

# 1 INTRODUCTION

## 1.1 Definition and objectives

This analysis and report is an independently produced, factual, assessment of the UK's freight ferry, container service and Channel Tunnel service **capacity** employed and currently being handled at UK ports and available to carry the UK's short sea trailer and container trade, assessed as a whole and also broken down and analysed over five market sectors.

Constant change and development in the UK Short Sea Freight RoRo and LoLo market sector, following on from the rapid increase in the amount of UK trade shipped by unitised mode over the last 35 years, highlights the value of this report in quantifying current market scale and modal and geographic deployment, historic development and future trends.

**This is the fifteenth annual edition of the report and it identifies changes in market size, market share and market dynamics that have arisen since 2000. The Report also has a section on the development of longer routes to the Continent of Europe from east coast ports, most relevant when considering the potential impact of Brexit. This section also contains an assessment of UK coastal feeder capacity and RoRo berth capacity utilisation. Further market insights not contained in this Report that can be derived from the capacity analysis, include indications of capacity utilisation and analysis of capacity per nautical mile travelled on different routes as a basis for measuring fuel consumed per unit per nautical mile travelled.**

Information is obtained chiefly direct from shipping service and port management, but also from company web sites and printed literature, port handbooks and other commonly used maritime reference sources. Descriptions of the geographic route sectors and a definition of the measurement of capacity are given below.

The analysis is not a record of cargo shipped but an analysis of the overall vessel capacity available in which to ship accompanied and unaccompanied trailers, containers and other 'unitised loads' (with certain exclusions). A complete database has been built containing details for all short sea unit load services in operation and the UK ports that handle the services. The databases are presented as a simple series of spreadsheet tables in the Appendices to the report. It is a perfect source of reference for all involved in the short sea, unit load sector, from port operators to trailer operators, shippers and receivers. The end result is an overview of the shipping capacity available and being handled at the ports, with profiles of the capacity provided by the service operators and handled at the ports within each market sector.

Having established an initial 'snapshot' position, in March 2000 with the first edition, the report has been annually updated and enhanced so that developments can be monitored and reported. Movements in capacity share have been tracked and the events leading to change are given authoritative comment.

**Service and route identification and capacity assessment provide a market 'benchmark' by which estimates and indications of the numbers of freight units carried, obtained from a range of sources, can be confirmed and assessments of capacity utilisation made. PRB Associates regularly undertakes assignments to assess market size, capacity utilisation and market development, using the Capacity Report as the starting point.**

## 1.2 Scope

In the Report the UK market is broken down into five sub-sectors, defined according to the overseas port destinations served from the UK and coded, as follows:

- Near Continent of Europe - **CO** (Belgium, Netherlands and German North Sea coast ports)
- Channel - **FS** (Eastern and western Channel, including Eurotunnel and Bay of Biscay, connecting to ports in France, Spain and Portugal)
- Irish Sea – **IS** (routes between the UK mainland and Irish ports; north and south)
- Scandinavia - **SC** (routes to ports in Norway, Sweden, Denmark and Iceland)
- Baltic – **BA** (routes to ports in the Baltic Sea, inside of the 'Sound' that flows between Copenhagen and Helsingborg, excluding Swedish and Danish ports inside the Sound that are included in the Scandinavia sector)

For services with multiple port calls the capacity is split proportionately between UK mainland ports, in the first instance, and market sectors, if overseas port calls are located in different geographical sectors (i.e. Scandinavia and Baltic port calls).

The port information collected and presented in Appendix 8.4 comprises the following:

- ◆ Port name
- ◆ Port ownership
- ◆ Terminal names
- ◆ Entrance (i.e. lock, harbour, river etc.)
- ◆ Number of RoRo berths (specific for stern and bow ramp vessels)
- ◆ Number of fixed container handling cranes and dedicated harbour mobiles
- ◆ Vessel acceptance dimensions (maximum draft, loa, beam, DWT, tide restrictions)
- ◆ Berth access restricting factors
- ◆ Open storage area
- ◆ Covered storage area
- ◆ Number of electrical connection points (for heated and refrigerated units)
- ◆ Terminal operator
- ◆ User restrictions

