



**DEFRA PROJECT FO0108**

**RESILIENCE OF THE FOOD SUPPLY TO  
PORT DISRUPTION**

**FINAL ANNEX REPORT 1:  
UK FOOD AND DRINK IMPORT DATA  
September 2012**

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## 1. EXECUTIVE SUMMARY

In 2010 UK ports handled 312 million tonnes of inbound freight traffic (foreign and domestic) and between them the 52 Major ports that each handle more than 1 million tonnes handled 304 million tonnes of the total. (Figures from Department of Transport *Maritime Statistics*)

Of the 304 million tonnes of inbound freight traffic handled through the major ports, 239 million tonnes was reported as being from foreign origins, with the remaining 65 million tonnes of 'domestic' freight being either 'coastwise' (48m tonnes) or 'one-port' (17m tonnes) traffic. In addition Channel Tunnel inbound volume is estimated to be approximately 7.7 million tonnes (on Freight Shuttles and through freight trains).

While the DfT's *Maritime Statistics* do not identify traffic by detailed commodity type, the trade data from Her Majesty's Revenue and Customs (HMRC) does and in 2010 the foreign import volumes of food commodities were reported to be nearly 35 million tonnes, out of a total foreign import volume of 264 million tonnes (by sea, air and tunnel mode). Food commodities therefore comprise 13% of all UK foreign imports (by volume), with 60% coming from EU origins and 40% from non-EU origins.

London, Liverpool and Felixstowe handle 60% of all UK food imports received from non-EU country origins, carried by a variety of shipping modes (bulk, break bulk, container and RoRo). Even without any reliable cargo commodity declarations on intra EU trade movements, it is safe to assume that Dover and the Channel Tunnel, and to a lesser extent the Humber ports and London, will handle the majority of food imports from EU countries by virtue of the volume of accompanied and unaccompanied trailer traffic (much of it refrigerated) that is handled.

Port and Food commodity Case Study subjects have been selected, in part, on the basis of the initial trade and traffic analysis carried out. Dover and the Channel Tunnel are key for the UK's trade links with the Continent; and Felixstowe and Southampton are vital 'gateways' for food commodities arriving in containers from all over the world. The Humber and Thames / Medway ports provide a range of ferry and container vessel handling facilities as well as specialist bulk handling facilities for liquid and dry bulk food commodities (in particular, palm oil in Hull and sugar at Silvertown on the Thames).

The choice of frozen meat and fish and citrus fruit as food commodity Case Study subjects touches upon deep sea container and short sea trailer transport modes and therefore link perfectly with the Felixstowe / Southampton and Dover / Channel Tunnel Case Studies respectively.

The table below illustrates the strong links between each of the four port-based case studies and the four commodity-based case studies.

Corridor	Refrigerated (Trailer, Container, Bulk reefer)		Bulk, Tanker, Tank container	
	Meat & fish	Citrus	Sugar	Palm oil
<b>Dover/ Channel Tunnel</b>	Trailer	Trailer	Tanker / tank container	Tanker / tank container
<b>Felixstowe/ Southampton</b>	Container	Container	Container	
<b>Thames/ Medway</b>	Trailer / container	Container / bulk reefer	Bulk / tanker / tank container	Bulk / tanker / tank container
<b>Humber</b>	Trailer / container / palletised		Bulk / tanker / tank container	Bulk / tanker / tank container

The only two areas where there seems to be little or no link between case study ports and commodities is in the movement of processed palm oil in containers through Felixstowe and Southampton, from deep sea origins, and the handling of citrus fruit, via any mode through the Humber ports, although these ports do still handle significant flows of refrigerated traffic in trailers.

The data research process has revealed other potential sources of information and analysis and it has highlighted the deficiencies, as far as this study goes, in the data and aggregated information provided by HMRC and the DfT (see **Table 1.2**).

<b>Information source</b>	<b>Non-EU</b>	<b>EU</b>	<b>UK discharge / load Port</b>	<b>Commodity detail</b>	<b>Country of origin / destination</b>	<b>Shipping mode / Cargo type</b>
Dft Maritime Statistics <sup>1</sup>	YES	YES	YES	NO	YES <sup>1</sup>	YES
HMRC	YES	N/A	YES	YES	YES	NO
IntraStat / HMRC	NO	YES	NO	YES	YES	NO
<i>Border Agency / Port Health</i>	YES	YES	YES <sup>2</sup>	YES	YES	YES
<i>Ports, Terminal operators and Port Community Systems</i>	YES	YES	YES	NO <sup>3</sup>	YES <sup>1</sup>	YES
<i>Shipping Lines</i>	YES	YES	YES	NO <sup>3</sup>	YES <sup>1</sup>	YES
<i>Shippers &amp; Consignees</i>	YES	YES	YES	YES	YES	YES

**Notes:**

1 – For the DfT’s *Maritime Statistics* the country of origin / destination will refer to the country of the port that goods are shipped from / to not the ultimate country of origin/destination

2 – Border Agency and Port Health are working towards obtaining a better definition of commodity detail through iterative analysis of EU service manifests

3 – Ports and shipping lines are not provided with detailed commodity information for trailer and container based traffic unless the goods are classified as hazardous.

