BULK FREIGHT SHIPPING STUDY

Final Report

To

HITRANS

&

Highlands & Islands Enterprise

and

March 2007

CONTENTS

EXECUTIVE SUMMARY

INTRODUCTION

Reference and *STSI* were commissioned by HITRANS and HIE to undertake a study of bulk freight shipping in the Highlands & Islands. The objectives of the research were to:

- Develop a baseline of the existing bulk sea freight market.
- Describe and analyse the underlying economics of the bulk shipping market and its future prospects.
- Examine the case for any public sector intervention in the market.
- Make recommendations for potential actions to be included in HITRANS' Regional Transport Strategy.

The study included analysis of bulk shipping cargo flows at the main Highlands & Islands ports. This was supplemented by a series of consultations with stakeholders.

EXISTING POSITION

Flows

A wide range of commodities is imported and exported to/from the region by bulk vessel. In tonnage terms, a significant amount is liquid bulk traffic: crude oil; petroleum products; and liquefied gas.

A range of dry bulk cargoes is also moved, including: timber; road salt; coal; aggregates and ores; grain; animal feeds; and fertiliser. This supports the activities of a number of locally significant employers and regionally significant economic sectors, such as aquaculture and forest products.

Within this, bulk shipping supports sourcing of goods and the export of products outside Scotland and beyond the UK. It allows the participation of some of the region's companies in global markets. However, national policy mainly emphasises the environmental benefits of waterborne freight, and support mechanisms are based solely on environmental criteria.

At the port level, much of the demand is dependent on a small number of end customers. Bulk commodities are also moved by both ro-ro ferry and container vessels. However, there are no available data to allow comparisons of volumes conveyed by these modes and those transported by bulk vessels.

Vessels

The liquid bulk fleet and the shore infrastructure serving it are relatively modern. There is a range of vessels involved in dry bulk activities. These include some relatively modern and large timber vessels and also a number of foreign-owned specialist vessels that convey a single commodity.

In contrast, there is only a limited number of smaller (up to 1,000 tonnes cargo carrying capacity) vessels trading in the Highlands & Islands. Within this, there are only a few vessels that are generally available for conveying a range of cargoes in the Highlands & Islands, as opposed to serving one user and/or commodity. Those that remain are old and nearing the end of their lives and there is virtually no second-hand replacement tonnage.

The aging of the small end of the vessels market reflects the economics of ship operation, whereby economies of scale are available to those using larger vessels. The operating costs of larger vessels are not significantly greater than those of the smaller ships which are not earning sufficient revenue to justify their replacement with boats of a similar capacity.

FUTURE PROSPECTS

Demand

Future demand for bulk shipping is expected to be fairly stable at the Highlands & Islands level. However, traffic through particular ports is likely to fluctuate given that many flows are dependent on a small number of companies.

There is potential for growth in particular traffic types, notably waste and equipment for the renewable energy sector. There is also potential for the development of container services to/from the more populous parts of the region.

Vessels

The market is presently catering for much of the demand from bulk coastal shipping in terms of vessel provision. However, market conditions and construction costs do not appear to justify the building of new smaller bulk vessels. The lack of smaller vessels is also one of the reasons, along with the waterway's short length, for the apparently limited potential for freight on the Caledonian Canal.

If the smallest vessels were to drop out of the market this would particularly affect customers that only require consignments of 400-700 tonnes. The loss of the smallest vessels from the market could be a precursor to the medium-longer term decline in the number of ships of up to 1,500 tonnes cargo carrying capacity.

Existing trends imply that by 2020 the present fleet of ships serving the Highlands & Islands will no longer exist. Residual bulk cargoes that are not readily unitiseable but moving in smaller consignments (such as timber, stone and salt) would either have to pay significantly higher rates, or would be restricted to fewer ports.

The loss of smaller vessels would result in: higher costs of transport for commodities; capacity constraints on ferry services at certain times of year; increased requirement for road haulage equipment in more remote areas; and the environmental impacts of additional lorry road miles.

Any decision regarding public sector intervention in terms of the provision of bulk vessels would need to balance the scale of potential benefits against the wider issue of the mechanisms by which support could be offered.

Ports

With some exceptions the region's shore infrastructure is generally fit for purpose and especially so at the major ports. In general, the main ports have the capacity to accommodate larger vessels. Thus the demand for smaller ships relates more to some customers' requirements for small consignments rather than to restricted port capacity. However, if ships of 3,000 tonnes cargo carrying capacity become the operating standard in the longer term, then a number of the region's ports, such as Buckie and Wick, would no longer be able to handle cargo.

Road connections are an issue for ports where they are intensively used by lorries working directly to a ship. They will also be important to some of the region's larger ports if they are to fulfil their potential for achieving significant modal shift.

Policy

There is no indication of a change of policy at the Scottish level; that is, to move beyond Freight Facilities Grants, with no assistance being offered for bulk vessels, as the primary means of supporting bulk freight activity. In contrast, the forthcoming review of CalMac's fare structure could lead to lower freight charges on a number of ro-ro services.

RECOMMENDATIONS

1

This study's findings should be communicated to stakeholders and those consulted during the research.

2

Having considered the scale of potential impacts of the possible loss of the smallest vessels from the market, HITRANS and HIE should meet the Scottish Executive to discuss the report's findings. This should involve consideration of both the need for intervention and possible mechanisms for this beyond those already available-including the possibility of supporting ships operating to/from ports outside the Highlands & Islands.

3

HITRANS' proposed ports strategy should reflect the longer-term issues identified in this report; notably those relating to increasing vessel size and the capacity of particular ports.

4

HITRANS should consider the establishment of a ports and shipping liaison group to permit continuing contact with these sectors. The group would be used to help identify issues relating to port capacity/infrastructure and key road and rail connections. It should also be used to communicate HITRANS' remit and objectives to these stakeholders, as well as the role of the Regional Transport Strategy in developing road and rail links to the region's ports.

5

As part of a general effort to recognise the contribution of ports and shipping, HITRANS and HIE could commission a joint study into the economic impacts of the region's main ports. HITRANS should also consider co-funding studies into the potential for expansion/development at particular ports.

6

Through its constituent local authorities, HITRANS should facilitate discussion and further consideration of greater use of sea transport for the movement of waste for disposal.

7

HITRANS should undertake a joint study with British Waterways to fully examine the potential for freight traffic on the Caledonian Canal.

1 INTRODUCTION

This is the final report for a study of bulk freight shipping in the Highlands & Islands. The research was undertaken jointly by *Reference* and *STSI* on behalf of HITRANS and Highlands & Islands Enterprise (HIE) between November 2006 and February 2007.

1.1 STUDY OBJECTIVES

The overall objective of the study was to investigate a number of issues regarding transport of bulk freight by sea in the Highlands & Islands. The detailed objectives were to:

- Develop a baseline of the existing bulk sea freight market in the Highlands & Islands.
- Describe and analyse the underlying economics of the bulk shipping market and its future prospects.
- Examine the case for any public sector intervention in the market.
- Make recommendations for potential actions to be included in HITRANS' Regional Transport Strategy.

The study focuses on bulk shipping. It does not directly address issues relating to ro-ro or lo-lo freight traffic.

1.2 STUDY METHOD

Desk-based analysis was undertaken of a range of data describing bulk cargo flows at the main Highlands & Islands ports.

This was supplemented by a series of consultations with stakeholders, including: port operators; shipping lines; consignors and consignees of bulk cargoes; local authorities; and Scottish Executive.

1.3 REPORT STRUCTURE

Chapter 2 Describes the existing market demand for bulk cargoes in the Highlands & Islands and the policy context in which the market operates.

Chapter 3 Reviews the supply of ships for the bulk cargo market in the Highlands & Islands.

Chapter 4 Analyses and discusses future prospects for bulk shipping in the region.

Chapter 5 Provides our conclusions and recommendations.

Appendix A provides details of capacity at a number of Highlands & Islands ports.

Appendix B contains a list of those consulted as part of the study.

2 BULK SHIPPING FLOWS AND POLICY CONTEXT

2.1 INTRODUCTION

This Chapter:

- Defines bulk commodities conveyed by coastal shipping.
- Analyses bulk shipping flows at the Scottish and Highlands & Islands levels.
- Reviews the use of other transport modes for the transport of bulk commodities.
- Reviews the policy context within which bulk shipping in the Highlands & Islands operates.

2.2 BULK SHIPPING COMMODITIES

2.2.1 Introduction

Essentially the market splits into two principal sectors: the first is the movement of liquid bulk cargoes; the second is the carriage of dry bulk cargoes.

2.2.2 Liquid Bulk Cargoes

The carriage of liquid bulk cargoes by sea is quite highly regulated to ensure good safety standards. The main liquid bulk cargoes carried around Scottish coasts are:

- **Crude oil**-mainly from oil fields to land fall for onward transfer by pipeline to a refinery. The biggest flows in the Highlands & Islands are into Sullom Voe (Shetland) and Flotta (Orkney).

- **Petroleum products**. These are products such as petroleum, heating oil, etc. that are typically produced in a refinery. They are usually hazardous and explosive and need to be handled with care.

- **Liquefied gas**-typically butane, methane, etc. These products are carried under refrigeration and under pressure, so need to be handled with care.

- **Other products**-such as acids and other chemicals, which are the outputs of a manufacturing process.

Each of the above will be loaded from and discharged into specialist facilities. All stages of handling are covered by ISO 9000 safety standards and are closely regulated. The commodities can be moved by road and/or rail; but, again, their carriage must comply with stringent safety regulations.

The ships used are all bespoke to meet the needs of specific trades. A crude oil carrier cannot move petroleum products; a petroleum products tanker cannot move chemicals; and only a liquid gas carrier can move liquefied gas.

2.2.3 Dry Bulk Cargoes

Dry bulk cargoes are commodities such as coal, aggregates and ores, salt, grain, animal feeds, fertiliser, etc.

Historically they have been moved in a one hold/one hatch single deck ship around the Scottish coast. These ships can also usually carry timber and other forest products in bulk, so have far greater flexibility than liquid bulk vessels. These ships are effectively multi-purpose and operate under a less onerous safety and management regime, if only because the consequences of an accident are less significant to people and the environment.

2.3 BULK CARGO FLOWS: HIGH LEVEL ANALYSIS

2.3.1 Scotland

In 2005, 105 million tonnes of sea cargoes moved to/from Scottish ports. An analysis of the flows is shown at **Table 2.1**.

TABLE 2.1: SCOTTISH TRAFFIC: 2005 (000 TONNES): BY MODE AND LOCATION

	Foreign		Domestic		
	Imports	Exports	Imports	Exports	**Total**
Crude Oil	2,995	34,085	9,986	12,576	**59,641**
Other Liquid Bulks	1,721	5,012	2,662	4,793	**14,186**
Dry Bulk	11,546	4,559	1,383	6,039	**23,527**
Containers	498	1,125	294	503	**2,420**
Ro-Ro	266	219	2,247	2,487	**5,217**
Totals	**17,026**	**45,000**	**16,572**	**26,398**	**104,991**

Source: Scottish Transport Statistics 2006

It shows that Scotland as a whole exports much more cargo than it imports. The exports go to N Ireland, England & Wales and destinations outside the UK. This is relevant in that cargo loaded in smaller consignments in small ports in the Highlands & Islands will usually be shipped to destinations outside the Highlands & Islands, and, indeed, outside of Scotland.

The Table also shows that:

- 62m tonnes (59%) constitute foreign traffic.
- 74m tonnes (70%) are liquid bulks. Most liquid bulk traffic is Crude Oil.
- 30m tonnes are domestic liquid bulk, accounting for 70% of all domestic trade. Again most of this traffic is Crude Oil.
- Only a small proportion of the flows is unitised-13% of domestic trade and 3% of international trade.

Overall, the primary market is the maritime carriage of liquid bulk cargoes, with the movement of dry bulks being less important in tonnage terms.

The "Dry Bulk" volumes shown at **Table 2.1** include: ores, coal, agricultural products, forest products and iron and steel. These account for around one quarter of foreign flows and 17% of all domestic cargo flows. The foreign bulk flows are skewed by the import of 8.8 million tonnes of coal. In the domestic market, bulk exports greatly exceed bulk imports, in fact by a ratio of more than 4:1.

Table 2.2 provides information on the origins and destinations of UK coastwise flows. These are defined as cargo lifted in a Scottish port that is then discharged in any UK port, or cargo that is discharged in a Scottish port having been loaded in any UK port. As such, the data include cargoes loaded or discharged in the Highlands & Islands.

TABLE 2.2: PRINCIPAL SCOTTISH COASTWISE BULK FLOWS: 2005 (MILLION TONNES)		
Liquid Bulks		
	Loading	**Discharge**
Thames & Kent	3.15	
Sussex & Hants.	2.68	
West & North Wales	0.79	
Lancs. & Cumbria	3.92	
Humber	2.50	
Other	3.90	
Liquid: Sub-Total	*16.94*	*4.29*
Coal		
	Loading	**Discharge**
Northern Ireland	1.70	
Other	0.45	
Coal: Sub-Total	*2.15*	
Other Dry Bulks		
	Loading	**Discharge**
Thames & Kent	1.13	
Sussex & Hants.	0.70	
Northern Ireland	2.62	
Other	1.98	
Other Dry Bulks: Sub-Total	*6.43*	*4.17*
Total		
All Cargoes	**25.52**	**8.46**

Source: Waterborne Freight Traffic 2006

The main points to note are that:

- Tonnages loaded greatly exceed those that are discharged. This indicates that export volumes are well above those imported and particularly so for liquid bulks and coal.
- There appears to be limited intra-Scotland movements, with longer distance movements to locations in south England being significant. This is, perhaps, unsurprising as the financial advantages of moving goods by bulk shipping will increase over longer distances.

2.3.2 Highlands & Islands

Table 2.3 shows the tonnages through the main ports in the Highlands & Islands. These are placed in context by comparing them to flows through ports elsewhere in Scotland. These tonnages include all modes and products, such as crude oil, dry bulk, containers and ro-ro traffic.

TABLE 2.3: TONNAGES THROUGH SCOTTISH PORTS (000 TONNES): 2005			
Highlands & Islands			
Port	**Inwards**	**Outwards**	**Total**
Sullom Voe	3,937	16,603	**20,541**
Orkney	5,344	9,190	**14,535**
Glensanda	-	5,439	**5,439**
Cromarty Firth	1,648	1,677	**3,325**
Inverness	568	97	**665**
Lerwick	342	280	**622**
Other West Coast	*171*	*943*	***1,114***
Other East Coast	*25*	*70*	***95***
All Highlands & Islands Ports	**12,035**	**34,299**	**46,334**
Other Scottish Ports	**23,880**	**39,438**	**63,315**
ALL SCOTLAND	**35,915**	**73,741**	**109,652**

Source: Scottish Transport Statistics: 2006. Note: Some columns do not sum to totals but the data are as shown in the source document. Definition of Highlands & Islands appears to exclude Moray

The data show that Highlands & Islands ports account for 42% of total tonnages through Scotland's ports in 2005. Within the region, as for the rest of Scotland, outbound traffic accounts for a majority (almost three quarters) of the flows.

In terms of volumes, the three largest ports in the Highlands & Islands are Sullom Voe, Orkney and Glensanda. They collectively generated 87% of all trade. If Cromarty Firth is included the percentage increases to 95%. With the exception of Glensanda, volumes at these ports include relatively large movements of crude oil.

A similar picture emerges in the rest of Scotland, in terms of concentration of activity. Two ports (Forth and Clyde) account for 79% of all traffic and the top four ports account for 91%.

2.4 HIGHLANDS & ISLANDS FLOWS: MAIN PORTS

2.4.1 Introduction

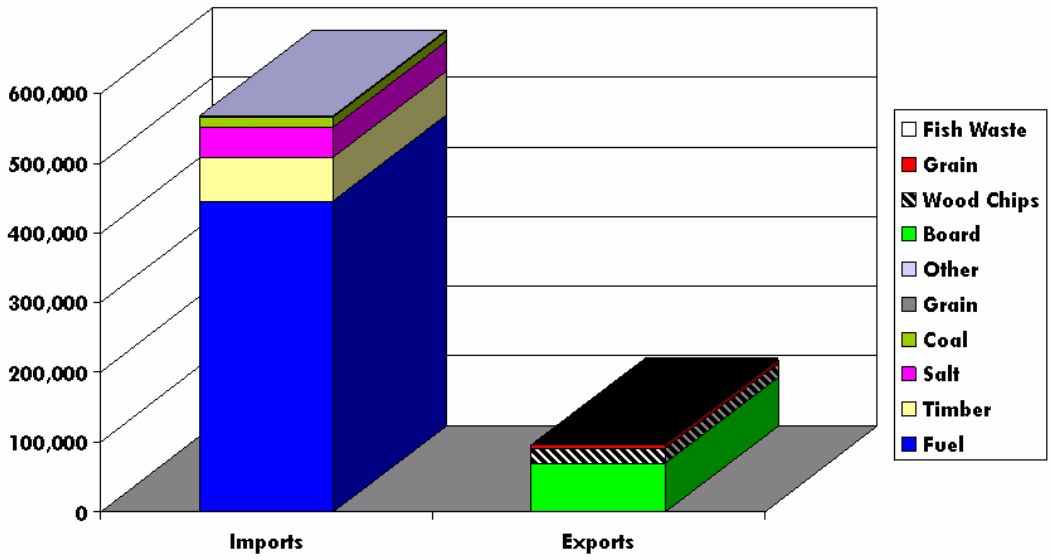
This section analyses flows at some of the main ports in the Highlands & Islands. The approach has been to select ports with relatively large volumes and, in general, those that cater for a range of bulk cargoes rather than specialising in one particular product. Given the focus of the study we have **excluded** movements of crude oil from the analysis.

