usage: Regular	Total
Kinlochbervie	4	5	73	48	34	82
Lochinver		6	86	63	29	92
Gairloch	17	15	53	71	14	85
Wick	about 18 local trawlers including Lybster and Helmsdale boats and occasional visitors plus local creel boats.					
Scrabster	about 70 different fishing vessels use the harbour of which about eight are local creel boats, the rest mainly visiting trawlers.					
Ullapool	about 40 seasonal purse seiners, 10 white fish regular trawlers, 10 pair trawlers seasonally, plus irregular trawlers, liners and shellfish boats + 12 local creel boats.					
Mallaig	about 40 local boats and some 100 regular (seasonal) visiting trawlers.					
Portmahomack	3	1		4		4
Balintore	3	2		3	2	5
Brora	3				3	3
John O'Groats	6	4	2	5	7	12
Keiss	5	3		1	7	8
Kylesku	3	4			7	7
Culken/Drumbeg		3			3	3
Portree	3	2			5	5
Broadford		2			2	2
Elgol	7	5			12	12

TABLE 4 (cont.)

Vessels Using HRC Harbours and Piers and Trust Ports - 1991

Place	Length			Usage		
	under 10m	10m to 16.5m	over 16.5m	Irregular and Seasonal	Regular	Total
Uig	1	28	35	55	9	64
Kyle/Kyleakin	22	39	11	31	41	72
Kilchoan		1		1		1
Latheronwkeel	1			1		1
Nairn	5			2	3	5
Shieldaig	2	2			4	4
Skerray	1				1	1
Ardgour		1		1		1
Aultbea	1	1			2	2
Badentarbet	2				2	2
Diabeg	1				1	1
Helmsdale	7	5	2	7	7	14

Source: HRC and Harbour Trusts

TABLE NO. 5

Fish Landings - Highland Region 1989

Weight (Tonnes)

	Demersal	Pelagic	Shellfish	All Fish
Inverness	+	-	12	12
Avoch	-	-	-	-
Portmahomack	-	-	1,054	1,054
Brora	-	-	3	3
Helmsdale	49	-	16	65
Dunheath	-	-	3	3
Lybster	52	-	30	82
Wick	1,907	-	627	2,535
Keiss	-	-	53	53
John O'Groats	-	-	47	47
Scrabster	4,587	78	434	5,098
Portskerra	-	-	5	5
Eriboll	12	-	88	100
Kinlochbervie	15,326	10	649	15,985
Scourie	-	-	5	5
Kylesku	-	-	55	55
Culkein/Drumbeg	-	-	1	1
Lochinver	6,618	-	1,373	7,991
Ullapool	2,240	92,970	555	95,764
Aultbea	-	-	70	70
Gairloch	154	455	595	1,204
Torridon	-	-	165	165
Kyle	26	-	444	469
Sleat	-	-	43	43
Broadford	-	-	51	51
Portree	4	-	382	386
Snizort	61	-	327	388
Dunvegan	-	-	96	96
Bracadale	+	-	32	32
Strathaird	1	-	131	132
Mallaig	6,504	387	2,869	9,760
Arisaig	-	-	127	127
Ardnamurchan	-	-	42	42
Fort William	-	-	55	55
Tonnes	33,722	93,900	10,439	138,061

Source : SOAFD 1990

TABLE NO. 5 (cont.)

Fish Landings - Highland Region 1989

Value (£'000)

	Demersal	Pelagic	Shellfish	All Fish
Inverness	0.1	-	21.3	21.4
Avoch	-	-	-	-
Portmahomack	-	-	144.1	144.1
Brora	-	-	10.3	10.3
Helmsdale	30.5	-	31.6	62.1
Dunheath	-	-	10.8	10.8
Lybster	33.4	-	31.8	65.3
Wick	1,464.9	-	985.6	2,450.5
Keiss	-	-	72.2	72.2
John O'Groats	-	-	84.9	84.9
Scrabster	3,921.4	4.0	528.0	4,453.4
Portskerra	-	-	11.2	11.2
Eriboll	9.7	-	76.9	86.5
Kinlochbervie	12,690.9	1.1	815.6	13,507.6
Scourie	-	-	7.1	7.1
Kylesku	-	-	127.3	127.3
Culkein/Drumbeg	-	-	5.4	5.4
Lochinver	5,565.6	-	2,219.6	7,785.2
Ullapool	998.9	10,554.5	912.1	12,465.5
Aultbea	-	-	121.8	121.8
Gairloch	113.5	54.7	945.3	1,113.5
Torridon	-	-	465.8	465.8
Kyle	23.1	-	963.1	986.2
Sleat	-	-	83.1	83.1
Broadford	-	-	84.1	84.1
Portree	3.2	-	642.5	645.7
Snizort	55.4	-	582.0	637.4
Dunvegan	-	-	102.4	102.4
Bracadale	+	-	105.0	105.1
Strathaird	0.2	-	333.9	334.0
Mallaig	5,478.2	39.3	4,703.9	10,221.4
Arisaig	-	-	208.4	208.4
Ardnamurchan	-	-	79.6	79.6
Fort William	-	-	136.6	136.6
Value	£30,388,900	£10,653,600	£15,653,300	£56,695,800

Source : SOAFD 1990

TABLE 6

Fish Landings in the Highland Region x Fishery District

1986 - 1989 (tonnes)

	1986	1987	1988	1989
Lossiemouth				
Demersal	<1	357	21	--
Pelagic	135	-	-	--
Shellfish	1326	402	1199	1062
Wick				
Demersal	6226	9561	8243	6594
Pelagic	260	128	417	78
Shellfish	738	825	756	1218
Kinlochbervie				
Demersal	15601	19930	19797	15338
Pelagic	--	11	22	10
Shellfish	224	228	337	741
Lochinver				
Demersal	6510	7297	7175	6618
Pelagic	--	--	--	--
Shellfish	1165	1559	1342	1429
Ullapool				
Demersal	244	423	3015	2393
Pelagic	119603	151493	140538	93425
Shellfish	1127	1330	1670	1220
Mallaig				
Demersal	4956	8623	8145	6595
Pelagic	1256	445	2000	387
Shellfish	4384	4789	5419	4709
Oban				
Demersal	--	--	--	--
Pelagic	--	--	--	--
Shellfish	3	49	85	55
TOTALS ALL SPECIES	163798	206850	200181	141872

NB: Lossiemouth and Oban refer to landing places lying within the Highland Region boundaries

TABLE NO. 7

Landings of Nephrops in Scotland - Tonnes

1969	1979	1989
6329	11255 trawls (3707) creels incl. all shellfish	15155 trawls 1144 creels
Highland Shellfish (unspecified) landings		
1419.3	2283.4	8099 t.

Effort in Terms of Days Fishing/Method, Scotland (Nephrops)

	1969	1979	1989
Creels	n/a	n/a	111,983
Trawls	31,801	42,697	60,437

Landings of Nephrops x District x Method - 1989

	Trawl	Creel	Tonnes
Wick	17	530	547
Kinlochbervie	35	309	344
Lochinver	940	181	1121
Ullapool	785	443	1228
Mallaig	3744	955	4699
Totals	5521	2418	7939

Source: DAFS and SOAFD

TABLE 8

UK Quotas and Catches

	ICES Area	Quotas 1986 - 1990 1986	1987	1988	1989	1990	1991	Catches 1986	1987	1988	1989	1990
Cod	IV IIa	75790	75290	71490	55800	45857	47960	71182	79691	65446	49877	45796
	V1	12650	11770	9700	9700	8375	8330	4708	11987	9476	9853	8592
Haddock	IV IIa	146110	101030	128570	55541	36480	37430	134829	91593	89630	56137	35851
	VI	27640	25790	28210	28210	19385	12250	17230	26481	22936	26458	18907
Saithe	IV IIa	20670	16632	15200	14910	12136	11850	20146	15174	15169	13618	11232
	VI	5140	4920	6190	5130	5130	4405	5045	5183	5184	3312	3839
Whiting	IV IIa	51796	53530	46610	44040	29260	34010	32920	42113	35504	28405	28982
	VI	9400	9400	9400	9400	6775	5550	5909	7992	8105	6208	5397
Plaice	IV IIa	43490	35249	38815	34800	31597	48920	17376	20656	24173	26479	25101
	VI	1100	1100	1100	1210	1210	--	1088	1179	1063	1218	1180
Mackerel	IV IIa	1200	1380	1380	710	1000		1598	20388	1311	586	309
	VI	195950	215230	218230	189581	191030		147475	194696	205204	91036	174962
Herring	IV IIa	78636	77945	71740	75989	67150		76256	75850	70547	75712	62554
	VI	27920	26950	26950	31140	40430		26331	27158	25894	29743	38860
Hake	IV	520	480	420	380	420	)7170	412	508	416	239	283
	VI	4713	6700	6970	6260	6671	)	5099	8917	7069	5879	5564
Megrim	VI	1380	1380	1671	1678	1618	1520	784	1775	1718	1555	1332
Anglers	VI	2580	2535	3260	3370	3335	2650	1356	2436	3378	3418	3158
Nephrops	VI Vb	14450	15620	15620	15620	15620	13185	11297	11206	12729	10975	9924

TABLE 8 (cont.)