However, in spite of deficiencies such as the lack of port data in intra EC trade statistics, the issue and assessment of supply chain resilience are not dependent upon such precise information. Having established key commodity flows, by statistical inference and implication, the study analysis and assessment becomes one of understanding the supply and capacity of the shipping modes used, the port infrastructures required and the supply chains put in place. Then it is an assessment of the route alternatives, in the event of disruption, and an understanding of the feasibility for switching traffic, be it the freight units onto other services, or the ships themselves to other ports.

In addition to appreciating the importance of the Case Study ports and Commodity flows, this part of the study has also highlighted the importance of particular overseas ports. For Short Sea traffic the extracts of information from *PRB Associates Short Sea Freight RoRo and LoLo Capacity Analysis and Report* has highlighted the importance of Rotterdam, Zeebrugge, Calais and the Channel Tunnel freight shuttle terminals in France. Rotterdam and Zeebrugge between them handle 56% of all freight RoRo and LoLo capacity on routes between the UK and German, Dutch and Belgian ports. Calais, Dunkerque and the Channel Tunnel handle 86% of all cross Channel capacity.

Data from IntraStat on food imports from EU countries highlights the importance of the Netherlands (20.1% by volume) and France (18.6%) as sources of supply and the DfT’s *Maritime Statistics* confirm their importance through an assessment of the amount of trade coming to the UK from ports in these countries, augmented by traffic transiting through these ports en route from / to other European countries. 15% of all UK port traffic comes from, or goes to, ports in the Netherlands and 10% comes from, or goes to, ports in France.

Within the volume of import traffic coming from EU countries there are indications that an increasing amount of food (and maybe other commodities) is originally sourced from outside of the EU and, following its import and clearance into a Continental country, it is stored and processed before being transported to the UK. This leads to a growing reliance on the UK’s short sea links with the Continent and in particular the accompanied and unaccompanied trailers carried on ferry services and through the Channel Tunnel.

## 2. INTRODUCTION & ACKNOWLEDGEMENTS

It helps to understand the Resilience of Food Supply to Port Disruption if there is a better overall understanding of the concentration of particular food commodity flows through UK and overseas ports, along with an understanding of the mode of shipping used (bulk, container, RoRo, etc.). This information also then helps in the identification of alternative ports of entry for particular commodities and flow concentrations in the event of port disruption.

This Annex to the Main Report assesses the source and depth of import trade and traffic information available and identifies the key gaps in the information. It also provides some insight into the use of this information, together with port and hinterland infrastructure and shipping capacity information, in the development and use of Contingency Planning Models (specifically the DfT's Deep Port Model) in the event that port disruption does cause a discontinuity of key import traffic flows.

Two of the three challenges identified in meeting the objectives of the study refer to the availability of information and the use and dissemination of such information by the Department for Transport for contingency planning.

Determining the type, scale, mode of appearance, and port of entry of UK food import traffic from within the EU (in the absence of HMRC data) is one particular challenge identified; building and maintaining a working relationship with the Department for Transport (DfT) in preparing contingency plans and in formulating responses to disruption is another.

This Annex describes the information available and its sources and identifies the gaps in information. It also reflects upon interaction with the Department for Transport and provides some insight into the 'Deep Port' Contingency Planning Model, its advantages and disadvantages.

In assessing trade and traffic data the authors acknowledge the help provided by the Statistical staff at Defra in York in analysing data from HMRC. In addition, staff at the Department for Transport, have been very open and helpful in providing an insight into the 'Deep Port' Contingency Planning Model and *Maritime Statistics*.

There are two key sources of trade and port / airport / tunnel traffic data and aggregated analysis; Her Majesty's Revenue and Customs (HMRC) and the Department for Transport (DfT). Further raw data, but limited aggregated analysis, is in the possession of the UK Border Agency and Port Health Authorities; Ports, Shipping Lines, Agents and Port Community Systems (who already supply information to the DfT); Terminal operators; Shippers and Consignees; and exporters and importers (who supply the data entry for HMRC).

### 3. OTHER SOURCES OF INFORMATION AND ANALYSIS

Unless it is felt necessary to demand more information from exporters and importers and shipping lines, their agents and ports when submitting trade and traffic returns to HMRC and the DfT respectively, other sources of information and avenues for analysis are open to fill the data gaps highlighted, 'above the line', in **Table 1.2**.