2.4.2 Inverness

Flows

Figure 2.1 shows flows of imports and exports by commodity in 2005.

Figure 2.1: Inverness: Imports and Exports: 2005 (Tonnes)



In that year a total of 665,000 tonnes were moved through Inverness. Of this, the vast majority (85%) was imports.

Imports

Around 568,000 tonnes were imported in 2005. Most of this (over three quarters) consisted of fuel. The other main cargoes were timber, road salt and, to a lesser extent, coal. Timber accounts for around one half of non-fuel imports and road salt for a further third.

Fuel is regularly delivered in consignments of 3,600 tonnes-mainly from Grangemouth but also from the Thames area. Deliveries are mainly via BP vessels but some are undertaken by James Fisher, a Cumbrian-based company. The fuels include: petrol, diesel and lube oils.

Jet fuel is imported for the two RAF bases in Moray and is piped underground from Inverness to the sites. Road fuels are kept in holding tanks and are supplied to a range of sites, operated by BP, Esso and Texaco, across an area stretching from Elgin to Portree and from Aviemore to Wick.

Timber arrives regularly from Sweden, Latvia and Germany. Consignments of packaged timber of almost 3,000 tonnes are conveyed by Inverness-based Scotline. It is ordered by a range of customers in the UK, including ones based in the Northern Isles and the Outer Hebrides as well further afield including England.

Road salt consignments tend to be delivered in the autumn and in relatively large consignments of up to 3,200 tonnes. Like much of the Highlands & Islands the salt comes from Northern Ireland. In the case of Inverness it is generally delivered by Scotline vessels. The imports serve an area as far south as Newtonmore.

Coal is imported on behalf of local merchants and predominantly in the autumn and winter. The vessels are generally around 65-80 metres in length with the cargo being loaded at either Amsterdam or Rotterdam. Consignments are up to 2,000 tonnes.

There are also occasional imports of **animal feed**, of up to 1,500 tonnes, from East Anglia. These are mainly for Harbro in Inverness.

Exports

In 2005, 97,000 tonnes of exports went through Inverness.

The exports largely comprise two commodities: firstly, processed wood in the form of sterling board which accounts for over 70% of the volumes and secondly wood chips which account for a further 22%. Clearly, the total volumes of exports are considerably less than the volumes of imports which are shown at **Figure 2.1**. However, if fuel imports are excluded, then the difference between exports and imports falls to around 25,000 tonnes.

Sterling board is exported to a number of countries including Norway, Netherlands, Germany, Turkey and United States. The European destinations tend to be served by Scotline, with chartered vessels exporting to Turkey and elsewhere. Consignments vary between 2,000 and 3,200 tonnes and are exported all year round. They are produced by the Nexfor plant at Dalcross. At present, an average of one vessel per week is moving the product abroad.

Grain exports are to either Russia or Kent (rapeseed). Vessels are "one-off" charters and carry up to 3,000 tonnes of grain.

Wood Chips are exported to foreign markets all year round, with cargoes typically around 2,000 tonnes. These originate from Nairn and mainly go to Norway.

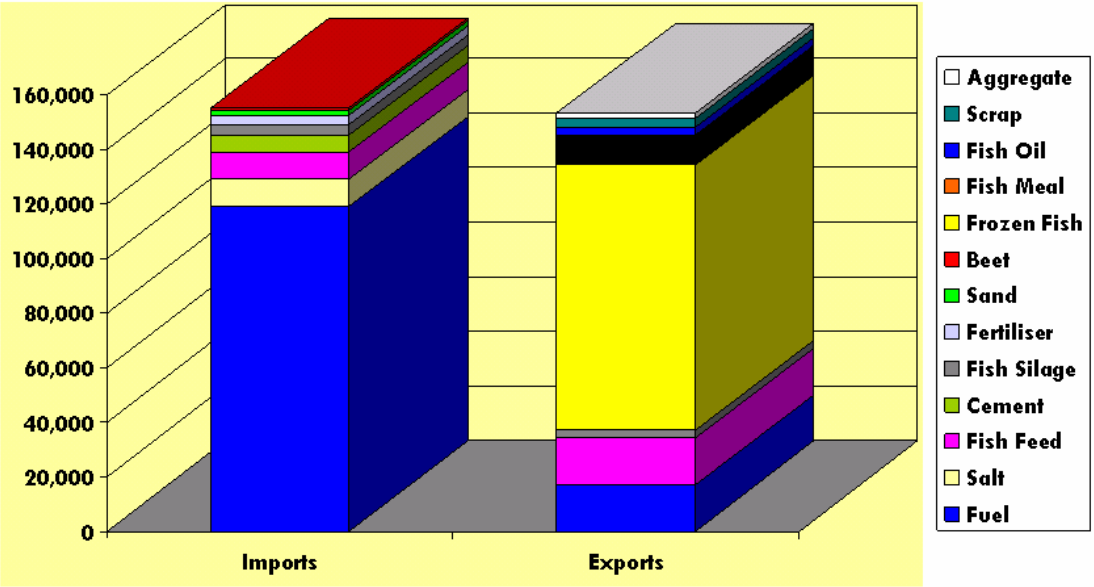
There are also occasional exports of **round logs**. These are to the Netherlands and tend to take place in summer/autumn. Consignments are up to 2,000 tonnes and are usually conveyed on Scotline ships.

2.4.3 Lerwick

Flows

Figure 2.2 shows flows of imports and exports by commodity through Lerwick in 2005.

Figure 2.2: Lerwick: Imports and Exports: 2005 (Tonnes)



A total of 308,000 tonnes of cargo were shipped through the port in 2005. These were split almost evenly between imports and exports.

Imports

These are dominated by fuel, which accounts for over three quarters (77%, 119,000 tonnes) of the volumes. The two largest other imports are salt and fish feed (10,000 tonnes each)

Exports

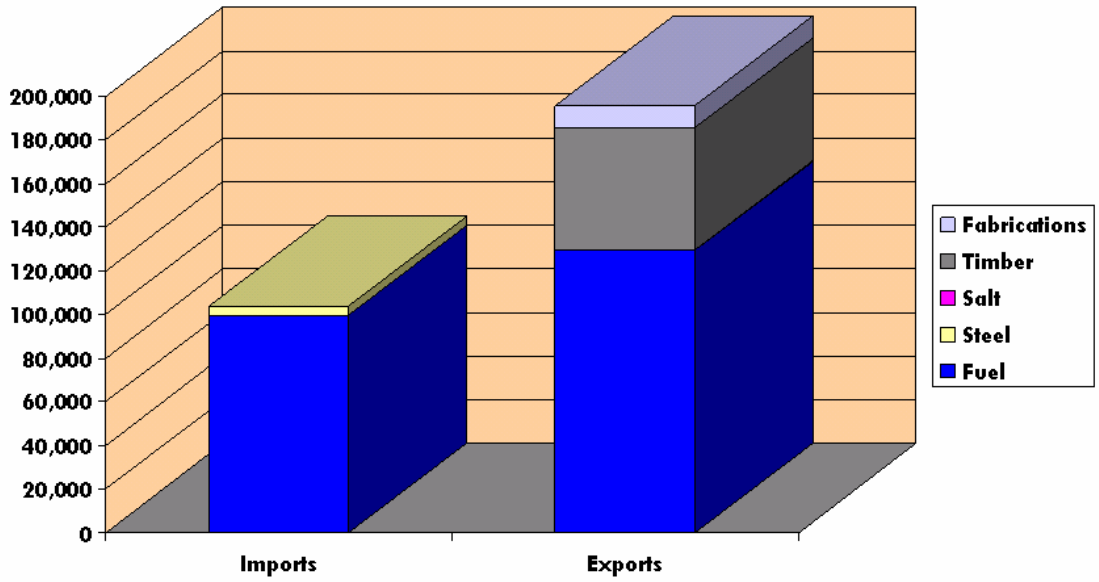
Similarly, one particularly large flow dominates the exports volumes: frozen fish accounts for 63% of volumes (97,000 tonnes). Fuel and fish feed each account for a further 11,000 tonnes.

2.4.4 Campbeltown

Flows

Figure 2.3 shows flows of imports and exports through Campbeltown by commodity in 2006. In that year 300,000 tonnes moved through Campbeltown. Of these, over half (65%, 196,000 tonnes) were exports and 35% (104,000 tonnes) were imports. In total, over three quarters of total tonnages were fuel.

Figure 2.3: Campbeltown: Imports and Exports: 2006 (Tonnes)



Note: Data are for January-November only

Imports

In terms of tonnages, most (96%) of the imports consist of **fuel**. Of the remaining cargoes, the most significant is **steel** (4,000 tonnes). This is generally from Scandinavia and destined for the Vestas plant.

Exports

There are three export commodities. In terms of volume, the largest is **fuel** which accounted for two thirds of exports. Most of these are for Belfast, although there can also be large one off consignments moving outside the UK.

Timber accounted a further 29% of exports (56,000 tonnes). Of these:

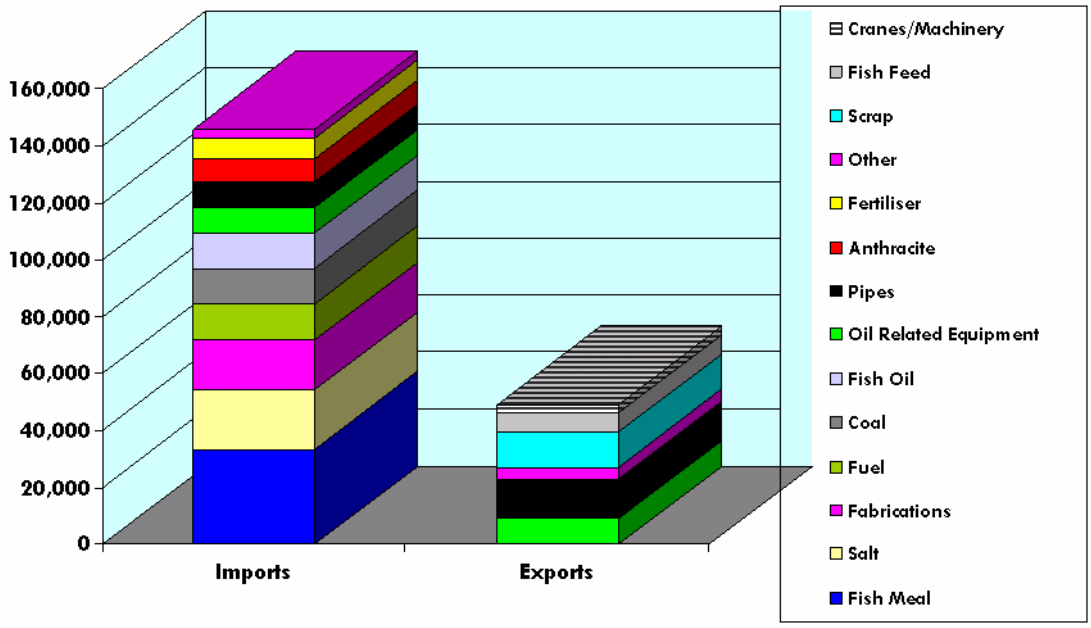
- Over 80% were to the UK market-usually either to Troon or Derry. Loads are typically up to 1,000 tonnes.
- The balance was to Finland. Consignments tend to be around 2,500 tonnes.

The **fabrications** (10,500 tonnes) were largely finished parts for windfarm machines, tower sections and turbine nacelles, from the Vestas plant. These mainly go to Troon, usually by ro-ro ferry vessels, and are transported on from there to final destinations. There were also two shipments of windfarm machinery parts to Canada.

2.4.5 Cromarty Firth

Figure 2.4 shows flows of imports and exports through Cromarty Firth by commodity in 2005. Around 195,000 tonnes of cargo moved through the port in 2005. Of these, around three quarters were imports (146,000 tonnes).

Figure 2.4: Cromarty Firth: Imports and Exports: 2005 (Tonnes)



Imports

A wide range of commodities is imported. The largest volume is around 33,000 tonnes of **fish meal** which is used in the manufacturing processes of a local fish food manufacturer based in Invergordon. The meal is generally imported either from Iceland or Germany, typically in consignments of between 1,100 and 1,300 tonnes.

The 17,000 tonnes of "fabrications" are **wind turbines**. In 2005 there were 18 consignments with most around the 1,000 tonne mark. All were imported from Denmark.

Coal is imported by an Invergordon-based merchant from either Poland or the Netherlands. Compared to many ports in the region, **fuel** represents a relatively small proportion (9%) of import flows.

Exports

In 2005 the main export flows included:

- **Pipes** (14,000 tonnes): to UKCS (oil rigs).
- **Scrap** (12,000) mostly to Spain, from a Dingwall-based merchant. Four consignments were recorded in 2005.
- **Fish feed** (7,000) from Skretting's Invergordon plant to Shetland. Most consignments are between 500 and 700 tonnes.

2.4.6 Ardrishaig

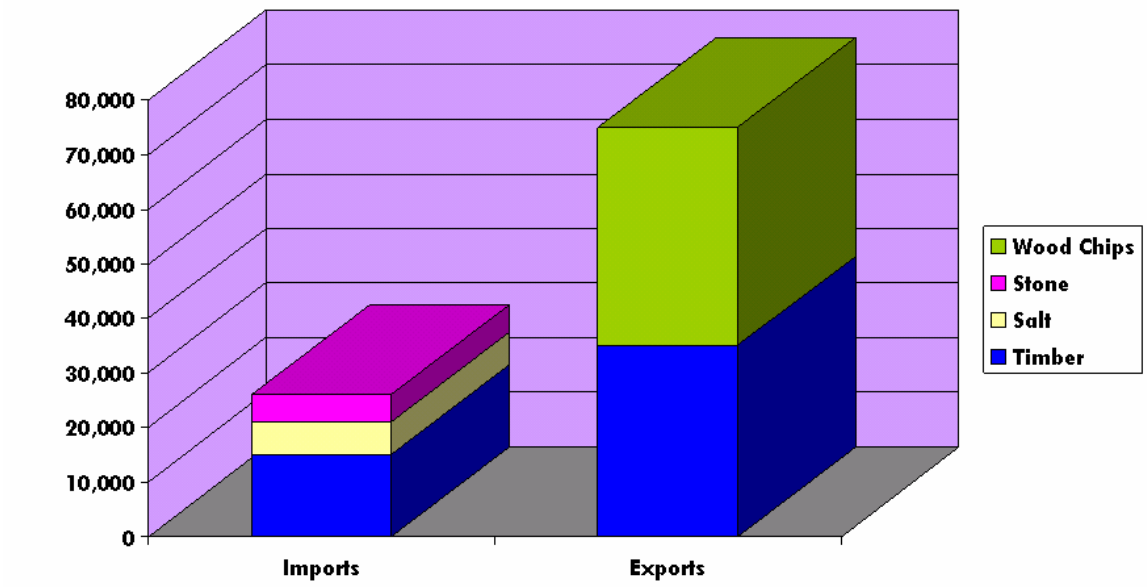
In 2005, 135,300 tonnes of cargo were moved through Ardrishaig. The sole commodity was timber, **exported** to two principal UK destinations: Derry (70,000 tonnes) and Troon (50,000 tonnes). The vessels used are normally the Red Baroness and Red Duchess, each with a GRT of approximately 1,000 tonnes. These are on time charter to ABP to move timber from Ardrishaig and elsewhere in Argyll, as part of the FFG-supported Timberlink project. In addition 15,000 tonnes of timber are exported to Finland. These loads are moved by a range of vessels including those of Scotline.

2.4.7 Corpach

Flows

Figure 2.5 shows flows of imports and exports through Corpach by commodity in 2006.

Figure 2.5: Corpach: Imports and Exports: 2006 (Tonnes)



In total, the port handled 101,000 tonnes of cargo. Around one quarter (26,000 tonnes) consisted of imports. In total, 89% of the cargoes are forest products: a combination of wood chip exports and timber flows both inwards and outwards.

Imports

Imports of **timber** are from within Argyll and also from the facility at Lochaline. Use is made of a vessel chartered in by Clydeboyd ("Boisterous") and consignments are typically 550-600 tonnes. These cargoes are for the BSW plant at Corpach.

Road **salt** is imported from Northern Ireland using either Scotline ships or Clydeboyd's own charter vessel.

The **stone** imports are from the quarry at Glensanda and are sprayed onto local roads. They are transported on a range of small ships including the Boisterous.

Exports

The **wood chips** are for a range of European destinations-manly Scandinavia but also Germany. Consignments are typically 2-2,500 tonnes and are conveyed on foreign ships.

The exports of roundwood **timber** are destined for a similar range of countries but also Ireland. Consignments vary between 2,000 and 3,000 tonnes.