Summary Notes

1. The West of Scotland herring stock Area VI is in good standing and likely to remain so until at least 1992.

2. The western mackerel stock TAC was increased in 1990 and this too is likely to be maintained until at least 1992 although much more is now being landed on the East Coast.

3. The spawning stock biomass for cod has increased due to a good 1986 year class. The TAC and the UK quotas for the West Coast may be sustained in the short term but fall in the medium term if effort continues at its present level.

4. Separate TACs have been recommended for the haddock stocks in Area VIa and VIb but for the present they are combined. The TAC is substantially down in 1991 and this trend is expected to continue due to the state of the spawning stock.

5. The saithe stock on the West Coast is in poor shape which is reflected in the continued downward tremd.

6. In Area VI the whiting stock continues its downward trend . In 1990 the spawning stock was at its lowest for 10 years and there has been no known improvement this year.

7. The TAC and quotas for the Area VI nephrop (Minches) is precautionary. It has probably been set to high and it is known that effort is increasing at an alarming rate.

8. In all areas the fishing effort on the demersal stocks is considered to be too high.

TABLE 9

Fish Processors
Highland Region

1. East Coast, Nairn to Wick and Scrabster
2. West Coast, Kinlochbervie to Fort William
3. Isle of Skye

Location	Nature of Business	Number of Persons Employed
1.		
Nairn and District		7
" " "		20
" " "	Salmon packers	87
Strathaird	Processors	
"	Salmon packers	2
Brora	Salmon smoking	10
Helmsdale	Shellfish	8
Dingwall	Shellfish	4-6
"	Salmon smoking	20
Invergordon	Shellfish	40-50
Conon Bridge	Pelagic fish	20-130
Alness/Kessock	Salmon	40
Tain	Shellfish	15-25
"	Mollusc Marketing	4
"	Salmon	4
Wick	White fish	(inactive) in late 1991

APPENDIX 1

Consultants Terms of Reference

<u>**TABLE 9**</u> (cont.)

2.		
Gairloch (Amazon Seafoods)	Shellfish Marketing	10
Lochinver	Shellfish Processing) Marketing)	40
	Salmon Smoking	3
Achiltibuie	Fish smoking	10-12
Kyle (Amazon Seafoods)		40
Mallaig	Shellfish	16
	Smoking	6
	?	3
Fort William	Shellfish Processing	30
" "	Smoking	20
" "	Salmon and Shellfish and Retailing	2-20
" "	Mollusc Marketing	2
" "	Salmon, Packing and Marketing	210
Glenuig	Salmon smoking	4
3.		
Portree	Shellfish Marketing	12
Broadford	Shellfish, Processing and Marketing	40 Approx

TABLE 10

Salmon Production and Trends

Production	1990	Highland	Scotland	Norway	Faroe	World
Salmon	Tonnes	15400	33000	160000	13000	243000
Smolts	Numbers	13.1m	20.2m	n/a	n/a	n/a
Employment	Numbers	737	1790	n/a	n/a	n/a

Trends 1990 to 2000 World Production

Year	Tonnes	
1990	24300	
1991	271700	
1992	253000	reduction in smolts laid down in 1990-91
1993	253500	
1994	281000	
1995	308000	
1996	340000	
1997	362000	
1998	386000	
1999	412000	
2000	440000	

HIGHLAND REGIONAL COUNCIL FISHERIES PLAN
CONSULTANTS TERMS OF REFERENCE

INTRODUCTION

Highland Regional Council, through its Development Committee and its Fisheries Advisory Group, is seeking to commission a suitable lead consultant who can undertake for the council, and if necessary sub-contract to other consultants, a Fisheries Plan for Highland Region. This Fisheries Plan is intended to identify a focused and integrated framework and to provide a realistic and achievable action plan to 1999 for Highland Regional council to implement its strategy and to target its resources in support of the Region's fisheries, aquaculture and related industries, particularly by co-ordination of the approaches and services of the relevant council Departments, these being the Departments of Development, Roads & Transport, Water & Sewerage, Planning and Education.

The fisheries, aquaculture and related industries are in the midst of a period of unprecedented change in legislative, market and economic circumstances. these circumstances coupled with the impending opportunities and difficulties of the Single European Market and with the imminent renegotiation of the common Fisheries Policy necessitate the council to consider the efficient allocation of its scarce resources over the next 8-9 years in support of the Region's fastest growing sectors of fisheries, aquaculture and related industries.

In 1980 a similar approach was provided for the Council by the White Fish Authority in a study "The Fisheries of Highland Region; A Study in Conservation and Development" the conclusions of which have now been largely implemented. In 1990 the council required an imaginative assessment of and an innovative approach to the opportunities, potential, threats and difficulties facing the fisheries, aquaculture and related industries up to the end of this Century which the Council can effectively support.

During the undertaking of the new Fisheries Plan the consultants will be expected to consult widely on all relevant issues with local interests, industry, organisations, neighbouring authorities, development agencies, and Government Departments. It should also be stressed that the consultants must particularly consult with the relevant Departments of Highland Regional Council which embody a substantial knowledge of and unparalleled expertise in the fisheries and aquaculture industries of Highland Region.

Because circumstances have changed so much in the last 10 years, it is especially recognised by Highland Regional Council that this new Fisheries Plan will particularly require to positively address the emerging issues which were not so prominent 10 years ago, such as resource conservation, environmental opportunities, local management, indigenous development, infrastructure needs, tourism potential and new possibilities, eg. the development opportunities in seaweed exploitation.

It is expected that the Fisheries Plan will commence in January 1991 and will be completed by July 1991 followed by a launch seminar in September 1991. During this period the Fisheries Plan will regularly reviewed and will be closely directed by the Council's Fisheries Advisory Group comprising key Councillors, senior officials and industry representatives. However the single contact for the consultants will be the Depute Director of Development who will co-ordinate the Highland Region Fisheries Plan.

Consultants are now invited to submit proposals and costs for undertaking the Highland Region Fisheries Plan to the Depute Director of Development by 3rd December 1990 for subsequent

commissioning by the Development Committee of Highland Regional Council at its meeting of 12th December 1990.

These proposals should clearly relate to and/or expand on the Terms of Reference now provided and should identify what the consultants consider to be reasonable objectives and should demonstrate the methodology which the consultants intend to use, including the staging of the work allowing for progress reporting to the Fisheries Advisory Group, and for the marketing of the Plan subsequent to its completion involving amongst other things, publicity brochures, press material and launch seminar.

BACKGROUND

Highland Regional Council has already produced a Structure Plan setting out the policies and recommendations to guide planning, development and land use in the Region up to 1998. There is also a Fish Farming Development and Control Strategy paper (1988) which when taken with a number of framework plans for individual sea lochs sets out the broad aims of the Council in promoting aquaculture in the Region. The Structure Plan makes certain policy recommendations to be followed in Fishing and Fish Farming but the key to these is the need for a Fisheries Plan which will bring more sharply into focus the opportunities available to the Region capitalising on its geographical location in relation to resources and the land and water areas which could be used for fish farming.

In 1980 the White Fish Authority (now the Sea Fish Industry Authority) prepared a report - "The Fisheries in the Highland Region - A Study in Conservation and Development".
This study provided a basis for various initiatives taken by Highland Regional Council through the 1980's the most notable being harbour improvements to the HRC's own ports of Kinlochbervie and Lochinver and encouragement for improvements at Mallaig, Scrabster, Wick and Ullapool. The 1980's has also

seen the rapid growth of the salmon farming industry which has also benefited from Council policies in infrastructure improvement and in planning procedures.