HMRC analysis of non-EU trade is made possible through the required submission of customs clearance entries through the CHIEF computer system. EU trade data does not pass through this system because such traffic does not require customs clearance, although HMRC is still the collecting point for EU trade information recorded on C1501 (Dispatches) and C1500 (Arrivals) forms from UK exporters and importers, before it is passed on to IntraStat.

Where the HMRC non-EU trade data is deficient is in identifying the shipping mode, be it bulk, break bulk, trailer or container. Attempts to obtain this information on a voluntary basis from exporters, importers and agents are not receiving comprehensive cooperation and the results are therefore proving unreliable. Only through greater compliance can this gap be filled.

Non-EU import analysis coming from HMRC does however provide an indication as to whether imports have arrived in the UK via sea, air, or some other route or mode. In 2010 for instance 13.4 million tonnes (98.4%) of food import traffic was cleared through UK ports, 171,000 tonnes (1.3%) was cleared through UK airports (mostly Heathrow) and the remainder (0.3%) came through the Channel Tunnel, inland clearance depots and free zones, or else the point of clearance remained unknown.

Various agencies such as the Border Agency and Port Health use information from the CHIEF system and ships' manifests to identify consignments that require checking. However, when checking imports from EU sources, if required, the agencies need the cooperation of the shipping lines and the terminal operators in order to identify the contents of trailers and containers, for instance. The incentive for shippers and consignees in identifying the load is that if details are not clear, or ambiguous, they are more likely to attract attention from government inspection agencies.

Border Agency interrogations and checking through electronic processes has led to their ability to be able to carry out some general analysis of EU import data to the extent that they have been able to offer estimates for the number of import trailers into the UK carrying food commodities. The full extent of this 'added value' information held by the Border Agency and Port Health could be put to greater use in adding detail to the commodity composition of EU imports into the UK on a port to port basis.

Interviews during the course of the project with Port Health management in Felixstowe did reveal ongoing efforts to improve the identification of EU food imports through cooperation with shipping lines, the port community system provider (MCP), and HMRC but this line of enquiry requires further follow up.

While the public sector agencies are seeking greater qualitative information on EU imports, the private sector operators are naturally concerned about protecting commercial sensitivities and in any case the full details concerning the content of a unit load movement within the EU is probably only known by the exporter and importer, unless it is a hazardous cargo.

#### 4. UK SHORT SEA RORO AND LOLO SHIPPING CAPACITY

An appreciation of trade and traffic flows (as reported above) provides an informative background to the study and has assisted in the selection of Case Study subjects. However, it is an appreciation of appropriate shipping capacity in use and available (utilisation) and the availability of suitable port infrastructure and handling capacity that is crucial in responding to the question of supply resilience in the face of port disruption.

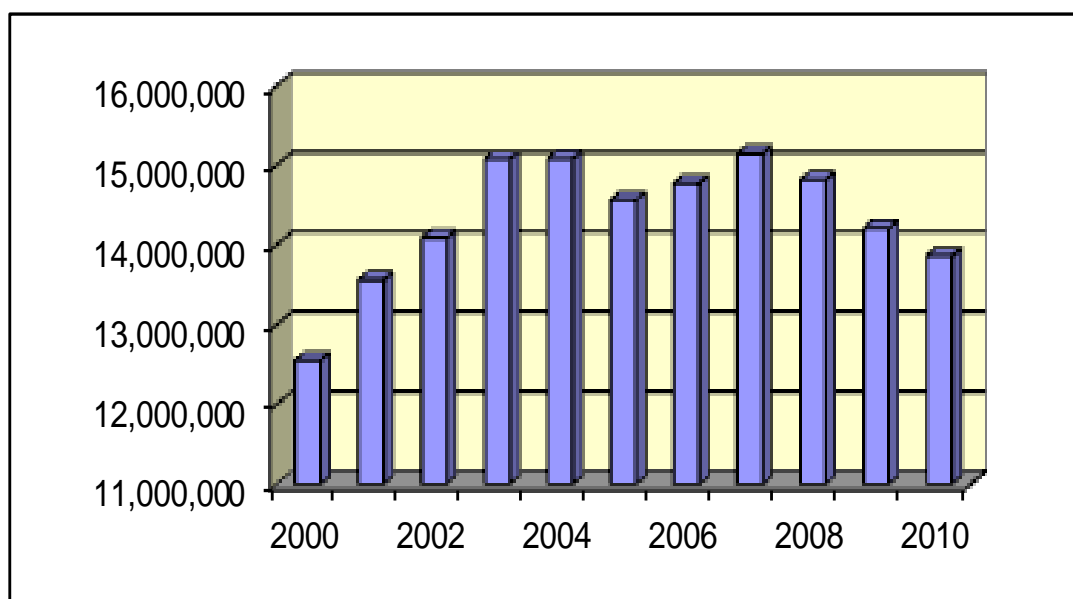
For Short Sea RoRo and container service capacity, fundamental to the Dover / Channel Tunnel Case Study, *PRB Associates' Report and Analysis of UK Short Sea Freight RoRo and LoLo Capacity* provides a comprehensive analysis and a basis for evaluating alternative shipping routes and entry ports, if either Dover or the Channel Tunnel is forced to close for a period of time. This assessment is presented in more detail in the Case Study Annexes as it also reflects upon capacity in the Thames, Medway and Humber.