2.4.8 Buckie

Flows

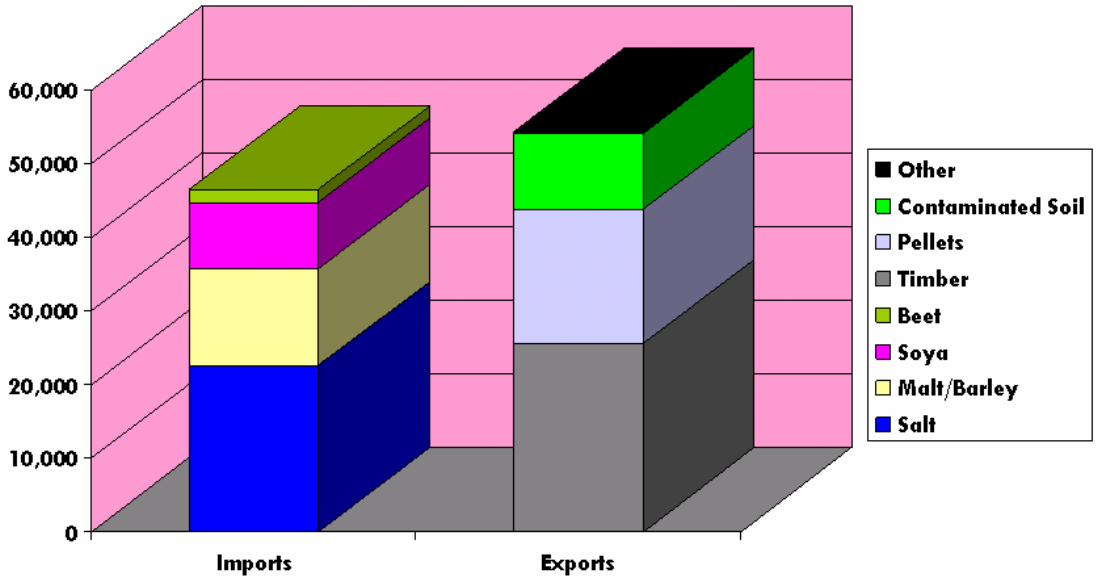
Figure 2.6, over, shows flows of imports and exports through Buckie between April 2005 and March 2006. Total volumes were just over 100,000 tonnes. Of these, 46% were imports and 54% exports.

Imports

In 2005-06 the main imports were:

- **Salt** (23,000 tonnes). These consignments are for Moray Council who also import salt via bulk vessels using Aberdeen harbour. Consignments through Buckie are generally over 1,500 tonnes.
- **Malt/Barley** (13,000). Consignments are typically around 1,500 tonnes and from East Anglia. Maltings, however, generally source malted barley within Scotland.
- **Soya**. We understand from Moray Council that this trade has now ceased as the purchaser has closed their Moray plant.

Figure 2.6: Buckie: Imports and Exports: 2005-06 (Tonnes)



Exports

In 2005-06 the main exports were:

- **Timber** (26,000 tonnes) to Finland. The timber is sourced throughout Moray and parts of Aberdeenshire. Consignments are generally over 1,500 tonnes and up to 2,200 tonnes.

- **Pellets** (18,000). These are exported to Belgium, with consignments of 1,000-1,500 tonnes.

- **Contaminated soil** (10,000). This was from a construction project in Moray and, as such, was an occasional rather than a regular flow. Six cargoes were exported to north east England during the year.

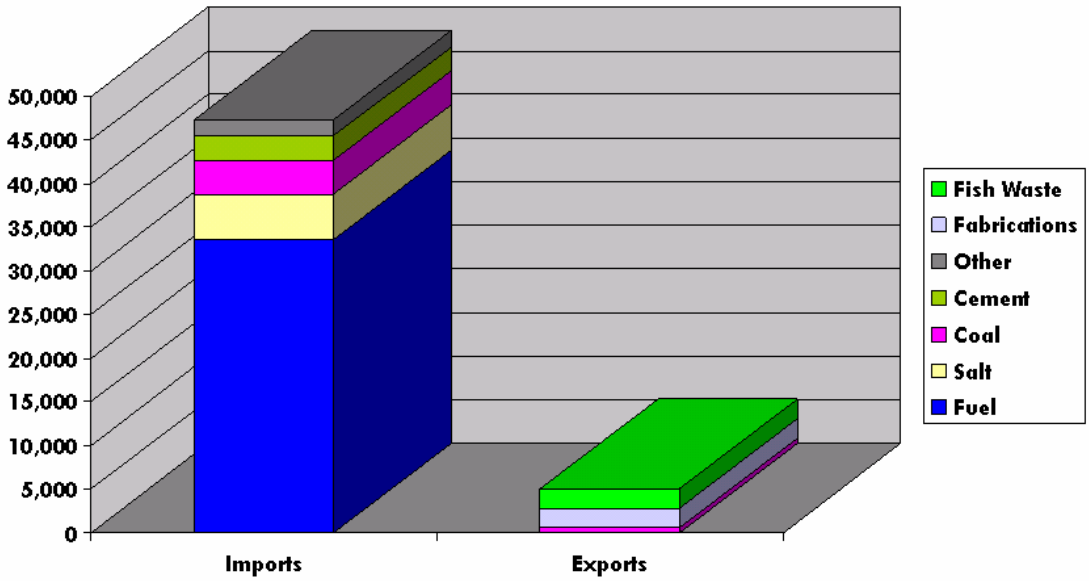
It should be noted that the data shown at **Figure 2.6** exclude fabrications manufactured by a Buckie based company.

2.4.9 Stornoway

Flows

Figure 2.7 shows flows of imports and exports through Stornoway in 2006. Total volumes were 52,000 tonnes. 90% of these were imports.

Figure 2.7: Stornoway: Imports and Exports: 2006 (Tonnes)



Imports

At 33,000 tonnes **fuel** accounts for over 70% of import tonnages. The other main cargoes include:

- **Coal** (4,000 tonnes) imported by a local merchant from Amsterdam.
- **Cement** (3,000). This was imported by Aggregate Industries (operators of Marybank Quarry) using the company's own specialist cement vessel.

Exports

In 2006 the main exports were:

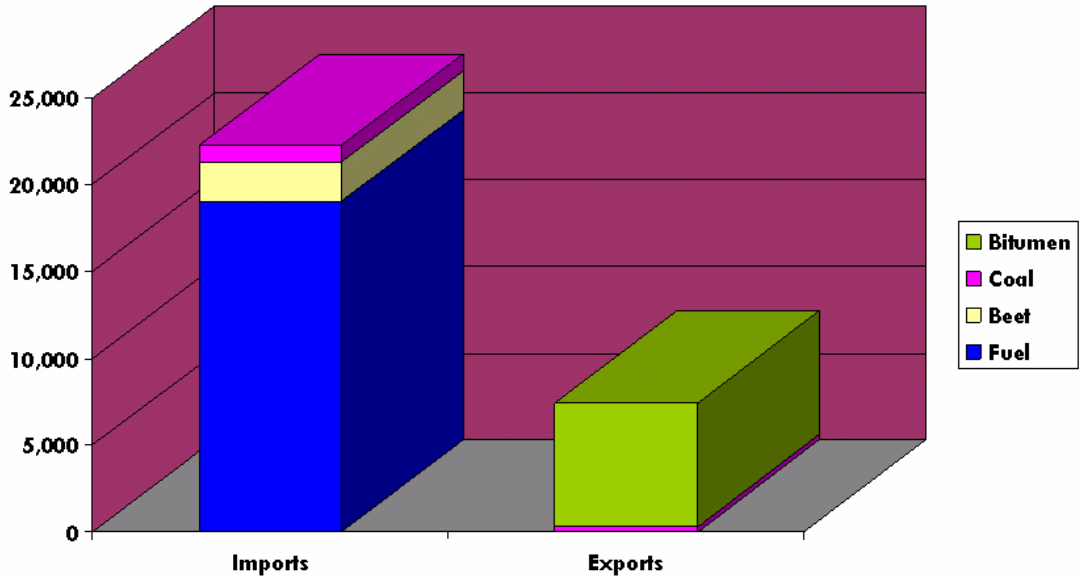
- **Fabrications**. (2,000 tonnes). These were produced for the renewable energy industry. Seven consignments were moved, to ports in the UK and Continental Europe.
- **Fish waste** (2,000 tonnes). Two consignments were moved by specialist Scandinavian vessels to ports in Shetland and Norway.

2.4.10 Kirkwall

Flows

Figure 2.8 shows flows of imports and exports of bulk cargoes through Kirkwall in 2005. Total volumes were close to 30,000 tonnes. Of these 75% were imports. This figure excludes unitised cargo carried by Streamline/ Orkney Line. It also excludes the inter island ferry services, particularly to Westray, Eday, Sanday and Stronsay.

Figure 2.8: Kirkwall: Imports and Exports: 2005 (Tonnes)



Imports

By far the main import flow was **fuel**. At 19,000 tonnes it accounted for 86% of imports to Kirkwall.

Exports

Almost all the export cargoes were **bitumen** (7,000 tonnes).

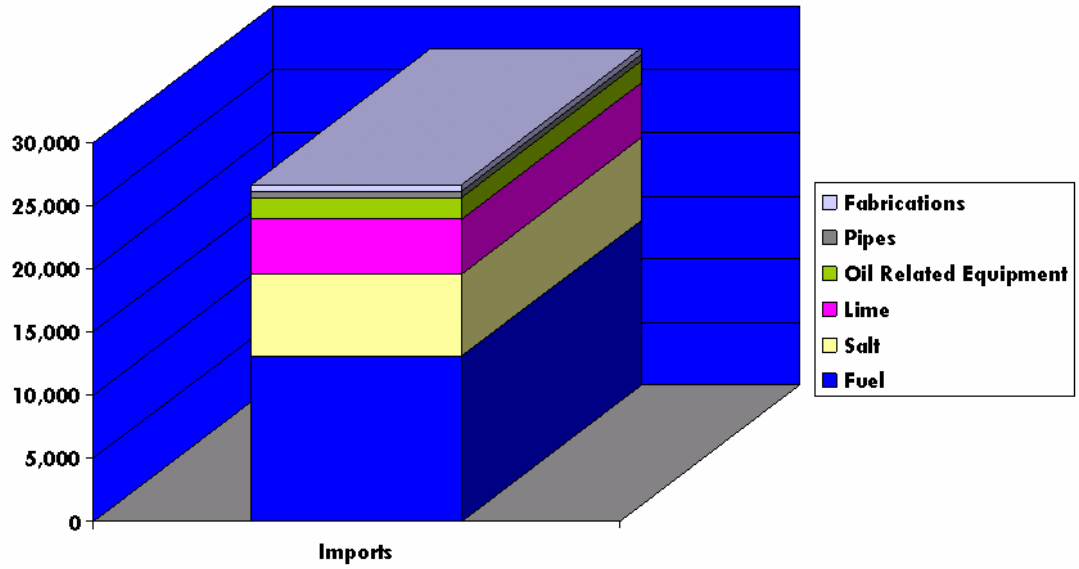
2.4.11 Wick

Flows

Figure 2.9, over, shows flows through Wick in 2005. Import cargoes totalled 26,500 tonnes. No exports were recorded.

The main import flow was **fuel**. At 13,000 tonnes this accounted for almost half of the cargoes. The other main commodities moved through Wick were: **salt** (6,500 tonnes, 24% of total volumes) and **lime** (4,000 tonnes, 16%).

Figure 2.9: Wick: Imports: 2005 (Tonnes)

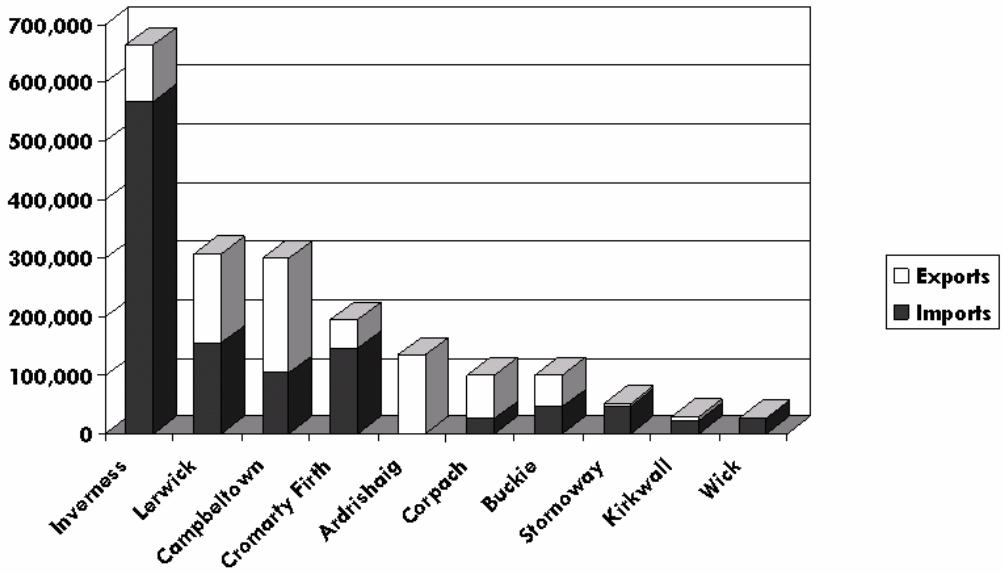


2.4.12 Main Ports: Summary Statistics

All Cargoes

Figure 2.10 compares total volumes at the main ports reviewed above.

Figure 2.10: Main Bulk Ports: Comparison: (Tonnes)



It shows that in volume terms:

- A total of 1.9 million tonnes of cargoes moved through the ten ports.
- Inverness has by far the greatest flows. At 665,000 tonnes it accounts for over a third (37%) of the total combined tonnages.
- Four ports each have over 190,000 tonnes of cargo movements, with seven moving over 100,000 tonnes per annum.

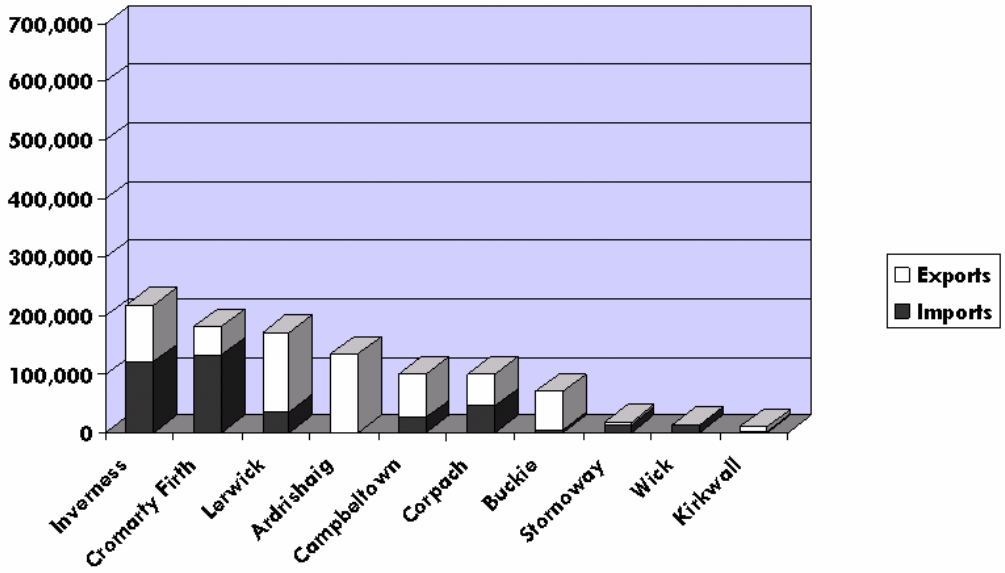
In terms of the split between imports and exports:

- 1.14 million tonnes (60%) were imports and 0.77 million tonnes (40%) were exports.
- Both Inverness and Cromarty Firth have a strong bias towards imports, whereas Lerwick has an even split.
- Medium scale (in volume terms) ports tend to have a bias towards exports, reflecting the importance of timber and other forest products. This is the case for the west coast mainland ports and also Buckie.
- At the ports with the smallest volumes, imports dominate the overall flows.

Excluding Fuel

The preceding analysis has shown the importance of fuel to bulk volumes at most ports and, in particular, for import flows. **Figure 2.11** compares total volumes at the main ports, **excluding fuel**.

Figure 2.11: Main Ports: Comparison-Excluding Fuel: (Tonnes)



The main points to note are that, **with the exclusion of fuel cargoes**:

- Total volumes fall from 1.9 million tonnes to around 1.0 million.
- The largest decreases in volumes are at Inverness, Campbeltown and Lerwick.
- Inverness remains the largest port in terms of volumes moved. The ranking of ports, in terms of tonnages, is broadly similar to that for all cargoes.

Exports account for more than half (61%) of the total non-fuel flows across the ten ports.

Finally, the following general points on particular commodities should be noted:

- **Coal** comes mainly from Hunterston through which it is imported, although some larger consignments come directly from Amsterdam or Poland. Much of the coal that was moved in bulk is now moved in bags on trailers and a combination of global warming and a switch to alternative fuels has reduced coal demand.

- Inward flows of **grain** are relatively small. However, the data shown above do not include one major flow-the import of malting barley to **Islay**. This amounts to about 900 tonnes every three weeks.

- The **fertiliser** and **lime** flows are for agriculture and hence tend to be destined for Orkney and Invergordon. For west coast islands, fertiliser tends to move on trailers using ro-ro ferries, reflecting the smaller scale of agricultural activity compared to that in other parts of the region. There are also imports of over 1,000 tonnes per annum of fertiliser to **Islay**.

- **Salt** imports come mainly from Northern Ireland.

2.5 OTHER PORTS

2.5.1 Introduction

This section briefly describes activity at a number of other, more specialist ports and provides data on flows at smaller, more general facilities in the Highlands & Islands.