It is now required to carry the Fisheries Plan forward towards the end of the decade taking into account the current level of Fisheries and Fish Farming activity and the other relevant economic factors in the Region. These are well documented in two recent Highland Regional Council publications.

Structure Plan Review 1989 - HRC Planning Department
Economic Review July 1990 I.P. No. 21 - HRC Planning Department

It will also be necessary to take a wider look at the changing political and economic geography of Europe including the EEC, the Nordic countries and the former East European bloc in order to determine how these might provide new opportunities for the Region. The impact of the single European market will also need to be considered.

OBJECTIVE

The objective is to draw up the best forecast of likely trends in economic development in the 1990's which will affect the fishing and aquaculture industries including seaweed culture and show how the Region can take advantage of these considering its geographical position and its access to marine resources. On the basis of the forecast a Plan will be prepared selecting the most promising development trends and how the Council's policies and strategies can be best shaped to help the industry achieve its full potential towards the end of the decade.

The Plan will include:

- UK and EC fisheries policies and the changing patterns in fish supplies and distribution in Europe including the Nordic and Eastern European counties.

- Changing structures and trends in Highland Region, Grampian Region and the three Islands in Fisheries and aquaculture, including resources conservation.

- Management of fisheries and shell fisheries with major emphasis on resource conservation in inshore waters and on local involvement in resources management.

- Strategic investment by Highland Regional Council and The Harbour Trusts in fishing harbours and infrastructure development.

- Promoting investment in fish processing and developing initiatives in fish marketing and in related industries, including capitalising on environmental opportunities presented by the purity of products.

- Developing aquaculture potential particularly shellfish and related opportunities.

- Identifying innovative diversification such as tourism potential and seaweed development, more detailed consideration of this being listed in Annexe 1.

- Providing appropriate training for fisheries and aquaculture development including making best use of government and local initiatives and programmes which encourage technical skills and management training.

METHODOLOGY

Highland Regional Council has prepared extensive reports on the current state of fishing and fish farming in the Region. Some of these have been produced by the Council's Departments and some have been commissioned from consultants. This information is listed in Annexe 2 and must be considered by the consultants as the starting point of the study along with early discussion with the relevant Council Departments to be co-ordinated by the Depute Director of Development. The consultants should then freely express their findings based on their Departmental discussions on the published data, or their own knowledge of trends in European Fisheries and on additional field and consultation work. The following broad areas for "chapter headings" should be followed as closely as possible. Statistical data and figures should be included as Appendices unless they are highly relevant to an argument in the Plan text.

1. An Overview of the current state of the Region's fisheries and aquaculture sectors and the relative importance of each in the UK and Scotland in particular.

2. The forecasts of trends in the Region's key areas and identification of any new trends which have not yet affected the Region.

3. An analysis of the supply and distribution patterns for fish in Europe through the 1990's and how these could provide opportunities for the Region.

4. An assessment of the "best" and most achievable opportunities for the development of UK fisheries, aquaculture and related industries of the Region.

5. The identification of the role of Highland Regional Council in supporting or initiating opportunities to develop their

full potential. This will be the main component of the Fisheries Plan which will direct the Council in consideration of its planning, development, infrastructure and training functions.

REPORTING

The consultants will be required to produce interim reviews of the work, a main report of the Plan and a separate summary with illustrations and diagrams which highlights the main opportunities for the Region. The summary will be used widely by the Council to explain its policies to Council members, local fishermen, fish processors, fish farmers and potential investors in the Region. Twenty-five copies of the main report and two hundred copies of the summary report will be required. It is also intended that the consultants will actively participate in a launch seminar of the Fisheries Plan in the Autumn of 1991.

ANNEXE 1

SEAWEED DEVELOPMENT

The consultants should consider the following matters when identifying the possibility for development opportunities in seaweed culture.

1. A thorough investigation into the market opportunities for seaweed products, including the relative market demands for liquid seaweed extracts or dried powdered seaweed.

2. The species of seaweed which are preferred or are in greater demand.

3. The sustainable seaweed harvest, given the relatively slow growth rates in cold UK waters compared with other seaweed producing areas in the Mediterranean.

4. The various methods of harvesting presently utilised, including drag nets and more labour-intensive methods.

5. An investigation into the various methods available for drying seaweed, including the possibility of utilising cheap heat through burning peat fuel as a source of drying heat.

6. A summary of literature available relative to seaweed growing trails and other papers on the merits of seaweed-based growth enhancers.

7. A review of the current research work being undertaken by the Orkney Water Test Centre in conjunction with the Institute of Offshore Engineering (Heriot Watt University) relative to the extraction and production of a consistent liquid seaweed extract for commercial production purposes.

8. An assessment of other downstream uses of seaweed extracts such as alginates, and a summary of their diverse uses as well as demand in other industries such as hydrocolloids: food and pharmaceuticals: textile dye technology; paper coating industry; and welding electrode manufacture.

ANNEXE 2

Five Highland Regional Council Departments have been/are particularly involved in fisheries and aquaculture and most have undertaken various reports/studies relating to their involvement. These reports/studies demonstrate the involvement of certain Departments in fisheries and aquaculture and their reports/studies provide an information base for the Fisheries Plan.

Development Department Studies:

Fisheries in Highland Region - Conservation & Development (1980)
Development Opportunities in Pelagic processing (1987)
Development Opportunities in White Fish Processing (1987)
Submission on Review of Inshore Fishing Regime (1989)

Roads & Transport Department Studies:

Study of Minor Ports in highland Region (1985)
Kinlochberview - Cost Benefit Analysis for Development (1985)
Gairlock harbour Improvement Investment Appraisal (1988)
Lochinver harbour Development and Renewal (1988)
Lochinver harbour Development Proposal (1988)

Planning Department Reports:

Structure Plan - Fishing and Aquaculture Chapters
Fish Farming Developments & Control Strategy Paper No. 1 (1988)
Loch Sunart Framework Plan (1988)
Loch Ewe Framework Plan (1988)
Loch Nevis Framework Plan (1988)
Loch Inchard Framework Plan (1988)
Kylesku/Eddrachilles Framework Plan (1988)

Loch Torridon Framework Plan (1988)
Draft Framework Plans - Loch Linnhe, Loch Leven, Loch Eil, Loch Hourn (1989)

<u>Education and Water & Sewerage Departments</u> are involved in training and infrastructure in support of fisheries and aquaculture developments.

APPENDIX II

Aquaculture Development Unit

Tasks

- Planning procedures and liaison with other bodies involved in the planning process for farm sites.

- Assistance and assessment of business plans.

- Advice and assistance with grant aid.

- Market research and promotion.

- A conduit for advice on biological and technical matters and site evaluation drawing on help from Seafish, MFU and the Institute of Aquaculture.

- Information to potential investors, growers and the public about aquaculture in the Highland Region.

- Links with the Fishing Industry Training Association in the Highland Region to assist with education and training to raise standards of competance in the workforce.

Strategic Plan for Aquaculture

A prerequisite of the ADU is for a clear set of goals to be set by the Steering Committee for aquaculture in the year 2000. By a careful review of existing knowledge and plans the strategy could be defined in a reasonably short period of time (2 or 3 meetings).

From the forward assessment of goals it will be possible for the ADU and their advisers to produce a list of activities needed to prepare the way for the goals to be achieved. This would include changes to legal procedures, barriers to be removed and tasks in R&D.

AQUACULTURE DEVELOPMENT UNIT (ADU)

The policy of the Highland Regional Council is to make best use of its natural and human resources. The function of the ADU is to assist aquaculture achieve its full potential in the Region by becoming a focal point through which all activities relating to this important sector of industry can be channelled. The objective would be to ensure that these activities, such as grant aid, planning procedures and advice were put to best use.

Mission Statement To stimulate the orderly expansion of the cultivation of finfish and shellfish in the Highland Region with a view to consolidating existing farming and thereafter steadily increase production and open up new markets for Highland farmed produce.

Responsibility The ADU will be the responsibility of the Highland Regional Council through the Development Department. The Department and the ADU will be advised by a Steering Committee drawn from Seafish, MFU,SSGA, ASSG. HIE, SOAFD, CEC and the British Trout Association.

Staff The initial staffing envisaged consists of a manager, two executives and a secretary. The ADU staff should closely work within the Regional Development Officers, who would be the first point of contact with growers.