The types of vessel considered to be providing unit load freight capacity, for the carriage of goods in accompanied and unaccompanied trailers, containers and other 'unitised' modes are defined below:

- **RORO** - Pure freight carrying RoRo vessels with passenger accommodation for a maximum of 12 drivers
- **ROPAX** - Freight RoRo vessels with passenger accommodation for up to 250 passengers (drivers) designed chiefly to carry accompanied truck and trailer units
- **PAX** - RoRo ferries with sufficient free height space to accommodate trucks and trailers but with dual car carrying design and perhaps hanging car decks and dedicated car decks for passenger cars. Also with passenger capacity for more than 250 people
- **HSS** – High-speed catamarans with trailer carrying capacity alongside passenger and passenger car carrying capacity
- **LOLO** - Pure container carrying vessels
- **LORO** - Vessels with RoRo access to the main deck but with access only by crane to the weather deck
- **STORO** - Vessels with RoRo access to the main deck, but also with side door access and lifts to upper and lower decks for loading palletised cargo to deck
- **LO-CON** - Mixed container and conventional cargo vessels

The information held in the database for each Short Sea service, presented in full in Appendix 8.2 is as follows:

- ❖ UK mainland port of call
- ❖ Name of operator
- ❖ Sales Agent
- ❖ UK Terminal used
- ❖ Overseas port destination(s)
- ❖ Vessel type (as above)
- ❖ Market sector (coded as above)
- ❖ Usual weekly number of sailings from the UK
- ❖ Names of vessels in service (see below)
- ❖ Annual unit capacity
- ❖ Supplementary notes

Freight carrying capacity first depends on the route and service provided, the characteristics of the vessels used on each service and the individual vessel capacities. There is therefore an additional database of information for every vessel in use, found in Appendix 8.3. Details for each vessel include:

- Name of operator

- Name of vessel
- Route (from/to)
- Owned or chartered
- Year of build
- Type of vessel
- Capacity - lane metres (for RoRo)
- Capacity - teu (for LoLo)
- Capacity - 'raw' units (as defined below)
- Capacity - cars (dedicated car space only)
- Capacity - 'optimum' units (as defined below)
- Capacity - passengers
- Number of freight carrying decks (with deck height sufficient to carry trailers and/or containers, including weather deck if it has RoRo access, but not if weather deck is for crane loading only)
- Main deck height
- Number of internal lifts
- Number of internal ramps
- Length overall, beam and draft
- Deadweight, Gross tonnage and Net tonnage

### 1.3 Exclusions

There are a number of types of service that could be confused with the scheduled short sea freight services under consideration. It is important to understand that the following services are either excluded from the analysis or not independently defined because they do not provide the desired unitised freight capacity for general intra-European trading.

- Pure Forest Product services
- Car carriers
- UK coastal feeder services\*
- Domestic services (i.e. Isle of Man, Isle of Wight, Scottish Isles, Channel Islands)
- Car and passenger only services

\*Wherever there is an incidence of coastal feeder capacity it is referred to in Section 7 of the Report and in the notes in Appendix 8.2, almost always as an element of Continental and Irish service connections. In this year's Report there is also an independent assessment of Coastal Feeder Capacity in Section 6.

### 1.4 Report structure

In Section 2 of the report the unit of capacity and the basis for calculating annual service capacity are defined with an explanation of the assumptions made.

Section 3 provides a short overview of the whole market and the leading ports and service operators involved. It also sets the scene for future market developments and strategic moves.

Sections 4 and 5 give 'bullet point' details of key service and port developments that have taken place in 2016 and 2017 along with those pending developments known and scheduled to be taking place in 2018. Indications for the development of longer RoRo ferry and container service connections to the Continent, relevant for Brexit considerations, and estimates for berth utilisation are presented in Section 6.

In Section 7 each of the market sectors is examined and analysed in more detail. A commentary and analysis for each sector is enhanced with graphs, pie charts and tables depicting the market shares, capacity provision and capacity development for each of the services involved and UK ports served. The development of market capacity, in each sector, between 2000 and 2017 is illustrated in simple but effective bar-graph format.