2.5.2 Specialist Facilities

Timber

The pier at **Lochaline** handles timber as well as sand exports.

There are a range of ports in both the Highland and the Argyll & Bute areas that export **timber**. These include, in Highland, Uig, Dunvegan and Glencripesdale and in Argyll & Bute, Furnace and Portavadie.

Fish Feed

Kishorn is now a hub for the distribution of fish feed to aquaculture sites on the North West coast. It is currently occupied by Ferguson Transport who hold a long-term lease on the port and are its sole user. The site has warehousing where the feed is held before being loaded onto the ships for sea-based delivery directly into feed barges at aquaculture sites.

The main advantage of this arrangement is operational savings to the fish farms. It removes the need for staff time and equipment to move the feed into a store and subsequently to transfer it to sea. Waste and empty bags are also transported back from farm sites to Kishorn where they are bailed and then returned to the feed manufacturer.

Stone

As shown at **Table 2.3, Glensanda** is a major exporter of stone, with over 5.4m tonnes moved in 2005; around 60% of which was to destinations outside the UK. The facility is owned by Foster Yeoman and it is one of the largest quarry operations in the world. It has more than 150 years of reserves, i.e. 900 million tonnes of stone. The company tends to load its own ships at this terminal, although it also loads stone for a variety of buyers.

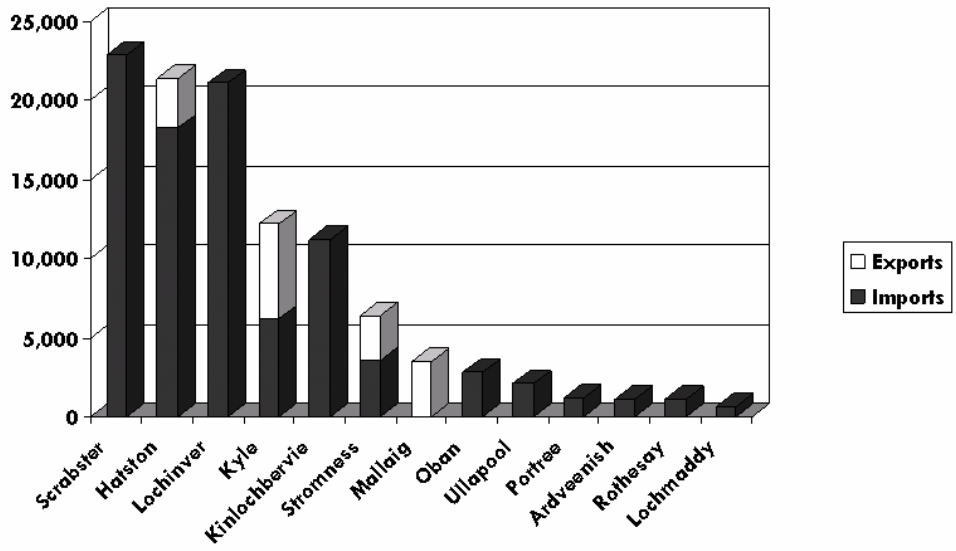
Bonawe is a small privately owned quarry located in Loch Etive. Marine access is restricted to ships of about 50m length because the actual berth itself is only about 35m in length, with ships overhanging at each end of the berth. The output is largely supplied to sites in the Highlands & Islands, including the recent construction of air strips on Coll and Colonsay.

2.5.3 General Ports With Smaller Flows

In addition to the ports covered at **2.4 above**, a range of other facilities caters for bulk cargoes. Cargo volumes, for the latest full year available, are shown at **Figure 2.12**, over.

Total flows across the 13 ports were 108,000 tonnes. Of these, the vast majority (around 92,000 tonnes) are imports. As the Figure shows only four of ports have export cargoes. These are Hatston, Kyle, Mallaig and Stromness.

Figure 2.12: Other Ports: Latest Full Year Data (Tonnes)



Import cargoes at the ports are as follows:

- **Lochmaddy, Oban, Portree** and **Ullapool**: salt.
- **Rothesay**: fertiliser and salt.
- **Kinlochbervie, Kyle, Lochinver** and **Scrabster**: fuel and salt.
- **Ardveenish**: fuel.
- **Stromness**: coal, fertiliser and lime.
- **Hatston**: cement, coal, fertiliser and salt.

In addition to the above, Mallaig receives 55,000 of live salmon which are pumped ashore.

The import flows shown at **Figure 2.12** largely comprise:

- Fuel: 58% of import tonnes across the thirteen ports; and
- Salt: 22%.

In addition it should be noted that **building materials** are moved from Northern Ireland in relatively small (400-500 tonne) consignments to a number of west coast islands, including to some (such as Islay) that are not shown at **Figure 2.12**.

Northern Ireland can be a cheaper source of supply for some islands than the Scottish mainland. Deliveries tend to be concentrated in the summer when much of the building activity takes place. The flows are largely a function of building demand on specific islands; thus they vary from year to year.

Exports

Export cargoes at the ports shown at **Figure 2.12** are as follows:

- **Hatston**: Scrap.
- **Kyle**: Timber.
- **Mallaig**: Fish feed.
- **Stromness**: Bitumen.

It should also be noted that the combined bulk cargoes at the three Orkney ports of Kirkwall, Hatston and Stromness total 57,500 tonnes.

Finally, **Scalloway** handles a small amount of aggregates, as well as general cargo for the offshore and aquaculture industries, while **Bruichladdich** on Islay caters for some of the island's fuel imports.

2.5.4 Other Scottish Ports

Consultees generally perceived the ports operated by both Forth Ports and Clydeport to be very expensive for use by small ships. The operators preferred to use Troon (ABP) or ports in Northern Ireland such as Derry.

2.5.5 Use of CalMac Piers

The smaller bulk ships make some use of CalMac piers for discharging cargoes; particularly at smaller islands and more remote locations. The ship operators we consulted believe it is onerous that CalMac require that bulk vessels vacate the berth one hour before the ferry is due. The largest ports in the world operate a "slot" system and will allow just 15 minutes between one ship departing and the next arriving.

Normal good port practice is that the vessel is able to move one hour before the ferry is expected (i.e. engines on tick-over and all equipment working) but can actually continue to work cargo until 30 minutes before the ferry is expected. Getting the coaster off the berth and out of the way of the ferry takes only a short time.

2.6 BULK FREIGHT TRAVELLING BY MODES OTHER THAN BULK SHIPPING

2.6.1 Road/Ro-Ro Ferry

The region's main ro-ro ferry operators are not aware of the amount of bulk goods that are moved by commercial vehicles using their vessels. All the ferry companies charge on the basis of vehicle length and do not, in almost all cases, vary the rate according to the commodity conveyed. Therefore, it is not possible to comment on the volumes of bulk freight being moved by trailer or containers on the region's ro-ro ferry services.

We were made aware of one occasion where CalMac is allegedly aggressively chasing a bulk cargo flow by discounting freight rates.

There has been a migration of goods from bulk shipping to ro-ro in the last 10-20 years in the case of commodities such as coal, fertiliser and cement which can easily be put into one tonne bags or palletised. The benefits relating to this change of mode flow from more efficient inventory management, specifically the need to order commodities in smaller amounts. For some companies this can bring very positive benefits in the form of less capital tied up in stock, less storage space required for goods and reduced exposure to goods not being sold before their sell by date.

2.6.2 Container Ships

There is presently only one container service operating within the Highlands & Islands; that is, the Streamline service between Aberdeen and the Northern Isles. The operator has always seen the bulk market as "fair game" and carries considerable volumes of fertiliser, cement and other bulk products.

A container service between the mainland and Lewis commenced in the late 1990s. Its target market was, we understand, mainly supermarket traffic and the service did not operate for very long. Compared to the Northern Isles, the west coast is less suited to container operations, reflecting:

- A more limited and dispersed market compared to the combined populations of Orkney and Shetland.
- Shorter crossing distances for competing ro-ro services.
- Relative to Orkney, less demand from the agricultural sector.

These factors limit the potential to develop container services on the west coast. Any such service would need to attract goods other than bulk commodities to generate sufficient traffic volumes. However, this would be limited by some customers' demands for a more frequent service than a container operation serving a number of islands would be able to offer. Other factors affecting viability would include the: availability of vehicles to move containers on some of the smaller islands; and possible level of charges at ports in the central belt area.

It could, however, be possible to offer a **combined** container and bulk operation if a ship was available that could cater for both these modes. A 1,000 dwt vessel could convey up to 50 TEU containers, although it would be need to be self-loading/discharging given the general lack of craneage at the island ports concerned.

2.6.3 Rail

There is some existing and potential overlap between sea and rail transport for some goods-notably timber- but also fuel and road salt. **Table 2.4**, over, shows rail freight volumes in the Highlands & Islands in 2005.

The main point to note is that many of the flows shown could potentially be moved by ship, depending on the actual origins and destinations of the traffic. Also, no timber movements are shown although we understand that there was timber movement by rail from Argyll during 2006.

TABLE 2.4: RAIL FREIGHT VOLUMES IN THE HIGHLANDS & ISLANDS: 2005		
Commodity	**Line**	**Lorry Load Equivalents**
Bulk Alumina	West Highland Line	7,800
Aluminium Ingots	West Highland Line	3,500
Parcels	Highland Mainline	2,500
Cement	Highland Mainline	1,900
Oil	West Highland Line	730
Pipes	Far North/Highland Mainline	690
Oil	Far North/Highland Mainline	620
Totals	-	**17,740**

Source: HIE "Transport Provision and Trends in the Highlands & Islands (2006)"

2.7 POLICY CONTEXT

2.7.1 National Transport Strategy

Introduction

In late 2006, Scottish Executive published the National Transport Strategy (NTS). It contains a number of references to the role of sea/water transport in moving freight, accepting that these apply to all forms of shipping not solely bulk cargoes.

Policy Objectives

The NTS contains the following statements:

- The role of ports and improvements to their inland road and rail links will be vital in supporting the projected changes in the **movement of freight**.

- The movement of freight contributes to congestion; we need to encourage more freight to transfer to rail and water, which has **environmental benefits** as well as removing traffic from our roads. (Policy is to) actively promote sustainable distribution strategies, aimed at enabling freight to use rail and sea as alternatives to road and reducing the environmental impact of freight traffic on roads.

- The sustainable movement of freight is vital to supporting a **vibrant and growing economy**.

Thus the policy objectives relating to waterborne freight movements are based on:

- Efficient movements of goods.
- Environmental benefits.
- Economic competitiveness.

Mechanisms

The NTS states that:

- Scottish Executive will continue to support schemes such as Freight Facilities Grants and Waterborne Freight Grant to enable modal shift.

The Strategy also refers to the importance of inland transport links to/from ports to allow them to contribute to the efficient movement of freight:

- An effective road and rail infrastructure to support national and international connections by sea is essential to ensure that the critical role of ports in supporting and contributing to Scotland's business and economic health is fully realised.

- Freight users want to increase the choice of transport modes in their supply chain and need to be able to connect road, rail and sea more seamlessly.

- The Strategic Transport Projects Review will evaluate the infrastructure serving our ports and key national and international ferry routes.

Future Development Activities

The NTS also states that:

- There is still more to be achieved in relation to modal shift for freight and we intend to examine further, through our *Freight Action Plan,* what additional capacity there is for freight to move off the roads, linked to the development of potential multi-modal hubs across Scotland for movement of freight.

2.7.2 Scottish Executive Funding Mechanisms

Freight Facilities Grants (FFG)

The principal way in which bulk shipping is supported is through the Freight Facilities Grants (FFG) scheme. It is a capital grant scheme designed to encourage the transfer of freight from road to water. It is also designed to ensure that freight currently carried on water does not transfer to road. It does this by assisting companies with the costs of new freight handling facilities, improvement of existing facilities or investment which would re-open dormant facilities.

The amount of FFG offered depends on the:

- Value of the environmental benefits of sea transport relative to road movement; and
- Need for grant support, determined by a financial appraisal of the project comparing water with the road alternative.

The maximum intervention is normally 30% of project cost; but there is flexibility around this ceiling. Applications stand or fall by their environmental benefits and most that do not proceed are rejected because they do not generate sufficient positive environmental impacts.

Since 1997, and across both sea transport and rail, thirty-two FFG awards, totalling around £78 million, have been made to projects in Scotland. Four of these were for port facilities in the Highlands & Islands. Their details are shown at **Table 2.5**.

TABLE 2.5: FFG AWARDS FOR SEA FREIGHT IN THE HIGHLANDS & ISLANDS

Year	Port	Value (£000)
2000	Lochaline	**693**
2003	Portavadie	**223**
2003	Corpach	**3,300**
2007	Inverness	**2,300**
Total		**6,516**

The main other points of note are:

- FFG is currently underspent in its budget for 2006-07 and therefore the allocation for 2007-2008 may be reduced. Its total budget in 2006-07 is £13.9 million, covering both FFG and WFG.
- Demand is difficult to predict as the Fund is wholly demand driven and simply responds to applications. Given this, a strategic approach is not adopted.
- Vessels are ineligible for funding.

Waterborne Freight Grants (WFG)

Scottish Executive also operates the Waterborne Freight Grant (WFG) scheme. Like FFG, it has the explicitly environmental objective of transferring freight from road to waterborne transport.

The scheme was launched in 2005 and offers grants of up to 2 million Euros to assist with the operating costs of a shipping route for up to three years after which the route is expected to be commercially viable. Given the emphasis on the build up of volumes, the Executive believes that the scheme is more applicable to ro-ro rather than bulk operations.

To date, awards have comprised assistance to the Rosyth to Zeebrugge ferry service; and a vessel trial on the Caledonian Canal.

Other Capital Grants

No specific funding for infrastructure to support bulk shipping is available through Scottish Executive's **Piers & Harbours Grants**. These are used to upgrade the facilities used by lifeline ro-ro ferry services. There may, of course, be incidental benefits where improvements are made to a ro-ro facility that is also used by bulk vessels.

The **Strategic Timber Transport Fund** also provides financial assistance for investment required to facilitate the movement of timber by sea or rail rather than by road. The criteria for support reflect the: value of the product being moved; access problems faced in moving the product; and overall costs and benefits. The Fund is due to cease in 2008.

Ro-Ro Ferry Services

The main form of financial support to shipping in Scotland is to internal ro-ro ferry services, very few of which operate on a commercial basis. CalMac received approximately £31 million in a deficit grant in 2005-06 to operate services in the Clyde and Hebrides areas. This is virtually the same amount as is budgeted for the first year of operation of the new Northlink contract for serving the Northern Isles. In addition, a range of internal ferry services are financially supported and/or operated by a number of local authorities in the HITRANS area, as well as in Shetland.

2.7.3 Previous Scottish Executive Funding Mechanisms

Historically the movement of bulk cargoes by sea to and from the Highlands & Islands benefited from "Tariff Rebate Subsidy" (TRS). This was originally a system whereby 30% of freight costs for shipment of certain bulk cargoes were paid by the Scottish Office/Scottish Executive to a number of bulk shipping operators. In return they passed this assistance on in the form of lower than commercial rates charged to their customers.

TRS' objectives were to support bulk shipping in order to:

- Reduce the cost of imports to, and encourage exports from, communities in the Highlands & Islands.
- Ensure the continued provision of adequate bulk shipping capacity in the region.

TRS was suspended in 2004. The then Minister for Transport gave the following reasons for this decision, which were that:

- The scheme was in some cases not being operated as intended. There was, however, no evidence to suggest that any claims were being made fraudulently.

- Most of the bulk freight transported by sea in the Highlands & Islands does not benefit from bulk freight TRS.

- The overall contribution of TRS to economic development in the relevant areas has been very limited:

    - It has made only a limited contribution to sustaining bulk shipping capacity in the Highlands & Islands
    - The absolute level of TRS is insignificant compared with beneficiaries' and turnover

- Any reduction in consumer prices (for bulk freight products) will have been slight and it is not clear that TRS support has fed through to reduced prices for the end consumers.

2.7.4 HIE Funding

Unlike FFG and similar schemes, HIE is able to support marine freight activities for **economic development** purposes. For all of the HIE area except east Moray, support of up to 30% of eligible costs can be provided through the Initial Investment and Job Creation Scheme.

The Scheme can be used to assist with construction of new pier facilities, storage, etc. It can also be used to support the purchase of vessels (but not simply replacement of existing ones) providing these are used for commercial purposes only within the Highlands & Islands. This rules out the possibility of using vessels for any operations to/from Northern Ireland, Central Scotland or further afield, even if the origin or destination of goods is in the Highlands & Islands. HIE expect that this strict limitation will continue to apply for this scheme.

The following criteria also apply:

- Beneficiary companies must be based in the Highlands & Islands.
- The relevant assets must be in the applicant's ownership.
- The project must have demonstrable economic benefits, being non-displacive and dependent on HIE support to proceed.

2.7.5 Maritime and Coastguard Agency (MCA)

The MCA is responsible for implementing the UK Government's maritime safety policy, including checking that ships meet UK and international safety rules.

The MCA stated to us that the waters around the Highlands & Islands are relatively difficult and they expect the relevant regulations to be observed. They advised that, if anything, UK flagged ships received less attention than foreign flagged ships, particularly ships using a "free" flag. The only time a specific vessel was singled out for attention was if there were concerns about the state of the ship. They did not indicate that any particular vessel was on their "watch list" at present.