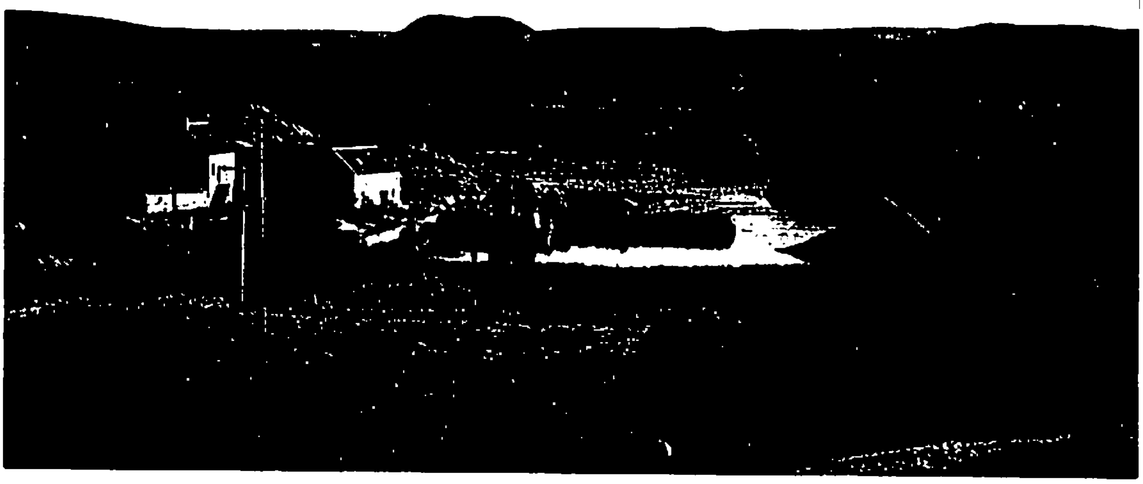
Location The suggested location is Fort William since this represents an important business centre close to a large number of existing farms and both the Seafish and MFU and the Institute of Aquaculture in Stirling.

The ADU in a Wider Context

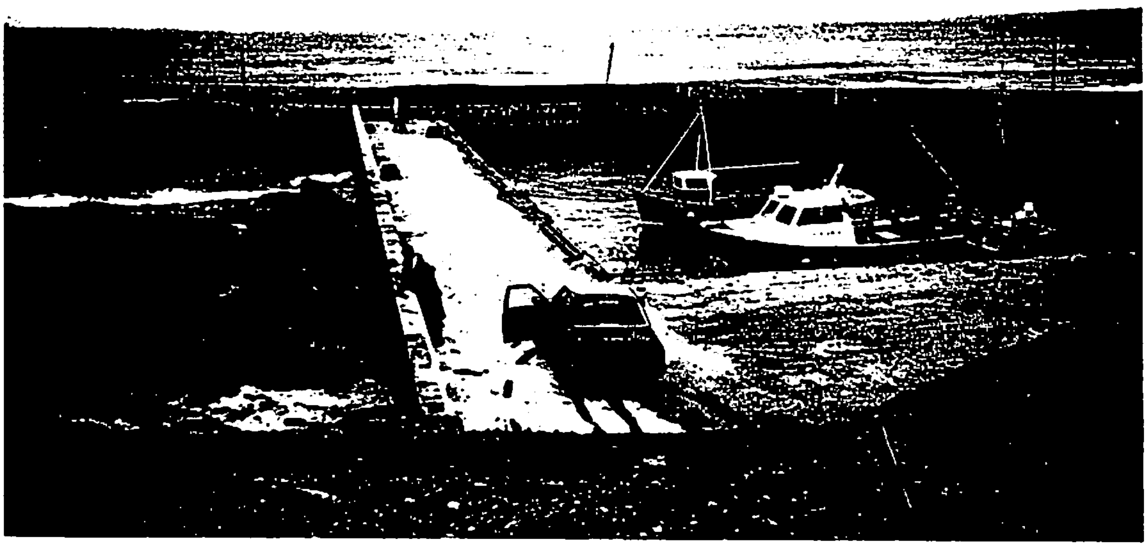
These proposals refer only to the Highland Region and they have been prepared within the context of the study into the "Prospects for Fisheries and Aquaculture in the 1990's". Clearly a proposal embracing the other Regions in which aquaculture is prominent would strengthen the concept. At this stage there has not been a wider discussion on the subject.

Further Action

Seafish on behalf of the Highland Regional Council would be willing to organise a meeting of the bodies proposed for the Steering Group to explore the principles involved.