The bulk of the detailed reference information is contained in the Appendices, in Section 8. There are four appendices, the second of which is a full summary of all the current unitised short sea services operating from UK mainland ports. The range of information displayed for each service is described in Section 1.2 and the information itself is presented in port sequence in a "clockwise" geographic order around the UK coast,

starting at Scrabster at the north-east tip of Scotland and finishing with Greenock and the Clyde on the west coast of Scotland.

The first Appendix (8.1) incorporates tables of port to port distances for each market sector with corresponding port to port sailing times at a range of service speeds (15, 20 and 25 knots). These tables provide for easy estimation of possible round trip schedule timings.

The third Appendix contains a list of every vessel currently in service in the defined market sectors, with capacity and dimension particulars. Vessels are grouped by operator and listed in alphabetical order according to operator name.

Further port details, including the number of RoRo berths and container cranes available, terminal areas and reefer connections are listed in the fourth and final Appendix ordered according to the same 'clockwise' geographic sequence of ports described for the second Appendix.

## 2 CAPACITY AND UNIT DEFINITION

### 2.1 Basis for calculation

The total unit capacity calculated to be available on each service is based upon the regular number of sailings offered each week, multiplied by two, to take account of the equal number of sailings in both directions, multiplied by the 52 weeks in a year. Total sailings are then multiplied by the average unit capacity available on the vessels in service, with some account taken for seasonal schedule variations.

The basic freight unit is defined according to the type of vessel, but in summary should be described as the basic 'feu', or 'forty foot equivalent unit', although trailer and container lengths have increased beyond 'forty foot' over the years. 13.6 metres for trailers and 45ft for containers are now the norm and the unit of capacity measurement takes this into account. In general therefore, vessel capacity is defined in the following way, for three distinct vessel service types, taking into account either verifiable data from operators and/or realistic capacity taking into account unavoidable gaps in stowage:

- ✓ Freight RoRo vessels - RORO: Equal to the lane metre capacity divided by 14.6 to take account of the unaccompanied trailer unit and the longitudinal space between units 'in stow'.
- ✓ Passenger and Ropax vessels - PAX/ROPAX: Equal to the lane metre capacity divided by 16.5 to take account of the trailer, accompanying tractor unit and the longitudinal space between units 'in stow'.
- ✓ Container vessels - LOLO: Unit capacity generally equal to the published, nominal 'teu' (twenty foot equivalent unit) capacity, divided by two.

### 2.2 Assumptions

Several further assumptions have been made to discount space not necessarily available for carrying freight and to account for additional capacity not specified by simple division of lane metre area. There are two fundamental adjustments to the unit capacities defined above.

For RoRo vessels with a main deck height over 6.0 metres it is possible and desirable to stow containers stacked two high on mafi trailers and cassettes. This effectively doubles the unit capacity in the main deck on these types of vessels. However, deck heights might not be uniform throughout and main deck area and do not form the same consistent proportion of total deck space in all ships. In addition the increasing size (height) of containers from 8'6" to 9'6", as standard, is leading to growing constraints.

**In the absence of detailed vessel particulars for all the ships in service two simple escalators are applied, as opposed to one 30% escalator applied in Survey Reports prior to 2008 on all vessels with a main deck height exceeding 6.0 metres. Now, for ships with main deck height in the range 6.0m to 6.5m the escalator is 15% and if over 6.5m the escalator is 30%. The global impact of this one-off change in 2008 was to reduce overall capacity by 226,000 units (1.5%), with impact spread between the North Sea (122,000 units), Irish Sea (81,000 units), Scandinavia (22,000 units) and Baltic (1,000 units).**

Conversely, for passenger RoRo ferries the deck space available for carrying freight is compromised by the operator's seasonal requirements to carry passenger cars. Therefore on these vessels the basic unit capacity is reduced by 40% to reflect the average demand for this space from passenger cars.

For LoLo vessels the potential limitation posed by deadweight restrictions is not taken into account. The assumption is that the cargo is distributed evenly and there will generally be a mixture of loaded and empty containers that will keep the average weight per container down to acceptable levels. (Nominal, volume based capacity used as basis rather than capacity based on an average container load of 14 tonnes)

For train services the operators have generally supplied details for the size of wagons used, the container loading capacity and the optimum number of wagons used in each train set.