The Agency noted that regulations were constantly changing. Recently it became obligatory for all ships to keep toilet waste on board to be pumped ashore; historically it was pumped over the side. Old ships had to be modified to comply with these new regulations, although this was often not a major expense.

2.8 CONCLUSIONS

The baseline analysis has shown that a wide range of commodities is imported and exported to/from the Highlands & Islands by bulk shipping. In tonnage terms, a significant amount is liquid bulk traffic, either crude oil being exported from the region, or the import of fuels for use by businesses and households in the region.

A range of dry bulks is also moved. This supports the activities of a range of:

- Locally significant employers, such as Nexfor at Dalcross, Skretting at Invergordon, BSW at Fort William and Shetland Catch at Lerwick.

- Regionally significant economic sectors, such as aquaculture and forest products.

Within this, bulk shipping supports sourcing of goods and the export of products outside Scotland and beyond the UK. This is particularly important for the forest products sector which can react to market changes in Scotland to obtain a better price for products in other countries. The availability of port capacity and bulk vessels allows this to happen quite quickly. It supports the participation of some of the region's companies in global markets.

At the port level, much of the demand is dependent on a small number of end customers, with cargoes generally reflecting the economic structure of the port's hinterland. Demand for certain commodities can arise or cease quickly, for example, through the opening or closure of a major site or changes in sourcing practices across an industry in general.

Bulk goods are, of course, also moved by both ro-ro ferry and container. This appears, however, to apply mainly to imports, with key bulk exports tending to be moved by bulk vessels. The trend towards greater use of ro-ro services for imports reflects not only that their freight rates are subsidised by the public sector. It also reflects the financial advantages to smaller businesses of reduced stock-holding. The dispersed nature of demand on the west coast means that it would be difficult for a viable container shipping service to be developed along the lines of that presently serving the Northern Isles.

There is a potential overlap between the commodities moved by rail and those conveyed by bulk shipping, although the relative distances to railheads as opposed to ports will be a key influence on modal choice for specific flows. The point is, however, that rail and bulk shipping are to an extent competing with one another, rather than simply with road transport.

National policy mainly emphasises the environmental benefits of waterborne freight, reflecting the environmental objectives within the NTS. We have, however, also noted the impacts of bulk shipping on competitiveness. This not only relates to participation in export markets. It also reflects reduced transport costs for the import of bulk commodities whose low value makes it difficult to bear the cost of transport modes that lack bulk shipping's economies of scale. However, the cessation of TRS has meant that the national level mechanisms for effecting modal shift from road to sea are based solely on environmental, as opposed to economic, criteria.

3 SHIP OPERATORS AND VESSELS

3.1 INTRODUCTION

This Chapter provides commentary on some of the shipping companies and vessels that serve the Highlands & Islands bulk market. The analysis is split between liquid bulk and dry bulk activities. It encompasses vessels economics and the activities undertaken by smaller dry bulk vessels in the Highlands & Islands market.

3.2 LIQUID BULK VESSELS

The primary mover of petroleum products around the Scottish coast is **BP Tankers,** based in Milton Keynes. They have recently replaced their fleet with three new ships which are described at **Table 3.1**. ("dwt" gives an indication of the effective cargo carrying capacity of the vessel).

TABLE 3.1: BP TANKERS: FLEET USED IN SCOTLAND

Vessel	Dwt	Built	Length (m)	Beam (m)	Draft (m)
Border Heather	3,184	2004	75	14	5.76
Border Tartan	4,975	2005	79.9	17	6.3
Border Thistle	4,975	2005	79.9	17	6.3

Source: BP Tankers

Another major tanker operator is **James Fisher and Sons** of Barrow-in-Furness, who recently acquired FT Everard & Sons Ltd, thus making the company the largest petroleum products tanker operator around the coasts of NW Europe. Available data on the dimensions of the smaller vessels in the Fisher fleet are set out at **Table 3.2**.

TABLE 3.2: JAMES FISHER: SMALLER VESSELS IN FLEET

Vessel	Dwt	Built	Beam (m)	Draft (m)
Annuity	3,145	1988	13.5	5.5
Agility	3,145	1990	13.5	5.5
Alacrity	3,145	1990	13.5	5.5
Asperity	3,778	1997	16.5	5.6
Audacity	3,778	1997	16.5	5.6
Stability	3,517	2004		
Summity	3,517	2005		
Speciality	4,433	2006		5.2
Seniority	4,433	2006		5.2
Superiority	4,433	2007		5.2
Thames Fisher	4,871	1997	15.5	6.0
Solent Fisher	4,970	1997	15.6	6.2
Forth Fisher	4,973	1998	15.6	6.2
Galway Fisher	4,973	1997	15.6	6.2

Source: Note of EGM for the Acquisition of FT Everard plus data from "Sea & Water"

The third operator trading in the Highlands & Islands is **Henty Oils**. This is a Liverpool-based company whose vessels supply MGO (Marine Gas Oil) to a number of ports including Lochinver, Kinlochbervie and Kyle. The most commonly used vessel is the Henty Pioneer. The ship's dimensions are 69m length x 12m beam x 2.7m draft. She was built in 1985 and is 1,570 dwt.

Consultations were undertaken with BP and James Fisher. Both were clear that it is not economic to try to operate tankers that are over twenty-five years of age; this is because of rapidly rising maintenance costs, increased insurance for elderly vessels and the need to comply with ever more stringent safety requirements. Therefore both BP and Fisher seek and need to operate a modern fleet. The oil majors have little interest in using old craft in European waters. The market for tankers is relatively healthy and ship-owners can make the returns needed to re-invest in new tonnage.

It is worth noting that trading in the petroleum products business usually requires a minimum fleet of at least six ships. BP tankers is unusual in using only three vessels. However, this may reflect that its sole business is serving the Ineos refinery at Grangemouth.. This is because oil majors generally place their flows "on contracts of affreightment", leaving it to the ship operator to deploy the required number and size of ships to meet their requirements on both a daily and annual basis. In turn each operator will operate on several concurrent contracts for several oil majors. This is done to optimise the deployment of the fleet. This is very different to the dry cargo market. In addition tanker operators have to demonstrate that their management standards are of very high quality..

It is also worth noting that all tankers operating around UK waters must be double skinned i.e. they have to have an inner hull so that if the ship runs aground, there is a chance that, even if the outer hull is ruptured, the inner hull will remain water tight. There is no similar requirement for dry bulk ships.

These liquid bulk cargoes are generally moved in ships that have the following dimensions: 75m length x 14m beam x 5.76m draft. The needs of the Highlands & Islands require that tankers visit the following ports:

- Inverness; Cromarty Firth; Wick; Scrabster; Kirkwall; Lerwick; Stornoway; Barra.
- Brodick; Tarbert; Portree; Loch Carnan; and Campbeltown.

In addition, a number of other ports (such as Lochinver, Kinlochbervie and Kyle) require to be visited with vessels supplying Marine Gas Oil.

The terminal facilities in each port are maintained to high standards. Apart from Portree (which is discussed at **Chapter 4**) it can be argued that the list of ports shown above represents a core network of ports that will always be able to accept larger bulk ships. Certainly the oil industry uses these ports as the base points for supplying bulk deliveries of fuel throughout the Highlands & Islands. The only caveat is that the actual terminals used by the tankers themselves are built to handle liquid bulk cargoes and cannot also handle dry bulk cargoes. Therefore each port also needs to have a dry bulk berth available.

3.3 DRY BULK VESSELS

3.3.1 Main General Trades Vessels

There is a range of dry bulk vessels serving ports in the region. These include both UK and foreign owned/operated ships. **Table 3.3** provides details of some of the principal vessels serving the Highlands & Islands.

TABLE 3.3: MAIN DRY BULK VESSELS TRADING IN THE HIGHLANDS & ISLANDS

Vessel	Dwt	Built	Length (m)	Beam (m)	Draft (m)	Geared?
Sandfracht	575	1966		8.8	3.1	yes
Vitin	584	1973		10.1	2.8	yes
Fame	600	1960				
Nord Star	700	1978	48.9	8.86	3.7	yes
River Dart	700	1981	50	8.75	3.5	yes
Boisterous	960	1983	59.6	9.2	3.2	no
Harvest Caroline	1,000	1971				yes
Shetland Trader	1,315	1980		11.3	3.9	no
Stina	1,380	1971		11.8	3.6	no
Red Baroness	1,455	1979		10.7	3.96	no
Trinity	1,544	1986		11.7	3.9	no
Red Duchess	2,184	2000		11.0	5.1	no

It shows that most of these ships are at least 25 years old and the smallest vessels tend to be the oldest. A picture of the "Vitin" is shown below.

It should be noted that only the "River Dart" and "Nord Star" are trading on a consistent basis on the west coast and are available to carry a variety of cargoes. Other points to note are that:

- "Shetland Trader" is the ship used to run grain into Islay. She is operated by Faversham Ships but trades in conjunction with Northern Isles Shipping, so along with the "Trinity" is a regular caller to Orkney and Shetland. The two companies move much of the coastwise cargo to and from the Northern Isles, but are seen less often on the west coast.

- GMT shipping operate the Faroese ships "Vitin"; "Sandfracht" and "Fame" around the Scottish coast, although these are also employed in Norway or the Faroes, so Scottish cargo has to compete for these ships. The "Fame" is a fish feed carrier and the "Sandfracht" is fitted to move rock armour, so both are specialist ships that are regular visitors, rather than ships based in Scotland. The "Vitin" is a more regular visitor and competes with the "Nord Star" and "River Dart".

- "Harvest Caroline" moves fish feed for Ferguson Transport. In addition, the vessel moves a range of other commodities. Ferguson also operates the "Harvest Anne", a workboat/landing craft that can load about 80 tonnes.

- The "Red Duchess" and "Red Baroness" are both on time-charter to ABP and operate the Timberlink service from Ardrishaig to Troon, and are fully committed to this work. They also operate to Northern Ireland.

- As noted at **Chapter 2**, the "Boisterous" is on time charter to Clydeboyd and is used to move timber and salt between Corpach and other locations.

- The "Stina" is operated by Saltire Shipping and mainly carries timber.

A key point is that vessels such as "Nord Star" and "River Dart" are the exception in that they are trading consistently in the Highlands & Islands and are available for general cargo work rather than being largely dedicated to one company and/or one commodity.

Geared ships are needed because there are no shore cranes available at the smaller ports receiving smaller consignments. Thus, ships with their own gear are essential. In theory five ships above have their own gear, but two ships, the "Harvest Caroline" and the "Fame" are dedicated to fish feed handling so have limited ability to handle other cargoes. In practice there are only three geared ships generally available: "Nord Star"; "River Dart"; and "Vitin".

It is worth noting that some owners do not wish to trade north of the Clyde. Ramsay Steamship has two small vessels that would be suitable for the west coast, but they choose to keep the ships in the Irish Sea. Coastal Bulk Shipping Ltd, likewise, will not operate north of the Forth or Clyde.

Merchants or sellers/buyers require certainty that a ship will be available when required. For the timber industry this certainty is secured by time chartering a ship, whereby a vessel is hired to the merchant for an agreed period of time with crew; the merchant can then send the ship where s/he wishes.

This can avoid the difficulties associated with ships not being available at relatively short notice. It was reported to us that this factor causes particular problems for the shipment of scrap from Shetland, as it means that the shipper cannot take advantage of short term price increases on the mainland. They are reluctant to ship in anticipation of increased prices as they then incur storage costs on the mainland.

The charter system can, however, prove unsatisfactory if at the end of the charter, the ship may be diverted to better paying employment elsewhere, leaving the merchant without a vessel. This problem will deepen as the number of small ships declines. It was factors like this which prompted Fergusons to buy their own ship to ensure certainty in their supply chain.

Some cargoes move on a less regular basis, requiring ships only occasionally. Vessels for moving salt are fixed by brokers. The same is true for scrap exports from Orkney and Shetland as well as cargoes such as lime, sugar beet, sand, animal feed and fertiliser.

These cargoes are fixed on a "spot" basis (that is, as required) by local ship brokers who know the local merchants. Cargoes such as building materials are consolidations of local import needs and are managed by local merchants. These small flows are usually the ones that require ships with their own gear, since small remote harbours inevitably do not have their own cranes. Hiring in a mobile crane-even if it's physically feasible-is inevitably very expensive.

Stone exports are often fixed on a contract basis, with one (or more) owner committing to move a specific quantity of stone or aggregate against a specific buyer's needs. Therefore when a construction project requires materials, one owner will usually commit to move the stone and other building materials for this specific contract.

3.3.2 Scotline

In addition to the above, there is a relatively large shipping line based in Inverness. This is **Scotline**, which specialises in the distribution of forest products throughout the UK. This is in conjunction with Highland Haulage, part of the Scotline group, which operates a fleet of 54 vehicles throughout Scotland. Scotline also operates out of Goole and Rochester as well as Inverness.

Within the Highlands & Islands, their main shipping services export processed and unprocessed timber from the region to Scandinavia and Ireland. As return cargoes they import salt into the region from Northern Ireland and processed timber from elsewhere in Europe.

Their fleet of nine vessels is quite different from the ships shown at **Table 3.3**. Specifically, the Scotline vessels are:

- Larger. All have cargo capacity of greater than 2,000 tonnes, and three have capacity of more than 3,000 tonnes. Most of the ships have a draft of around 4.2m.

- Younger. Three ships were built in the 1980s, three in the 1990s and the other three in 2001/02.

- The fleet trades primarily internationally, not domestically.

Apart from the Scotline vessels the timber trade consists of a few major buyers using a few ships on time charter. In practice timber is now moved on an integrated system for the big producers although there are still some spot cargoes moved, which are fixed by brokers.

A picture of one of the Scotline vessels ("Scot Trader") is shown below.

3.3.3 Other Vessels

Other vessels operating more occasionally in the Highlands & Islands include:

- Specialist Scandinavian vessels moving fish waste and moving smolts.
- Other specialist carriers for products such as cement.
- Foreign vessels moving timber, including those owned by forest product companies such as UPM.
- Foreign vessels importing coal directly from mainland Europe.
- Large cargo vessels moving parts and machinery for renewable energy projects.

3.4 SHIP AGE

As shown at **Table 3.3** the age of ships is an issue. All three of the geared ships are more than 25 years of age and there may be a question as to whether or not they will pass their next five year survey. Every five years a ship is required to dry-dock and is subjected to a rigorous testing its hull and machinery. In the case of an old ship this could be significantly greater than £100,000; the impact of not earning revenue for the length of time when the ship is in dry dock also needs to be considered.

Therefore, there is a genuine concern about the lack of ships suited to moving smaller loads. This fleet is in its twilight and there are almost no newer ships around to replace them.

Table 3.4 shows how the UK-owned fleet developed between 2000 and 2005.

TABLE 3.4: NUMBER AND SIZE OF UK-OWNED "OTHER GENERAL CARGO" SHIPS: 2000-2005

Ships of Over 500 GT Registered In the UK		
Year	**Number of Ships**	**Average Dwt**
2000	59	1,966
2001	59	3,288
2002	64	3,875
2003	65	5,446
2004	61	5,492
2005	60	6,033
Ships of 100-500 GT Registered In the UK		
Year	**Number of Ships**	**Average Dwt**
2000	27	333
2001	25	320
2002	25	320
2003	21	381
2004	20	350
2005	20	350

Source: Maritime Statistics 2005. Note "GT" refers to Gross Tonnage

The main point to note is the growth in the number of ships of more than 500GT, but a decline in the number of small ships of up to 500GT. In addition, the average dwt of the over 500GT ships has increased markedly over the five year period. This essentially confirms the point that the number of small ships is declining. Importantly, there are not actually 20 coasters trading around the UK, since this figure includes ships in lay up as well as self propelled barges.

Further insight into the age and size profile of UK owned shipping is provided at **Table 3.5**. The Table relates specifically to single deck ships. This category covers ships like the "Nord Star", but also includes bulk carriers of up to 180,000 dwt.

TABLE 3.5: PROFILE OF UK OWNED SINGLE DECK SHIPS: 2005			
Age (Years)	**Number**	**Average Dwt**	**Percentage of Total Ships**
Under 5	14	12,143	8%
5-6	1	6,000	1%
7-9	12	11,333	7%
10-12	3	5,333	2%
13-14	11	4,000	6%
15-19	27	6,556	15%
20-24	35	10,371	20%
25-29	33	8,364	18%
30+	43	1,302	24%
Total	**179**	**6,950**	**100%**

Source: Maritime Statistics 2005

The key point is the concentration of small ships in the oldest age category. Some of these vessels are no longer actively trading, but are either hulks, preserved or laid up.

3.5 SHIP SIZE AND ECONOMICS

The daily operating costs of ships of various sizes are set out at **Table 3.6**. Several sources supplied data to allow this broad assessment of the daily standing operating costs of various sizes of ship. These exclude variable costs such as, bunkers, port charges and any cargo handling costs.

TABLE 3.6: SHIP OPERATING COSTS FOR VARIOUS SHIP SIZES (£ PER DAY)			
Ship size (dwt)	**Daily Operating Cost**	**Survey Reserve**	**Total**
600	700	100	**800**
1,000	750	100	**850**
1,500	800	100	**900**
2,000	950	100	**1,050**

Source: Consultations

The main point to note is that there is no direct relationship between ship size and operating cost. For example, a 1,500 dwt ship is two and a half times that of a 600 dwt vessel, but the ship operating costs are only 12.5 % (£100) greater. This helps to explain the trend towards larger vessels in order to gain economies of scale.