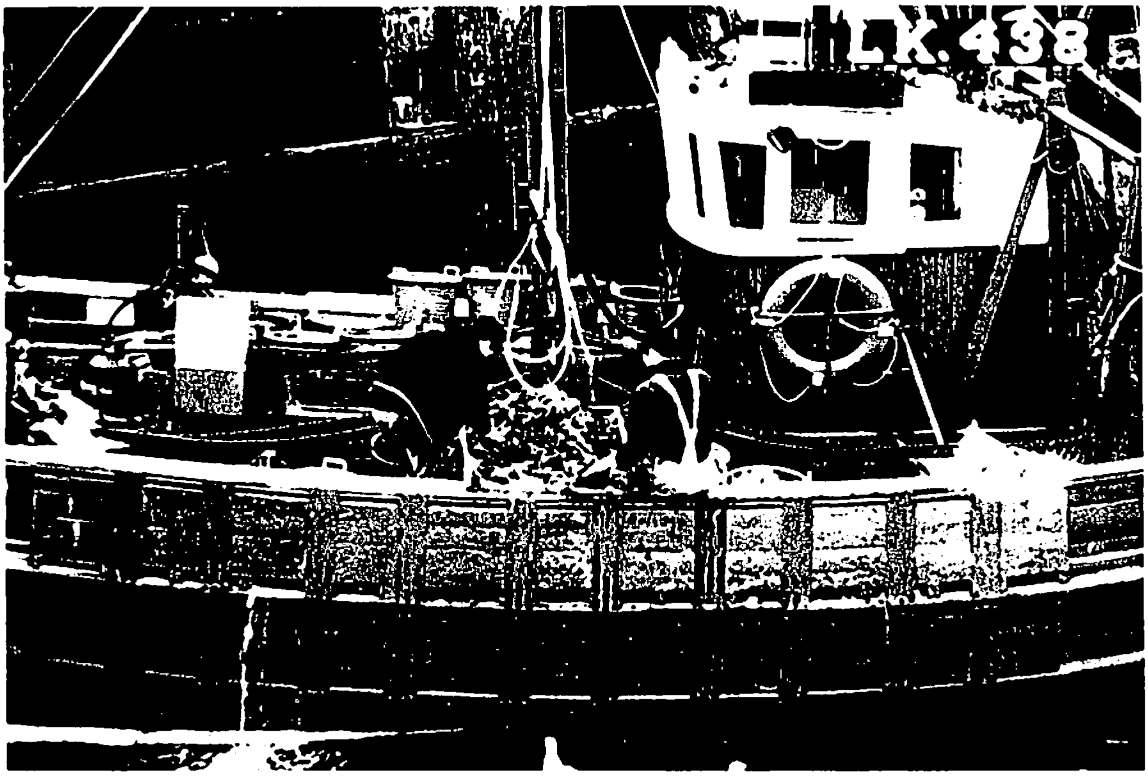
Photograph 1 - Rispond



Photograph 2 - John O'Groats

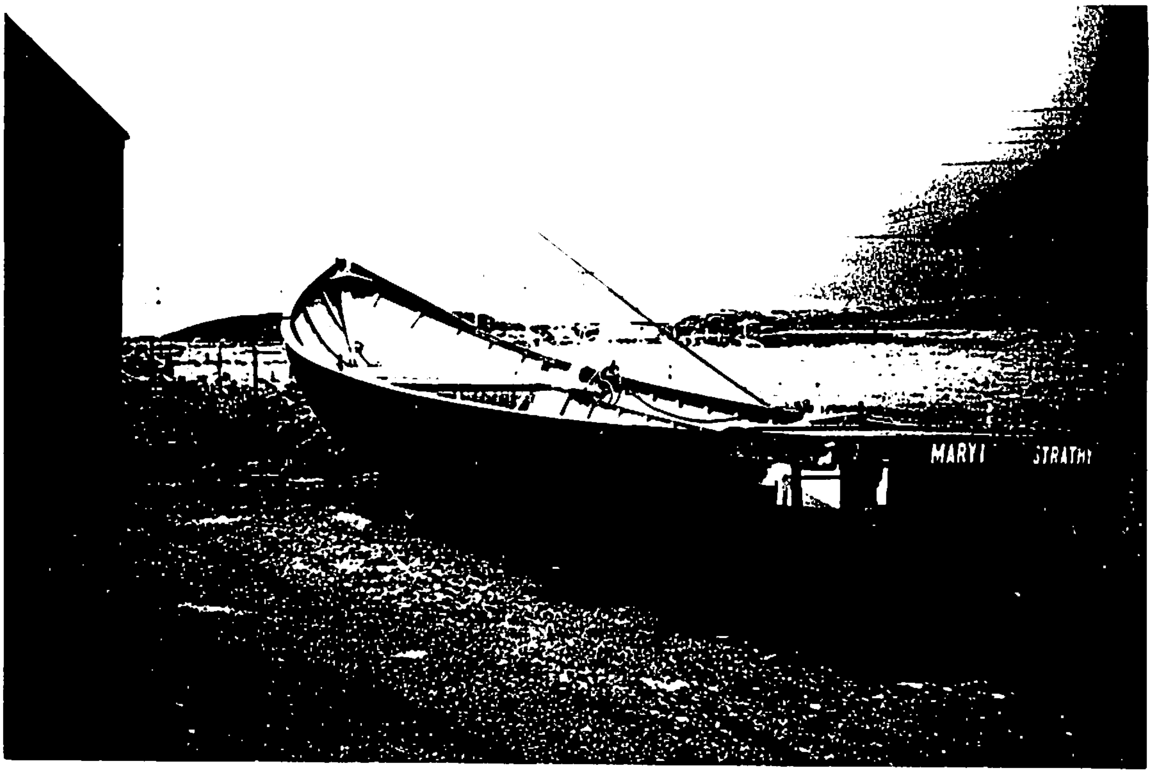
Photograph 3 - Helmsdale

Photograph 4 - Lybster



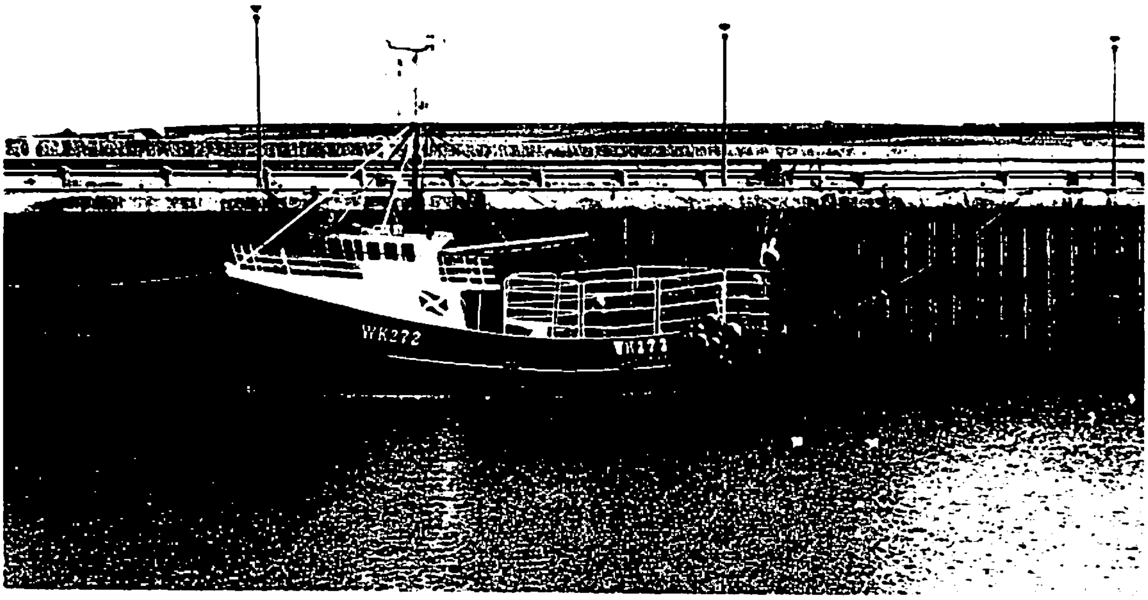
Photograph 5 - Mallaig - Sorting Prawns

Photograph 6 - Mallaig - Boatbuilding Slipway

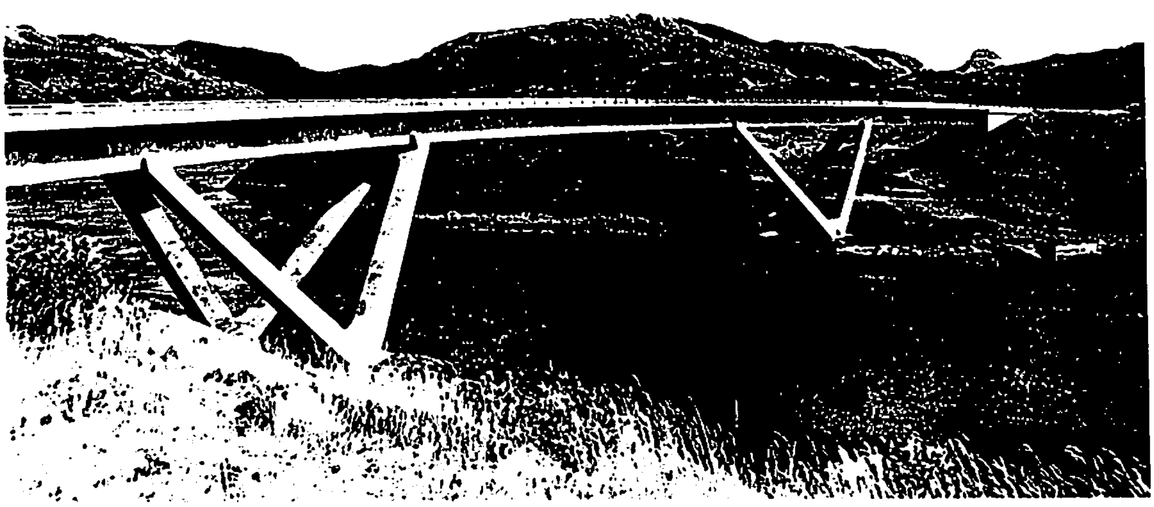


Photograph 7 - Port Grant - Salmon Boat

Photograph 8 - Gills Bay

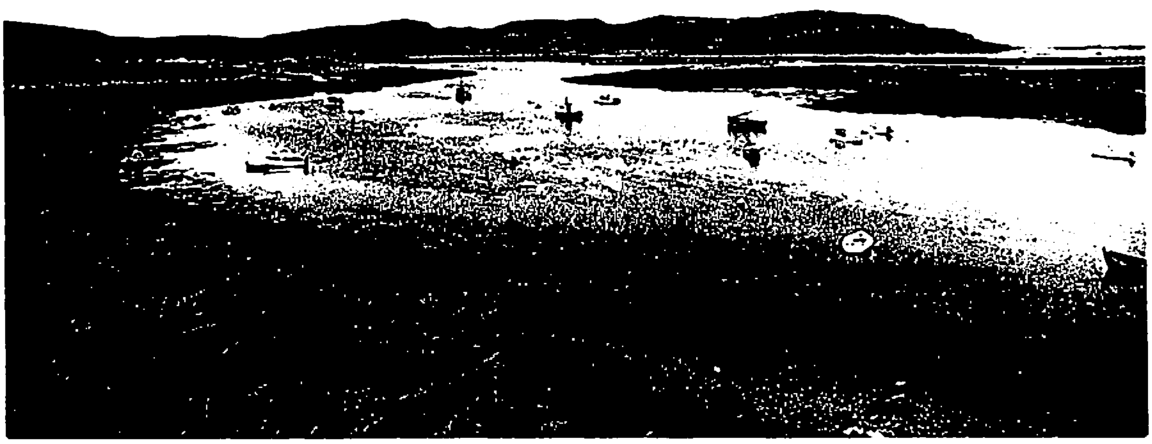


Photograph 9 - Scrabster Crabber

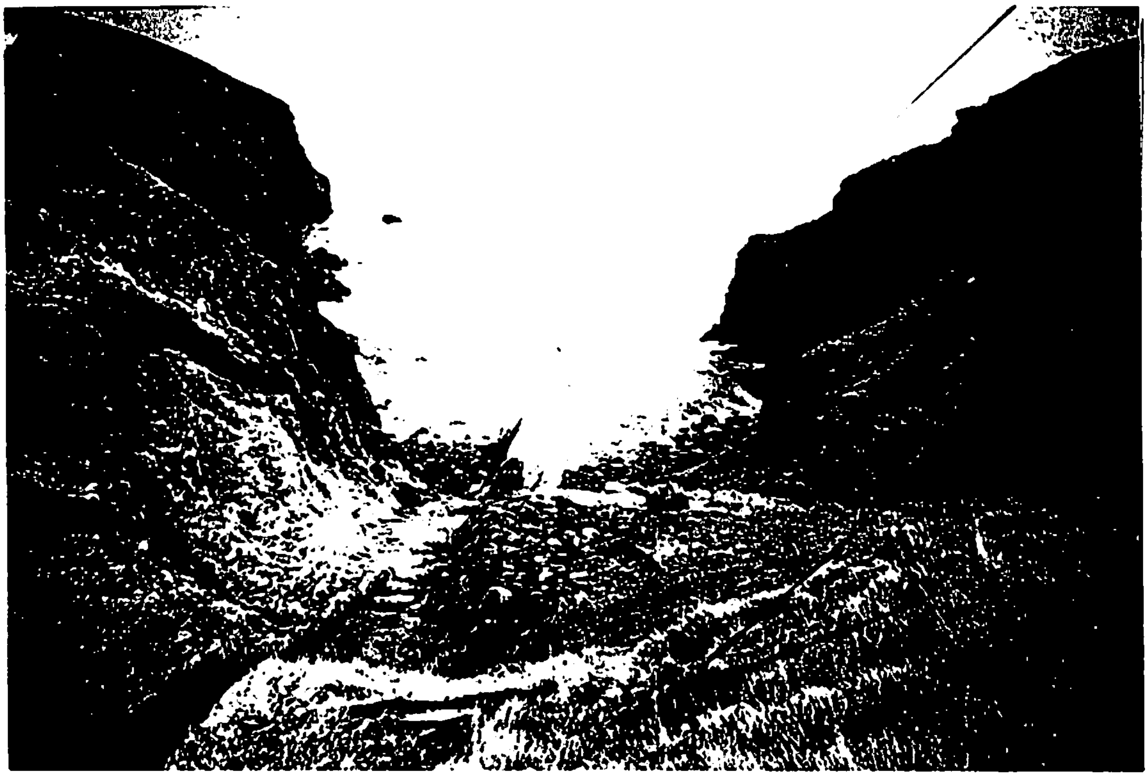


Photograph 10 - A894 Kylesku Bridge

Photograph 11 - Culkein Drumbeg

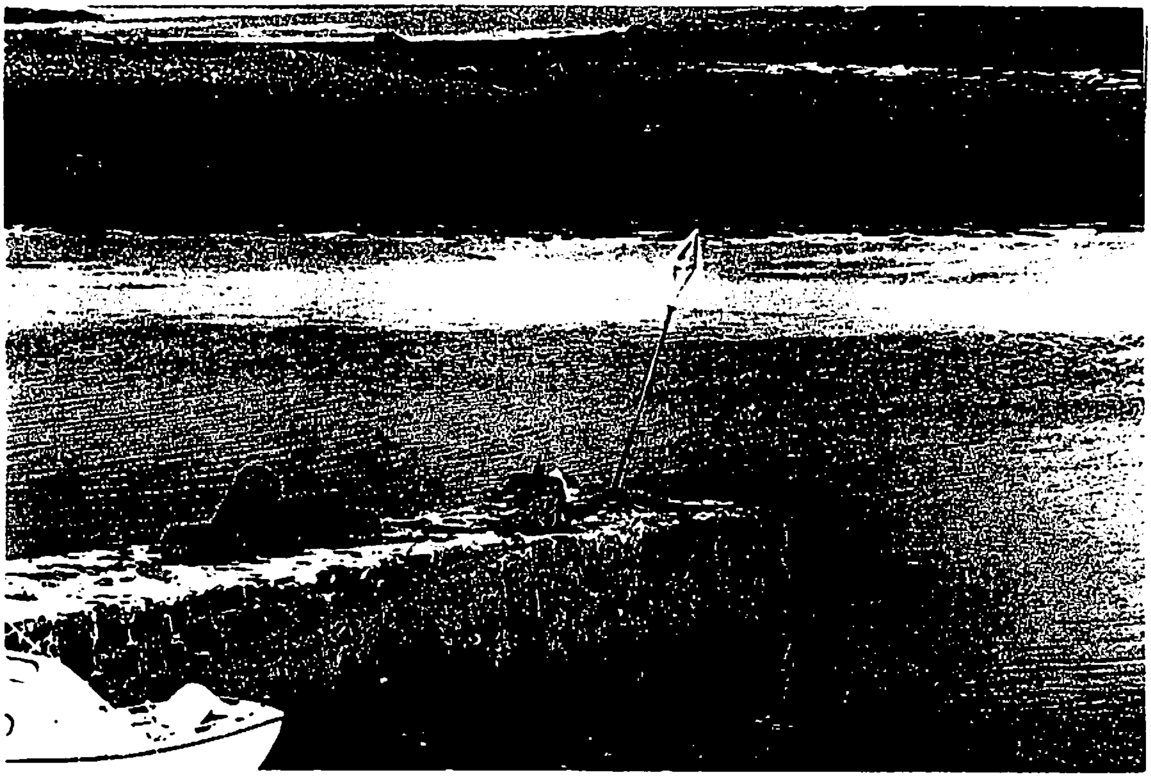


Photograph 12 - Old Dornie, Old Slip

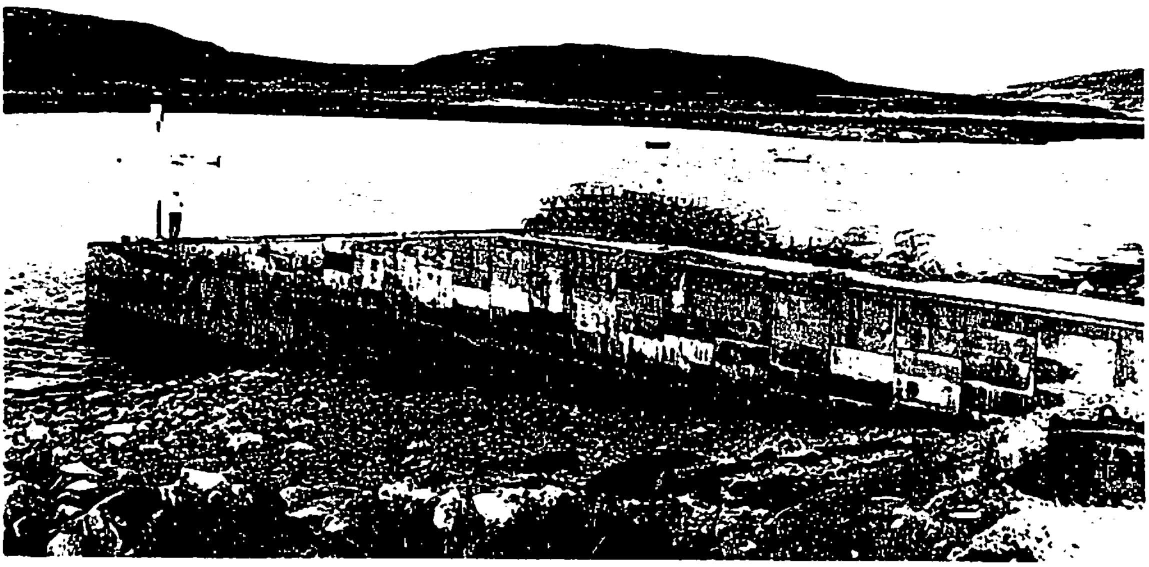


Photograph 13 - Port Grant Boat Hoist

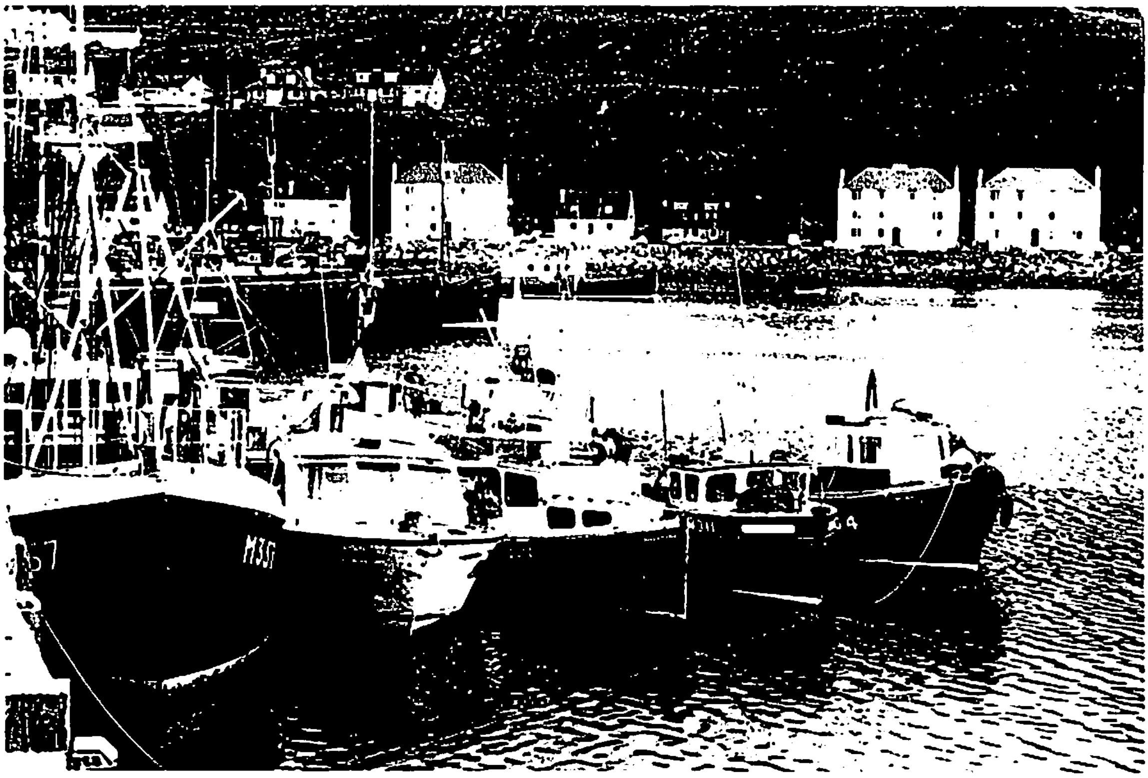