Table 3.7, over, provides a detailed analysis of the costs shown at **Table 3.6**.

The key points to note are:

- Crew size is fixed at a complement of five officers and crew, except for the smallest ship which has a crew of four, and the largest which has one of six.

- The special survey reserve is remarkably constant, regardless of ship size. Dry dock fees are certainly fixed, as are most machinery costs./

TABLE 3.7: ANALYSIS OF SHIP OPERATING COSTS (£)					
	Newbuilding	600 Dwt	1,000 Dwt	1,500 Dwt	2,000 Dwt
Purchase Price/Book Value	5,000,000	200,000	250,000	270,000	400,000
Crew (Number)	5	4	5	5	6
Annual Costs					
Crew	87,500	72,000	87,500	87,500	105,000
Crew Victualling	10,000	8,000	10,000	10,000	12,000
Crew Travel	2,500	2,000	2,500	2,500	3,000
Insurance and P&I	50,000	15,000	15,000	17,500	25,000
Maintenance	38,000	60,000	50,000	59,000	60,000
Provision For Dry Dock/Survey	8,000	35,000	35,000	35,000	35,000
Management	50,000	50,000	50,000	50,000	50,000
Depreciation	200,000	40,000	50,000	54,000	80,000
TOTAL	**446,000**	**282,000**	**300,000**	**315,500**	**370,000**
Days Per Annum	350	350	350	350	350
Rate Per Day	1,274	806	857	901	1,057
Rate Per Day (excl. depreciation)	703	691	714	747	829

Source: STSI estimates

Against these standing costs, ships might expect to earn the revenues, which are based upon a time charter in the present market, shown at **Table 3.8**. This compares like with like since the costs exclude all voyage costs, but when a ship is fixed on a time charter the owner only has to pay standing costs outlined above.

TABLE 3.8: INCOME AND EXPENDITURE EXPECTATION FOR SHIPS OF VARIOUS SIZES (£)				
Ship size (Dwt)	Income Per Day	Expenditure Per Day	Gross Margin	Annual Income
600	800	800	Nil	Nil
1,000	950	850	10.5%	35,000
1,500	1,300	900	31%	140,000
2,000	1,750	1,050	40%	245,000

The Table shows that the margins/income for larger vessels are significantly above those of the smaller ships. In the case of the latter, the margins appear negligible, at least on the basis of the figures presented.

The income figure is not a statement of the daily revenue expectation of the various sizes of ship, but reflects net revenue after allowing for time lost due to weather delays, dry docking, idle time, etc. Owners will be trying to generate a voyage income of at least £400 per day more than the above. The discrepancy between the two is the difference between aspiration and actuality.

Bearing in mind that a new ship might cost around £4 million, the first year interest charge on the loan would be £256,000, based an 80% loan at 8% annual interest; and the annual depreciation charge would be £160,000 per annum for 25 years. Therefore, whilst the surplus might superficially look attractive, in reality even for the larger ships this is not a particularly remunerative business.

3.6 PROFILE OF TRADE FOR THE SMALLER VESSELS

Given earlier comments regarding the limited number of smaller vessels remaining in the market, this section provides information on the nature of the smaller vessels' work in the Highlands & Islands.

In 2006 one of the two remaining small coasters loaded around 22,000 tonnes of cargo in the first six months of the year in 30 loaded movements. All of these bar one were to/from ports in the Highlands & Islands. Details are shown at **Table 3.9**.

TABLE 3.9: SMALL VESSEL ACTIVITY: JANUARY-JUNE 2006

Load Port	Cargo	Visits	Destination
Dundee	Fertiliser	7	Kirkwall, Scalloway
Bonawe	Aggregate	6	Colonsay, Coll
Glensanda	Stone	6	Craignure, Balcardine
Coleraine	Building Materials	5	Islay, Lochboisdale Barra
Kilroot	Salt	2	Portree, Kyle
Wick	Barley	1	Dundalk
Montrose	Fertiliser	1	Scalloway
Inverness	Animal Feed	1	Kirkwall

Source: Hebridean Coastal Services

A range of commodities were moved to destinations which included some of the smaller ports and islands within the region. The key points to note are that:

- All bar one movement concerned imports.
- Most (13) movements were within the Highlands & Islands. However, these were largely limited to stone and aggregate.
- A further eight movements were made between the region and other Scottish ports. These were movements of fertiliser to the Northern Isles.
- Eight movements were to from Northern Ireland/Ireland, encompassing building materials, salt and an export load of barley.

Our consultations suggest that an increasing amount of bagged and palletised cargo is being carried in the small bulk vessels. This appears to reflect a change in receiver demand; to buying a series of smaller amounts of bulk cargoes. For example, a builder will buy 60 tonnes of bricks on pallets, 40 tonnes of cement in bags, 40 tonnes of blocks on pallets, pipework, timber for roof work, etc. as a single shipload out of Northern Ireland.

Table 3.10 provides information on some of the vessel's movements to/from Highlands & Islands ports in 2005.

TABLE 3.10: SMALL VESSEL ACTIVITY: EXAMPLES FROM 2005			
Load Port	**Cargo**	**Visits**	**Destination**
Kilroot	Salt	13	Craignure, Campbeltown, Islay, Portree, Lochboisdale, Ullapool, Corpach, Oban, Ardrishaig
Dundee	Fertiliser	9	Kirkwall
Glensanda	Stone	8	Balcardine, Tiree, Lochaline
Coleraine	Building Materials	3	Loch Carnan, Tiree, Dunvegan, Islay
Lerwick	Fish Meal	2	Grangemouth
Orkney	Bitumen		Islands outside Orkney mainland

Source: Hebridean Coastal Services

Timber does not feature, with purchasers tending to prefer large ships. The staple cargoes are salt, stone/aggregate, building materials, fertiliser and animal feed. The main destinations are: Kirkwall for fertiliser; various Orcadian islands for bitumen; and the smaller ports on the west coast and Hebridean islands.

Again, the vessel is serving some of the smaller ports and islands within the region, while stone movements are wholly internal to the Highlands & Islands. Most movements were imports to the region.

3.7 CONCLUSIONS

The main points emerging from this Chapter are that:

- The liquid bulk fleet and the shore infrastructure serving it are relatively modern. There is sufficient remuneration from this activity to justify investment in new tonnage, while there are strong commercial and regulatory pressures against operating ships that are over 25 years old.

- There is a range of vessels involved in dry bulk activities in the Highlands & Islands. These include some relatively modern and large timber vessels and also a number of foreign-owned specialist vessels that convey a single commodity.

- There is a limited number of smaller (up to 1,000 dwt) vessels trading in the Highlands & Islands. Bigger ones tend to be largely dedicated to a single commodity, such as timber. Those that remain are old and nearing the end of their lives and there is virtually no second-hand replacement tonnage around.

- Among the smaller vessels, a number spend considerable periods operating solely for their owner/charterer or in foreign waters. Thus there is only a limited number of vessels that are generally available for conveying a range of cargoes in the Highlands & Islands. We understand that the "River Dart" has recently been placed on the sale and purchase market and she could be sold out of NW Europe.

- The aging of the small end of the vessels market reflects Europe-wide trends. It is based on the economics of ship operation, whereby economies of scale are available to those using larger vessels. Small coasters are not earning sufficient revenue to justify new tonnage.

- The smallest vessels are moving a range of commodities around the Highlands & Islands. They tend to serve the smaller ports and islands and largely move import flows. Only a certain amount of voyages are internal to the region, with others to/from other parts of Scotland and also Northern Ireland.

4 FUTURE PROSPECTS

4.1 INTRODUCTION

This Chapter reviews future prospects for the bulk shipping market in the Highlands & Islands. It covers:

- Future demand.
- Vessels.
- Ports.
- Caledonian Canal.
- Potential wider impacts of market trends.
- Policy context.
- Experience elsewhere.

4.2 FUTURE DEMAND

4.2.1 Existing Commodities

At a macro level, there is a very close relationship between the health of the local economy and growth or decline in shipping activity. Market development will be influenced by growth in population and GDP in the various parts of the region. There is, however, a need to recognise that not all increased demand for products will be met through bulk shipping. It may be catered for by ro-ro or, if the market size was viewed as sufficient, by container ships.

For **liquid bulks** demand may grow very slowly, driven mainly by increased tourism and rising GDP per capita. In contrast, heavy fuel oil flows to power stations may decline as new technology takes over and global warming reduces winter demand.

In the case of **dry bulks**, and as noted at **Chapter 2**, in a number of cases significant flows through ports are dependent on the existence of, and demand from, just one or two companies in the hinterland. If these companies were to cease trading or to change their sourcing practices (as has happened in the whisky industry) then there could be a marked reduction in bulk traffic. On the other hand the establishment of a new plant in a port's sphere could generate significant new flows.

Nevertheless, the unpredictability of demand is something that "goes with the territory" and ship owners/managers expect it. Overall the general understanding is that the dry bulk market is going to remain broadly stable, although at a micro level there will be fluctuations in traffic levels at individual ports.

Timber exports will be a function of the harvesting of existing forest areas. This is relatively predictable and forecasts are available: for example, the projected doubling of timber production in Argyll between 2005 and 2015 which is evident in the growing volumes of timber out of ports such as Ardrishaig and Campbeltown.

Salt imports are unlikely to increase, since global warming has slowly reduced the amount applied to roads in winter; this gentle trend is expected to continue.

It is unlikely that flows that have been lost to ro-ro or container shipping will return to bulk transport, unless that is, there is a significant change in the cost of road haulage and/or the current levels of subsidy to the relevant ferry operators.

Coal traffic in particular has largely switched to ro-ro. Imports of this commodity have generally declined as it has been replaced by other fuels (including central heating oil). While some limited exceptions remain, **building materials** to the west coast islands are now almost wholly moved by ro-ro, although there remains a trickle of cargo moving as semi-bulk (i.e. in one tonne bags and on pallets) to a number of smaller islands. There is, however, no evidence to suggest a switch of cargoes from ro-ro to bulk vessels, even with the growing level of construction activity in a number of locations.

Seasonal **bitumen** flows within Orkney appear to be an on-going long term user of small vessels, since some of the piers in the off-islands face limits to the size of vessel that can be accommodated.

Generally, however, there appears to a bottoming out of the migration of bulk goods to ro-ro with a baseload of commodities continuing to be moved by bulk vessel.

4.2.2 New/Potential High Growth Cargoes

The possibility has been raised that a new series of contracts in 2007 could see **waste** movements by barge through the Caledonian Canal. Movement by ship is already happening, albeit on a small scale, in Argyll & Bute, with a contract having been let for waste movements from Easdale and Kerrera. In Orkney, non-recyclable waste is compressed into bales and moved in containers to Shetland on the Streamline lo-lo service.

It is difficult to predict the methods of disposal of waste which will be used in the long term. There is currently great variation in the approaches adopted by local authorities in the HITRANS area. However, there appears to be potential to develop a logistics network that could move waste from a number of areas by either container, or some form of bulk, shipping. This would require discussion and co-ordination between the constituent HITRANS local authorities; and probably in conjunction with other areas such as Shetland.

Growth in traffic to service the **renewable energy** sector should be capable of being accommodated at existing ports. There is a tendency to favour larger ports even where these are more distant from, say, a windfarm site. For example, components for a site in Moray were brought by ship to Invergordon and then transported by road, rather than using Buckie. Invergordon has sufficient space for assembling the loads while the road routing to the site was more suitable in terms of carriageway alignment and collapsible street furniture.

A number of ports reported enquiries for movement of renewables-related structures. These are tentative at this time with the actual cargoes unlikely to be moved for another 12-18 months. Renewable electricity generation might also create a specific opportunity to produce hydrogen and oxygen for “clean energy”. This would be shipped in a bulk vessel.

4.2.3 Competition From Other Modes

A number of consultees perceive that **rail** does not perform well in terms of reliability, traceability and general responsiveness to customers. In one case, a company no longer uses rail to move timber due to poor performance; this traffic now moves by sea. Thus there may be potential for sea transport to win some flows that are presently conveyed by rail, albeit that, as shown at **Chapter 2**, these are relatively limited.

Present circumstances also suggest that rail is unlikely to make any significant inroads into flows presently moved by sea. Highland Council undertook a trial of road salt movement by train. They view rail only as a back up to sea transport, accepting that this may be required if there is a shortage of available vessels, as was reportedly the case in 2005. The key constraint on the use of rail for salt traffic is the additional cost incurred in transhipping the cargo from sea to rail in Glasgow for onward transport through the region.

Competition from **ro-ro** will depend, in part, on changes in road transport costs arising from trends in fuel prices, growing congestion in some parts of the country and the introduction of road charging. Clearly there are uncertainties around each of these factors, although the growth in road fuel prices in recent years does not seem to have stimulated much additional demand for bulk shipping.

A number of consultees viewed **container** shipping as the way forward. This reflects the significant growth in container shipping worldwide in response to the inherent economies of this mode. Commodities that were previously viewed as "bulk" are now being moved in containers.

However, bulk commodities alone were not, in general, seen as being sufficient to support regular container services. Other types of goods would have to be moved to make a service viable given the rather limited market size in most parts of the region. Given this, and the competition from subsidised ro-ro services for island freight traffic, the best prospect may be for a container service to/from **mainland** ports in the Highlands & Islands which serve relatively large hinterlands.

4.3 VESSELS

As discussed at **Chapter 3**, vessel sizes are clearly increasing. The number of vessels of less than 800 tonnes has declined as larger new ships are introduced to the fleet. This trend is driven by the desire to exploit economies of scale in operating and crew costs.

As the market demand for moving goods by smaller bulk vessels declines, ships are less likely to be stationed in the Highlands & Islands and smaller vessels will struggle to survive on the basis of moving goods throughout the UK. This, combined with the declining number of small vessels, has led companies such as Ferguson Transport and Clydeboyd to purchase or charter ships.

The smaller vessels that remain are generally over 20 years old. Some are not in good condition. The revenues they generate are sufficient to produce an operating surplus but are inadequate to fund the ships' replacement with new tonnage. This point was made to us by a number of consultees.

Indicative ship new building costs were supplied by Ferguson Shipbuilders of Port Glasgow. These are presented at **Table 4.1** along with the cost of acquiring larger "series production" tonnage from the Netherlands.

TABLE 4.1: NEWBUILDING COST ESTIMATES		
Ship Size (Dwt)	**Price (£million)**	**Comments**
800	3.0	• Basic ship, 10 knots service speed, crane £150k extra • 50m length x 9m beam x 3.2m draft
1,000	5.5	• 60m length x 9.9m beam x 3.2m draft • With crane and 10k service speed and bow and stern thrusters
1,500	7.0	• 65m length x 11m beam x 4.2m draft • 11knots service speed
1,800	5.0	• 12m beam x 4.2m draft • Gearless series production
2,500	3.5	• Series production; low air draft
4,000	4.4	• Series production

The lower cost of the larger Dutch vessels shows the absolute economies of scale of bigger ships, built in series production. The relatively high price for the Ferguson newbuildings is largely a function of the one-off design costs for vessels of this size. If this cost was defrayed over a series of ships it would significantly reduce the price.

Ferguson advised that there would be certain increases in cost as ships get bigger, not least because of the shortage of yard space and ship's equipment. Specifically there is immediate availability of all resources to handle the construction of a ship of 600 dwt, but this is not so in the case of larger vessels.

Assuming that ships can be financed over a 20 year period at 8% interest, the annual financial charges would be as shown at **Table 4.2**.

TABLE 4.2: ANNUAL FUNDING CHARGE (£) OVER 20 YEARS AT 8% INTEREST			
Ship Size (Dwt)	**Annual Charge**	**Daily Cost**	**Cost/Dwt/day**
600	301,120	860	1.43
1,000	552,050	1,577	1.58
1,500	702,610	2,007	1.34
1,800	501,864	1,434	0.80
2,500	351,304	1,004	0.40
4,000	441,640	1,261	0.32

Source: STSI

The charge is effectively the rate for a 20 year lease to acquire various types of ship. The Highlands & Islands trade would require a specialist newbuilding of the Ferguson type. This would, unfortunately, incur financial charges above the revenue that would be generated by the ship. It is therefore uneconomic.

This, and the following **Table 4.3**, explain, very succinctly, why virtually no ships of under 3,000 dwt have been built in the last 15 years.

TABLE 4.3: COMPARISON OF NEWBUILDING AND EXISTING SHIP OPERATING COSTS (£)

	600 Dwt	1,000 Dwt	1,500 Dwt	2,000 Dwt
Purchase Price/Book Value	3,150,000	5,500,000	7,000,000	5,000,000
Days Per Annum	350	350	350	350
Rate Per Day (Newbuilding)	1,595	2,292	2,755	2,205
Rate Per Day (Existing Vessel)	*806*	*857*	*901*	*1,000*

As can be seen above the standing costs for a newly built ship will be, at least, double those for an existing vessel, although stevedoring, bunker and port costs will remain unchanged. The newbuilding costs include all financial charges, but do not include any return on capital.

As noted earlier, the number of small ships has continued to decrease and those that remain and are available are aged. Our research suggests that the demand for relatively small consignments (400-700 tonnes) generally arises from particular parts of the market, rather than being mainly a function of port capacity (which is discussed at **4.4**). This market demand is for:

- The range of cargoes going to smaller locations/islands where demand is necessarily limited. These types of flows are shown at **Tables 3.9** and **3.10**.