Photograph 14 - Scrabster crabbers



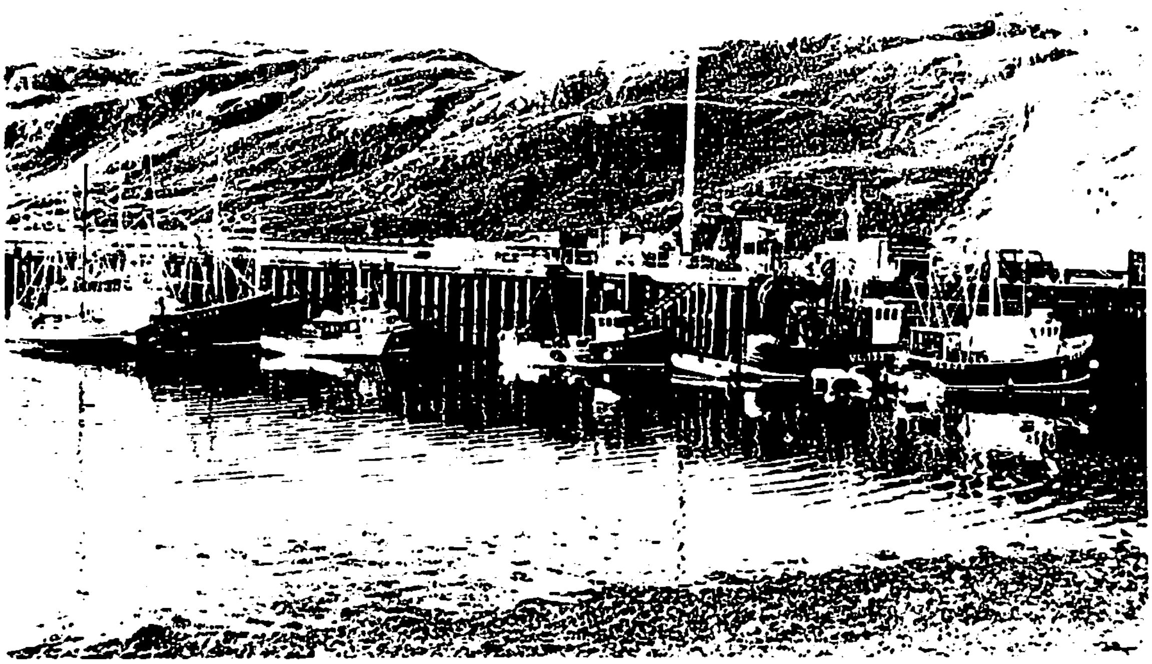
Photograph 15 - Old Dornie - Old Pier



Photograph 16 - Old Dornie - New Pier



Photograph 17 - Mallaig Local Fleet, Decked and Half Decked Boats



Photograph 18 - Ullapool Local Boats

Figure 5 - Mallaig Fleet

Figure 6 - Ullapool Registered 24m Trawler

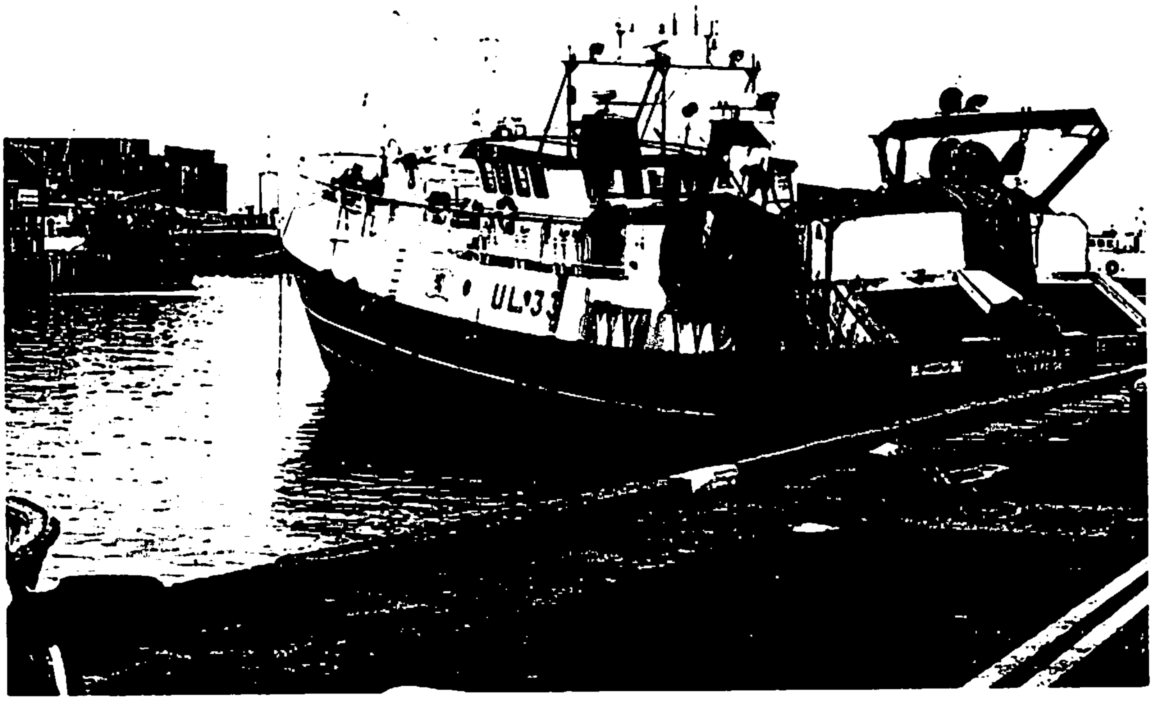
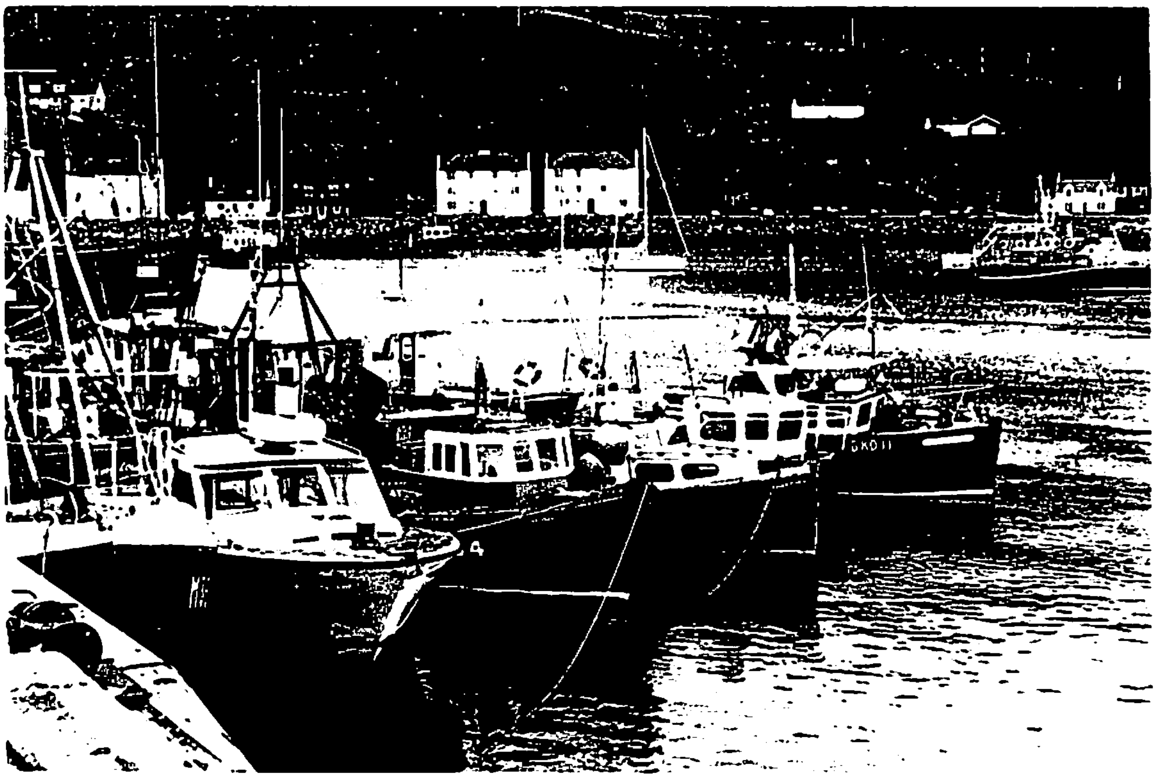


Figure 5 - Mallaig Fleet



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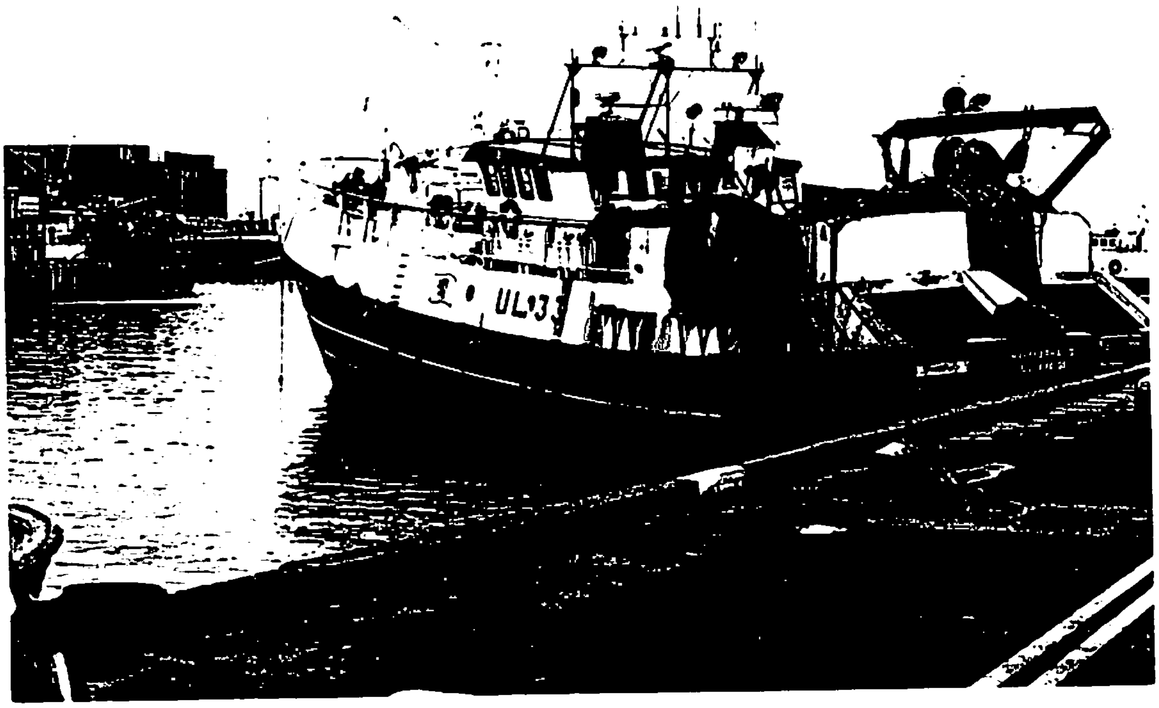

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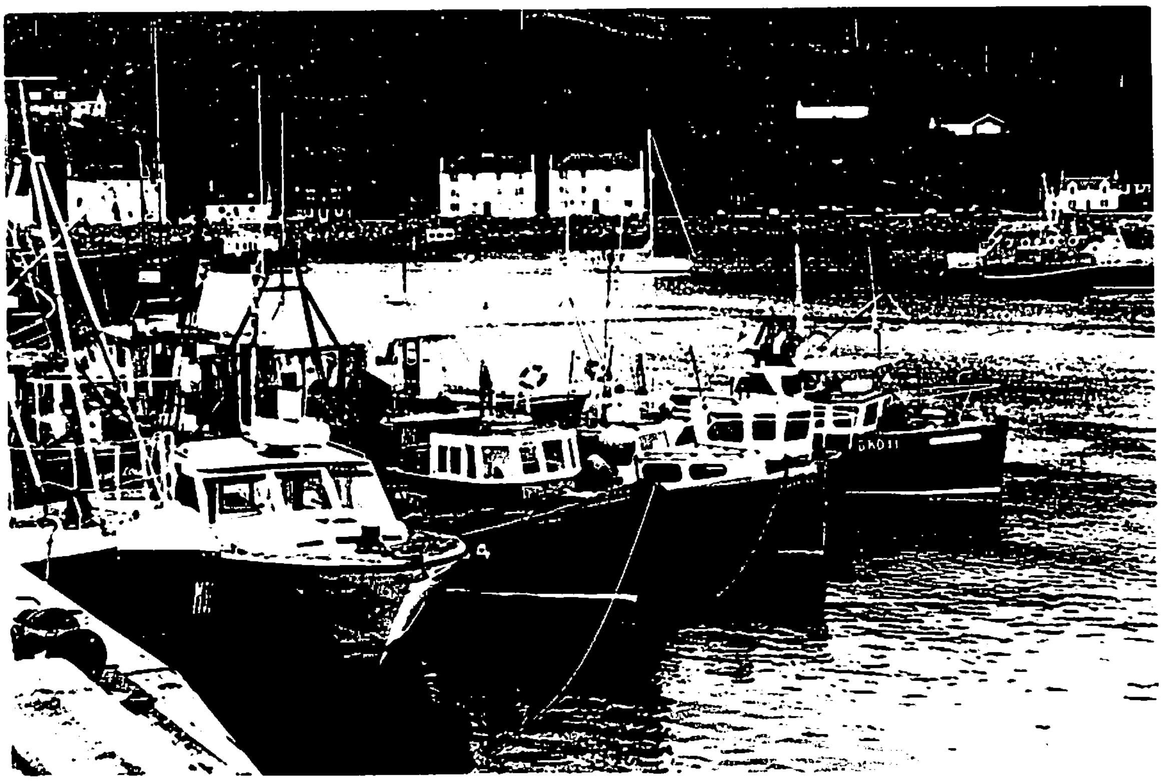

Figure 6 - Ullapool Registered 24m Trawler

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