- A number of other customers, such as smaller sawmills, who require a regular flow of small consignments of timber of around 400 tonnes to fit with their production cycles and storage capacity.

It should be appreciated, however, that some use of the smaller vessels arises because they are available on the market at the point where cargoes are needed. In fact, the receiver for cargoes, such as salt, would be happy to accept larger consignments but no ships of this capacity may be available when required. (Highland Council reported that 1,000 tonne loads were suited to their smaller depots, as they fit with storage space and demand for the salt itself.) Thus, the smaller vessels contribute to shipping capacity *per se* as well as meeting demand for relatively small loads.

For most timber movements, the demand is for consignments of a size which exceeds the capacities of the smaller vessels. In this particular sector there are larger customers and an opportunity to achieve economies of scale. Again, however, small vessels have to be used on occasion as no other ships are available at the time when timber is required.

Overall, however, the general response from those in the forest products sector was that the shipping market for timber functions reasonably well and that lack of vessel availability is not a significant issue. This is particularly the case for larger vessels loading around 2,500 tonnes for Scandinavia.

The overall picture, however, remains a dynamic one whereby:

- Between 1,000 dwt to 2,000 dwt there is a wider supply of ships, although most are more than twenty years old. These ships tend to be deployed in areas beyond North West Europe. Shipping lines are of the view that, in five years time, the market for ships below 1,500 dwt will be as difficult as the sub 1,000 dwt market is currently.

- For ships between 2,000 dwt to 3,000 dwt the position is better.

- There is a good supply of ships of more than 3,000 dwt.

4.4 PORTS

4.4.1 Introduction

This section discusses a range of issues relating to some of the main ports serving bulk shipping in the region. It begins with a discussion of the capacity of the ports. It then highlights a number of issues specific to particular ports, including those identified by the ports themselves.

It should be noted that in most cases the port infrastructure was reported to us as being in good condition and fit for the purpose of bulk shipping.

4.4.2 Capacity

Appendix A sets out the size of ship which can be accommodated, in terms of length, beam and draft, at a number of Highlands & Islands ports.

Whilst it is argued by some that ship size is a crucial issue on the west coast, our assessment of the capacity of the ports there does not suggest that there are significant constraints. The general view is that a ship of 60m length x 10m beam x 3.5m draft is the west coast max; these dimensions would certainly amount to a ship of over 1,000 dwt. **Appendix A** shows that in most cases the berths can take ships of more than 70m in length. This essentially means that all these ports can accept ships up to about 2,000 dwt (i.e. can carry 2,000 tonnes of cargo). It is difficult therefore to support the argument that these ports cannot accept larger ships.

In addition, where conventional ships work to a CalMac pier, these piers are generally of sufficient length to be able to accept ships of at least 80m in length and 15.8m beam; although the draft restriction of 3.2m is onerous. The smaller CalMac facilities are generally slipways and unsuitable for conventional tonnage, although they are very suitable for landing craft of the type operated by Ferguson Transport and others.

There are, however, some significant constraints at specific ports and terminals, including some not shown in the **Appendix**. Bonawe can only take ships of 50m length; and Furnace has significant constraints, as does Glencrippesdale.

The overall position could, of course, change in the long term. If ships of 3,000 dwt become the operating standard, then the following ports would no longer be able to handle cargo: Buckie; Wick; Ardrishaig; Portree; Oban; Craighouse; Furnace; and Bonawe; as well as the outer isles in Orkney and Shetland. The core "Liquid Bulk" ports would be unaffected.

4.4.3 Issues

The British Waterways (BW) owned pier at **Ardrishaig** is a significant facility for the movement of timber from the west coast. It has the highest timber tonnages of any port in Argyll. BW stated that it is constrained from accommodating even greater flows by a range of factors, including: likely adverse reaction to increased HGV traffic through the village and limited port operating hours as agreed with the community.

Increasing throughput would, therefore, require significant further investment in plant, while the pier itself can accommodate a maximum ship length of 80m. BW also stated that Ardrishaig is presently operating at capacity and this limits the scope for attracting other cargoes (eg waste) to reduce the port's reliance on timber trade.

Other consultees agreed that there is potential for increasing timber volumes at Ardrishaig but believe that investment in the facility was the key to this, rather than overcoming adverse community reaction. Where there had been resistance in the past this was due to the timing of vessel arrivals and on occasion a large number of lorries running to the pier over a short period in order to provide a ship with a full load.

Some consultees felt that communities would accept steady flows of HGV traffic to a pier but were resistant to intensive lorry activity to fill a vessel. This can occur where the stockpiling at a pier is insufficient to provide a full ship load.

Limited storage space for timber cargoes is an issue at a number of ports in the region. Specific examples mentioned to us were **Campbeltown** and **Scrabster**. This places pressure on local facilities and services when a large timber vessel calls as the stockpile may be only 500-600 tonnes. This can leave, on occasion, over 1,000 tonnes to be delivered direct to a vessel over an 18 hour period, which places pressure on:

- **Haulage capacity**. A driver's day may consist of delivery of 100 tonnes in four runs to the port. Thus a relatively large number of drivers and vehicles are required over a short period of time. This can also mean that landward sawmills face delays in receiving timber as the hauliers concentrate on serving the ship.

- **Local roads**. It should be noted that in Argyll road access to ports is viewed as generally good. However, intense activity to fill a ship can place pressure on the road infrastructure, such that much of the environmental benefits of sea transport are enjoyed by those outside the west coast.

Most timber purchasers are seeking ship loads of 1,500 tonnes, with smaller vessels only used as a last resort if larger tonnage is not available.

Another issue relating to investment to support timber activities is that the ports used can change from year-to-year depending on which forests are being harvested. This appears more of an issue for Highland than Argyll. One company gave examples where a port was used quite frequently in one year and then not at all in the following 12 months.

Other challenges facing waterborne timber movements in Argyll include timber movements from Mull. Around two million tonnes of timber will need to be transported from the island in the next 25 years. This will require construction of one or possibly two piers on Mull. The requirement is likely to be for a facility that is 70-90m in length and with a draft of at least 3m. The construction of two piers would reduce the pressure on Mull's roads by avoiding the need for road haulage between the northern and south west parts of the island.

Elsewhere in Argyll and Highland smaller sites may be accessible using temporary port facilities which would, we understand, be eligible for FFG support.

Buckie is generally adequate for the demands of the local area's bulk cargo needs and consignments of over 2,000 tonnes are moved through the port. However, the largest vessels (ie over 75m) are only able to access the harbour in daylight and in certain weather conditions.

Moray Council are presently researching the business case for purchasing a new dredger to work at both Buckie and Burghead. This ship is required to keep the ports operational, but the shipping market cannot supply such a vessel on a regular and reliable basis.

There is concern that, in the longer term, the general size of vessels in the market may become too large to allow calls at Buckie. Average bulk cargoes per ship at the port have increased from 800 to 1,600 tonnes in the last decade.

However, the cost of an extension to accommodate larger ships could be prohibitive. It was last costed in 1997 at a price of £10 million. Over 20% of the port's income comes from bulk shipping. As at a number of local authority ports, the wider economic benefits of bulk shipping significantly exceed its value in terms of cargo dues to the port.

No cargoes have moved through **Burghead** in the last four years. According to Moray Council this is due to its length limitations (58m) and continual problems with silting. Previous trades included barley for malting, timber and stone (imports for garden centres). These trades have now ceased completely (but probably not because of the constraints at Burghead) or now move via Buckie. They did not constitute high volumes.

At **Corpach** the main issue faced by the operator (Clydeboyd) has been the need to charter a vessel to provide an integrated operation in tandem with their road haulage interests. The company lacks the confidence that the market would supply an appropriate vessel (for loads of 550-600 tonnes) for moving smaller consignments of timber and road salt.

A vessel of this size is required as some customers do not want a single consignment of greater than 600 tonnes. It was also stated that in some cases there are vessel size constraints imposed by using smaller port facilities-particularly for timber in remote locations.

As shown at **Chapter 2**, Corpach received a large FFG award in 2003. This was to allow the pier to take larger vessels again reflecting the trend towards the use of bigger ships to achieve economies of scale. Corpach was upgraded further in 2006, with the quay extended from 90m to 120m length. The port is now able to accommodate vessels up to 5,000 tonnes dwt. It is hoped that the pier will be further extended in the future and the feasibility of using the rail connection adjacent to it may be assessed.

Cromarty Firth sees a move towards containerisation as a likely future trend. This would include the use of this mode for the transport of bulk commodities. The port is keen to develop bulk cargo traffic, and possibly ro-ro, given the expected longer-term decline in oil-related activities.

Bulk cargoes apparently account for less than one quarter of overall port revenues. The port is presently building a new cargo shed for non-EU flows. They are of the view that major growth in traffic through the port will require improvements to the A9 between Inverness and Tain. The port is concerned that road investment may be neglected in favour of rail. Nevertheless, the management also sees that fulfilling the port's potential may depend, to an extent, on re-establishing a direct rail link, although to be effective this would also require sufficient capacity on the wider rail network, in terms of:

- Freight paths on single track sections and also between Aberdeen and the central belt.
- Removing pinch points such as the Killiecrankie Tunnel.

Cromarty Firth believes that its ability to accommodate very large vessels will be a long-term advantage given the growing size of ships. To this end, the port management believes that over time it will gain custom from other east coast ports that will be unable to cater for larger vessels.

Inverness is expanding its port activities and is considering a number of development opportunities. Dry bulks have become a major part of its custom in recent years, with liquid bulks having previously been the primary trade.

The port is presently developing a project to extend one of their quays to 150m length, as well as increasing the size of lay down areas; the port management is also developing a marina. The port believes that there is potential to bring the existing rail spur into the port should traffic levels warrant this.

They stated that there is sufficient land for further expansion should this be required. Inverness has undertaken a series of investments over the last 20 years, including the creation of a new liquid bulk pier five years ago. Given their customer profile, Inverness are very heavily dependent on bulk shipping for their turnover.

Highland Council is of the view that there is potential for more bulk traffic through **Kyle**. This, however, would require a major investment in the development of the site. They stated that the port's rail siding is too short to allow a train of sufficient length to operate, which militates against sea-rail transfer.

At **Kishorn**, Ferguson Transport is concerned about the potential scale of future capital investment. The port will need re-piling at some stage in the future. Ferguson also stated that their vessels are old and will need to be replaced at some future point.

The pier at **Portree** is an elderly wooden structure able to handle ships of up to 75m in length and 11m in beam. The "Border Heather", the smallest ship in the BP fleet, has a length of 75m but a beam of 14m, which makes her too large for this berth. Therefore, fuel deliveries are no longer made by sea at Portree.

Instead, fuel is brought by ship into Inverness and then moved to Skye by road tanker, with a minimum of eight vehicle trips per week. BP finds this unsatisfactory and wishes to see the pier rebuilt. Highland Council informed us that the price for fuel on Skye has risen by between one and two pence per litre with the change from sea to road delivery; this is in a context where there was already a differential between prices on Skye and those in mainland centres.

We understand that Highland Council is developing an FFG application for extending the pier at Portree. The total capital cost is presently estimated at £400,000-£700,000.

There are also infrastructure issues at **Stornoway**. The older piers are unable to bear the weight of HGVs and, therefore, dry bulk goods have to be loaded and unloaded at the newest pier which is also the CalMac berth. This can involve possible passenger-freight conflicts and health and safety issues between the bulk vessels and the ro-ro ferry and its passengers. As at other ports with ro-ro ferry services (such as Scrabster and Ullapool) Stornoway generates only a small proportion of its total revenues from bulk cargoes.

Stornoway Port Authority is seeking to upgrade one of the older piers for bulk working. Apart from the ro-ro pier, the port's other two piers are over 70 years old and approaching the end of their working life. A STAG appraisal for redevelopment of one of the piers is presently being undertaken, to include a second linkspan for the port. The capital cost could be £14-£15 million.

A feasibility study is also being undertaken in relation to a new harbour on the west side of Stornoway bay which would house new fuel tanks. The capital cost of this is estimated to be up to £30 million.

4.5 CALEDONIAN CANAL

There has been considerable interest in using the Caledonian Canal for bulk freight movements, both from its owner (British Waterways) and the Scottish Executive. However, the size of vessel that could be used is limited to a maximum of 45.7m length, 10.67m beam and 4.1m draft. This restricts the range of suitable vessels, while the relatively small payload of the ship impairs financial viability.

In 2005, a trial was held using a vessel owned by KD Marine, although the vessel sailed light rather than conveying cargo. This ship has capacity for moving 550-600 tonnes and demand has been identified in the Inverness area for some timber cargoes of this size. At present, however, the volumes are insufficient to make the operation financially viable, even after allowing for FFG support. Furthermore, the vessel operator has had difficulty in identifying return loads for east-west movements.

Other issues relate to potential conflicts between freight vessels and the other 1,200 craft that use the waterway each year, as well as cruisers for hire and commercial vessels. This, and possibly restricted hours of operation, could make it more cost effective to undertake movements between the west and east coast using a larger vessel routed through the Pentland Firth.

There is some scepticism in the market as to the viability of freight traffic on the Canal. Its relatively short distance makes the road alternative attractive, given the double handling involved in using the waterway. It also means that environmental benefits are not significant. This, and the apparently limited flows available, makes it difficult to generate the required amount of FFG support to make using the Canal a viable proposition. Consultees also referred to a lack of available and suitably sized vessels.

The range of possible flows is constrained by the limited amount of transit traffic between the east and west coasts. Grain to Islay is the main possibility, but this originates from England and presently goes around the Pentland Firth in ships of 1350 dwt.

BW had hoped that some of the construction materials for the Glendoe hydro-electric project could be moved along the Canal. However, they were unable to compile a business case sufficiently in advance of the project commencing, although it is likely that a funding gap would still have existed that would have had to be met via FFG.

Nevertheless, BW remains keen to further explore the possibilities for freight movements. It believes that there may be potential for the following cargoes:

- Timber. This was also mentioned by Scottish Executive.
- "Non-contentious" waste, such as recycled paper.
- Salt.
- White goods for recycling.

BW is committed to being as flexible as possible to encourage freight movements on the Caledonian Canal. This could extend to its charging regime and the funding of trial movements.

4.6 POTENTIAL WIDER IMPACTS OF MARKET TRENDS

This section considers the potential wider impacts of market trends. Specifically it looks at the potential effects of the loss of the **smallest vessels** from the market, given that this is the most immediate issue facing the supply of bulk shipping services in the Highlands & Islands.

The reactions from purchasers of goods and the shipping market are difficult to predict. They are likely to vary by commodity and also by sub-region of the Highlands & Islands.

The reactions could encompass:

1

Ship operators attempting to purchase vessels from outside the UK for use in the Highlands & Islands. This was undertaken, for example, by Ferguson Transport in its purchase of the "Harvest Caroline".

This is a possibility and only a small number of additional small vessels would be required to meet market demand. One consultee stated that they might be able to acquire a 10 year old Norwegian ship for £1 million although the ship would then need further investment to bring make it ready for operations.

However, as discussed earlier the number of available vessels is limited. Furthermore, purchasers may dedicate ships largely to their own requirements rather than making them generally available for third party work. Third, the "Harvest Caroline" is 36 years old. This illustrates the difficulties of finding tonnage. It also raises questions about the longer-term sustainability of acquiring second hand vessels.

2

The use of larger bulk vessels. This could be done through ordering larger volumes of commodities than are presently moved or by ordering the same volume as previously but moving it in a larger ship.

Again this is possible, especially as most ports are not capacity constrained, as discussed earlier. Larger volumes could be ordered for some commodities such as salt and, in some cases, timber. The loss of smaller vessels would represent a reduction in shipping capacity *per se*, therefore, those purchasing commodities would be less able to secure vessels at relatively short notice-which would further reinforce the need for less frequent ordering of larger loads. In some cases, this would have implications for cashflow and storage and may be less feasible than a ro-ro alternative.

It would still be possible to order in the same volumes as before but using a larger vessel. The issue would then be the availability of such vessels over the medium to longer term as well as increased transport cost per tonne compared to the present position.

3

Moving the same volume of commodities but in the case of the islands via ro-ro ferry rather than by bulk vessel.

The main issues around this are:

- Transport costs would increase compared to present arrangements. Discussions with receivers and others on the west coast suggest that ro-ro costs would be at least 20% higher than at present. However, the picture is a variable one. For example, in the case of Stornoway, some companies are presently importing coal in bulk while others move it, more frequently and with smaller loads, using the ro-ro ferry service.

- Possible capacity constraints on some ferry services at times of peak demand. However, the impact is most likely to be borne by private traffic, if the haulier is able to block book in advance. Thus the effect may be to frustrate demand for car traffic-and notably visitors-due to an increase in commercial vehicle carryings on the ferry at certain times of the year. Some commodities such as coal would be moved outside the peak period for car traffic.

- An equally significant constraint may be a lack of road vehicles/hauliers in certain areas. Hauliers would need to be prepared to invest in extra units for work that would not be particularly remunerative. Some commodities (eg aggregates) would require specialist equipment.

- Animal feed, fertiliser, cement and coal can all be moved in one tonne bags in trailers. Where the cargo can be bagged and put into a curtain sided trailer it would more easily transfer to road and ferry. This can be attractive if the commodity is swiftly moved on to the end user who is able to handle this mode but it becomes expensive if the end user wants to put the product into a silo or similar storage facilities.

- Ro-ro would significantly increase road miles travelled. As a rule of thumb, every extra road trailer would add about 280 road miles to the journey.

- In some cases, sourcing costs may increase as buyers have reduced choice.

In terms of port revenues, the scale and nature of the impact of the loss of coastwise bulk cargo is not clear cut. Excluding fuel oil, timber and salt, what is noticeable is the number of small consignments moving to small harbours. In these cases the loss of a small number of occasional cargoes is unlikely to affect significantly the overall financial viability of the facility.

On this basis, the disappearance of the smallest ships is unlikely to affect the viability of most ports. This is especially the case for those that are publicly-owned and which support a range of other activities, such as fisheries and scheduled ferry services.

4.7 POLICY CONTEXT

4.7.1 Funding

Our consultations with Scottish Executive do not suggest any significant changes to the funding mechanisms for supporting either ro-ro services or waterborne freight in general. The Executive has the powers to design its own grant schemes, rather than simply use those originally designed by DfT. However, it currently sees no requirement to do so and has no plans to change the operation of, and criteria for, FFG. The basis for support will remain environmental benefits rather than economic or social impacts.

Scottish Executive emphasised that while FFG could be used to fund ships for inland waterways this was not the case for coastal vessels. There are constraints imposed by competition issues that prevent funding for vessels which would trade with destinations outside Highlands & Islands. We understand that this is also the case for any HIE assistance to vessels. However, as shown by our research, most bulk flows with a trip end in the Highlands & Islands are moving to/from other parts of Scotland or the UK.

It is also expected that Scottish Executive's Pier and Harbours Grants will continue to be used solely to upgrade facilities used by lifeline ro-ro ferry services.

During 2007/2008 Scottish Executive will be undertaking a review of charges on the CalMac network. This could lead to a reduction in freight rates, at least to some of the islands served.

4.7.2 Regulation

No major changes are expected to MCA or international regulations (e.g. SOLAS-Safety of Life at Sea). However, ships of below 500GT presently have an exemption so that they can operate with a crew of four. This might be removed causing the crew complement to be increased to five.

4.8 EXPERIENCE ELSEWHERE

Geography and demography mean that **Norway** has to make the maximum possible use of its coastal shipping resources; the land is unsuited to road use and the population is sparse. The Norwegian government subsidises the *Hurtigruten* network of coastal freight and passenger services. Consequently all Norwegian ports on their west coast enjoy a scheduled and reliable service linking all communities. Much of the cargo carried on these services is palletised or moved in big bags (1 tonne capacity). This is the primary freight system for the Norwegian west coast.

The Norwegians have pioneered efficient use of coastal shipping and the integration of bulk shipping into the logistics chain. Norwegian salmon farms buy in bulk and the bulk ships supplying feed discharge directly into silos using ships generators to power the blowing system. This is substantially cheaper and quicker than putting feed into bags, to go to store, to be taken to the farm, to have the bag ripped open to tip the feed into a silo. Norwegian forest products are moved by sea and every Norwegian mill has its own mini port for the export of paper, pulp, etc.

In theory Norway should be a source of second hand tonnage for use in Highlands & Islands waters. In reality, however, the Norwegians are also short of smaller ships.

The position on the west coast of **Ireland** is similar to that in Scotland, with public subsidy given to lifeline services to island communities. The grant is targeted primarily at ro-ro services and the air service to the Aran Islands. Bulk shipping is not subsidised. The "River Dart" was purchased by a Cork company to service the Irish coast; the fact that she is still trading around Scotland probably sums up the situation.

4.9 CONCLUSIONS

Our conclusions from the analysis in this Chapter are:

- Demand for bulk shipping is expected to be fairly stable at the Highlands & Islands level. However, traffic through particular ports is likely to fluctuate given that many flows are dependent on a small number of companies. Future bulk shipping volumes will also reflect factors which are presently uncertain-notably the cost of road haulage.

- Traffic relating to the renewable energy sector is expected to grow. It is likely to be shipped through larger ports with adequate handling space and road connections to installation sites.

- A number of consultees believe that there is potential to develop container services to/from "thicker" markets in the Highlands & Islands, although bulk commodities will form only one element of overall demand.

- Bulk shipping could win some specific flows that are presently moved by rail, but the reverse is unlikely.

- Market conditions and construction costs do not appear to justify the new building of bulk vessels of under 3,000 dwt.

- While there are some exceptions, most main ports have the capacity to accommodate larger vessels. Thus the demand for smaller ships relates more to some customers' requirements for small consignments rather than limited port capacity.

- Again with some exceptions, port infrastructure is generally fit for the purpose of bulk shipping. There is evidence of investment occurring across a range of types and size of ports. Where public sector funding is sought then this would have to be assessed on a case-by-case basis, with a clear understanding of the criteria for assistance-that is, would it be simply for environmental benefit or would economic and social factors also be taken into account?

- Road connections are an issue for timber ports in Argyll where they are intensively used when lorries are working directly to a ship. They are also important, along with the possibility of restoring rail connections, to some of the region's larger ports if they are to fulfil their potential for achieving significant modal shift.

- If the smallest vessels were to drop out of the market this would have the effect of reducing shipping capacity *per se*, as well as meeting the needs of particular customers that only require consignments of 400-700 tonnes.

- The loss of the smallest vessels from the market could be a precursor to the medium-longer term decline in the number of ships of up to 1,500 dwt. The shipping market reaction is difficult to forecast as only a small number of second hand vessels would be required to meet the scale of market demand. There appears, however, to be no financial justification for the building of new small vessels.

- The impact of the loss of smaller vessels would be felt in higher costs of transport for commodities, capacity constraints on ferry services at certain times of year, increased requirement for road haulage equipment in the more remote areas and the environmental impact of additional lorry road miles.

- Given the range of communities served and the volumes of commodities involved, the impacts would only be likely to be locally significant; that is, at sub-local authority level and often at a community level-eg particular islands. The impact would appear to be, largely, on the cost and logistics of imports to a number of small communities, with much less relevance to exports outside the Highlands & Islands.

- Any decision regarding public sector intervention in the market would need to balance the scale of these potential effects against the wider issue of the mechanisms by which support could be offered. At present it appears that assistance could not be provided to vessels that trade outside the Highlands & Islands, although this is in contradiction to the nature of the trades undertaken by the smaller bulk ships.

One option could be for the public sector to purchase one or two newbuilding ships of under 1,000 dwt. These vessels could be tendered on a similar basis to that for Northlink and CalMac services. However, this would only be viable if the ships were able to trade on the basis that one cargo trip end could be outside the Highlands & Islands i.e. they must be allowed to trade to wherever the region trades.

Such ships could be designed to use the Caledonian Canal, even though demand for such a capability presently appears limited. They might also be designed to transport waste from various islands and mainland locations, if such an operation was viable.

The level of financial support required is unlikely to exceed £275,000 per annum per ship. Provided the new ships were "state of the art", including the ability to convey containers, the level of support might be less, since they would be built to meet the specific needs of smaller islands and communities. Further, the use of modern ships that are purpose built for the Highlands & Islands would improve service reliability compared to that presently offered by older tonnage.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

5.1.1 Role Of Bulk Shipping

In tonnage terms, a significant amount of bulk shipping in the region is liquid bulk. This takes the form of either crude oil being exported from the region, or the import of fuels for use by businesses and households.

A range of dry bulks is also moved, supporting the activities of:

- Regionally significant economic sectors, such as aquaculture and forest products.
- Locally significant employers.

Bulk shipping supports the sourcing of goods from, and the export of products to, areas beyond Scotland and the UK. It allows the participation of some of the region's companies in global markets and offers them a range of opportunities for purchases and for sales.

At one end of the market, the smallest vessels are moving a range of commodities around the Highlands & Islands. They tend to serve the smaller ports and islands and largely move import flows. However, it is again the case that bulk shipping allows those purchasing small consignments to source these from a range of locations, including those outside Scotland.

Future demand for bulk shipping is expected to be fairly stable at the Highlands & Islands level. However, traffic through particular ports is likely to fluctuate given that many flows are dependent on a small number of companies. Bulk shipping could win some specific flows that are presently moved by rail, although the reverse is unlikely.

There is potential for growth in particular traffic types, such as waste and equipment for the renewable energy sector, reflecting changes to markets and the regulatory structures underpinning them. In addition, some study consultees see the potential for the development of container services to/from the more populous parts of the region.

5.1.2 Vessels

The market is presently catering for much of the demand from bulk coastal shipping in terms of vessel provision. This is particularly the case with the liquid bulk fleet. It is relatively modern and this profile can be expected to be maintained in the longer term given the resources available for continuing upgrades of the tanker fleet.

A range of vessels is involved in dry bulk shipping in the Highlands & Islands. However, there is a limited number of smaller (up to 1,000 dwt) vessels available. Some of these are largely dedicated to one commodity and/or one customer. Therefore, there is only a limited number of ships that are generally available for conveying a range of third party cargoes.

Most of the smaller vessels are old and nearing the end of their lives. The ageing of the small end of the vessels market reflects Europe-wide trends. It is based on the economics of ship operation, whereby economies of scale are available to those using larger vessels. Market conditions and construction costs do not appear to justify the building of new smaller bulk vessels.

If the smallest vessels were to drop out of the market this would lead to a reduction in the shipping supply *per se*, as well as a constraint in the capacity to meet the needs of some customers that only require consignments of 400-700 tonnes.

The loss of the smallest vessels from the market could be a precursor to the medium-longer term decline in the number of ships of up to 1,500 dwt. The shipping market's reaction is difficult to forecast. It would require only a small number of second hand vessels to be introduced as replacement tonnage to meet the total demand of those purchasing consignments of 400-700 tonnes.

The impact of the loss of smaller vessels would be in terms of: higher costs of transport for commodities; capacity constraints on ferry services at certain times of year; increased requirement for road haulage equipment in more remote areas; and the environmental impacts of additional lorry road miles.

Given the range of communities served and the volumes of commodities involved, the impacts would only be likely to be locally significant; that is, at sub-local authority area and often at a community level-eg particular islands. The impact would appear to be largely on the cost and logistics of **imports** to a number of small communities, with much less relevance to the exporting of products from the region.

Existing trends imply that by 2020 the present fleet of ships serving the Highlands & Islands will no longer exist. Residual bulk cargoes that are not readily unitiseable but moving in smaller consignments (such as timber, stone and salt) would either have to pay significantly higher rates, or would be restricted to fewer ports.

5.1.3 Ports

There are some exceptions, but the region's shore infrastructure is generally fit for purpose and especially so at the major ports. In general, the main ports have the capacity to accommodate larger vessels. Thus the demand for smaller ships relates more to some customers' requirements for small consignments rather than to restricted port capacity.

Vessels have become larger and those at the smaller end of the market have not been/will not be replaced. This has been an issue for Portree and Burghead, although the affected volumes and range of commodities through both ports are slight. The lack of smaller vessels is also one of the reasons, along with the waterway's short length, for the apparently limited potential for freight on the Caledonian Canal. However, if ships of 3,000 dwt become the operating standard in the longer term, then a number of the region's ports, such as Buckie and Wick, would no longer be able to handle cargo.

Road connections are an issue for ports where they are intensively used by lorries working directly to a ship. They will also be important to some of the region's larger ports if they are to fulfil their potential for achieving significant modal shift and thus contribute to the environmental objectives of the National Transport Strategy.

Lastly, the larger ports in particular feel that their contribution to the region's transport system and economy are not sufficiently recognised. In general, there is a lack of understanding of HITRANS' remit and scope of activities among those we consulted.

5.1.4 Policy

There are no interventions, at national level, in the bulk shipping market which are based on economic impact criteria. Rather, the emphasis is on modal shift. Regional level support on economic grounds can, of course, be provided by HIE but there are limits to its scope: notably, that any supported vessels should trade only within the Highlands & Islands.

Any decision regarding public sector intervention in terms of the provision of bulk vessels would need to balance the scale of potential benefits against the wider issue of the mechanisms by which support could be offered. At present it appears that assistance could not be provided to vessels that trade outside the Highlands & Islands. This contradicts the nature of the trades undertaken by the smaller bulk vessels.

There is no indication of any change of policy at the Scottish level; that is, to move beyond FFG, with no assistance being offered for coastal vessels, as the primary means of supporting bulk freight activity. In contrast, the forthcoming review of CalMac's fare structure could lead to lower freight charges on a number of ro-ro services.

5.2 RECOMMENDATIONS

1

This study's findings should be communicated to stakeholders and those consulted during the research.

2

Having considered the scale of potential impacts of the possible loss of the smallest vessels from the market, HITRANS and HIE should meet the Scottish Executive to discuss the report's findings. This should involve consideration of both the need for intervention and possible mechanisms for this beyond those already available-including the possibility of supporting ships operating to/from ports outside the Highlands & Islands.

3

HITRANS' proposed ports strategy, which should be developed with stakeholder input, should reflect the longer-term issues identified in this report; notably those relating to increasing vessel size and the capacity of particular ports.

4

HITRANS should consider the establishment of a ports and shipping liaison group to permit continuing contact with these sectors. The group would be used to help identify issues relating to port capacity/infrastructure and key road and rail connections. It should also be used to communicate HITRANS' remit and objectives to these stakeholders, as well as the role of the RTS in developing road and rail links to the region's ports.

5

As part of a general effort to recognise the contribution of ports and shipping, HITRANS and HIE could commission a joint study into the economic impacts of the region's main ports. Such work has already been undertaken for other key transport infrastructure in the Highlands & Islands, such as the rail network, scheduled air services and Inverness Airport. HITRANS should also consider co-funding studies into the potential for expansion/development at particular ports.

6

Through its constituent local authorities, HITRANS should facilitate discussion and further consideration of greater use of sea transport for the movement of waste for disposal.

7

HITRANS should undertake a joint study with British Waterways to fully examine the potential for freight traffic on the Caledonian Canal.

APPENDIX A:

CAPACITY AT MAIN HIGHLANDS & ISLANDS PORTS

Port	Length (m)	Beam (m)	Draft (m)
Ardrishaig	80	-	4
Ardveenish	83		6.5
Brodick	94	15.8	6.3
Buckie	83	15	4.5
Burghead	58	-	-
Campbeltown	120	-	5
Corpach	120	-	5.5
Craighouse	40	-	-
Cromarty Firth	250	-	11
Glensanda	300	-	14
Hatston	153	-	4.5
Inverness	124	17.6	6 (spring)
Kinlochbervie	80	-	5
Kirkwall	-	-	5.0
Kishorn	100	-	-
Kyle	90	-	6
Lerwick	100		5.2
Lochinver	90	-	6
Lochmaddy	60 (north pier) 115 (ro-ro pier)	-	4
Mallaig	80	20	4.5
Oban	73	-	3
Portree	75	11	5
Rothesay	80	-	4.2
Scalloway	120		7
Scrabster	160	-	7
Stornoway	Dry-100 Petroleum-75	-	Dry-6.5 Petroleum-5.0 (Tide dependent)
Stromness (dry bulk)	130	-	4.5
Uig (dry bulk)	-	-	3
Ullapool	84.9	12.7	6
Wick	89	18	4.5

APPENDIX B: CONSULTEES

CONSULTEES	
Ports	
British Waterways	David Lamont
Corpach (Clydeboyd)	Christine McColl
Cromarty Firth Port Authority	Ken Gray/Iain Dunderdale
Highland Council	Tony Usher
Inverness	Murdo MacLeod/Ken MacLean
Lerwick	Sandra Lawrenson
Mallaig	Robert MacMillan
Moray Council	Keith Stratton
Scrabster	Gordon MacKenzie
Shetland Islands Council	Jim Dickson
Orkney Harbours	Nigel Mills
Stornoway	John Maclennan/Torquil Macleod
Ullapool	Murdo MacKenzie
Shipping Lines/Operators	
BP Tankers	Barry Gibbs
Caledonian MacBrayne	Phil Preston
Coastal barge operator (Kyle)	Murdo MacCreadie
Coastal Bulk Shipping	Robin Common
D&H Shipping	Edmund Dorman
Faversham Ships	
Ferguson Transport	Ally Ferguson
Gillie and Blair	Steve Gillie & Matt Hambling
GMT Shipping	Alastair Tear
Hebridean Shipping	Heather Chaplin
James Fisher & Sons	
KD Marine	Keith Dawson
(Former owner of) Nord Star	Hughie Morton
Northlink Ferries	Gareth Crichton
Pentland Ferries	Andrew Banks
Western Ferries	Gordon Ross
Agents & Brokers	
Gillie & Blair	Steve Gillie
GMT Shipping	Alistair Tear
Northern Isles Shipping	Jack Goodlad
Consignors/Consignees/Merchants	
BP Trading	Richard Grant
Gordon's Timber	Nairn
Greencore Malt	Buckie
INEOS Refinery Grangemouth	Tony Pollock
Macaskills (Coal)	Stornoway
Euan Macinnes	Benbecula
John McLaren	Lochmaddy
Munro's	Alness
UPM Tilhill (North of Scotland)	Inverness

Other	
Argyll & Bute Council	Blair Fletcher
Argyll Timber Transport Forum	Ian Arnold
Fergusons Shipbuilders	Ken Fulford
Highland Council	Roads and Transport (John Maclennan)
Maritime Corporate/Stephenson Clarke	Trevor Hart
MCA	Charles Davy
Scottish Executive	• Ian Farmer (FFG/WFG) • David Tod (Piers and Harbours Grants) • Gordon Hart (Rural Affairs)