For the Felixstowe and Southampton Case Study a similar analysis of Deep Sea container service and port capacity would be very useful, but is currently not available. The *UK Short Sea Freight RoRo and LoLo Capacity Report and Analysis* does contain details of container handling capacity at UK ports, for short sea and deep sea services, but more information is required on the deep sea services calling at the ports in order to assess flexibility and resilience. Again, there is an appreciable correspondence between the Felixstowe and Southampton Case Study and the Thames and Medway Case Study when comparing deep sea container shipping. Key capacity issues are brought out in these Case Study Annexes.

The frozen meat and fish and the citrus food commodity Case Studies are closely associated with the unit load (trailer and container) mode of transport and supply chain issues translate across all four port based Case Studies. For palm oil and sugar, important points of entry are in the Humber (AAK, Hull) and the Thames (Tate & Lyle, Silvertown), respectively, and therefore there is a natural overlap between the Case Studies. The missing ingredients are detailed analyses of the appropriate shipping and port handling capacity in the UK for the import of these two commodities; liquid bulk for palm oil and dry bulk for sugar.

The total Short Sea RoRo and LoLo shipping capacity available serving the UK market in 2011 was equivalent to the potential shipment of 13.9 million trailer units. Similar analysis over the previous ten years shows that after a strong rise in capacity in the early part of the decade, capacity has been cut back progressively since 2007 in response to weaker demand.

**Graph 4.1: UK Short Sea Freight RoRo and LoLo Capacity Development**



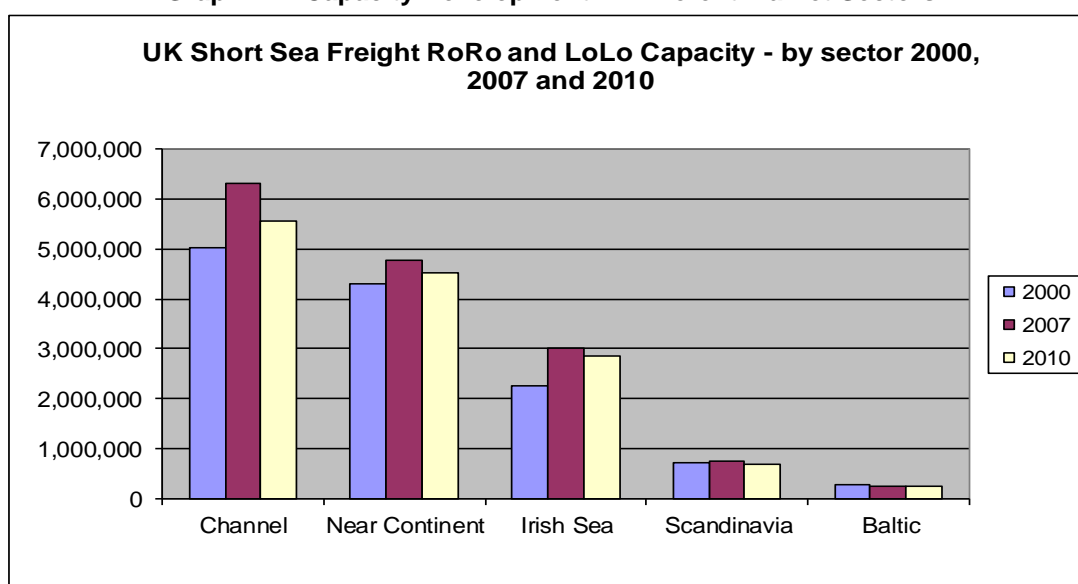
Changes in overall capacity provision indicate some flexibility in the market but in reality the expansion of capacity requires long term planning in terms of vessel building, unless suitable vessels are available to charter. Capacity reduction is a simpler process, taking vessels out of service at its most basic. Some further explanation of this flexibility or lack of it in the Short Sea market is provided in the **Annex 3** (Dover / Channel Tunnel) where Freight Shuttle capacity through the Channel Tunnel is examined and the full range of UK port and service capacity for RoRo is examined.

The Channel (including Channel Tunnel) and Near Continent market sectors employ the greatest amount of freight capacity for unit load traffic and Channel Tunnel capacity, in particular, can be increased and reduced on a daily operational level by revising the Shuttle departure schedule, up to the limit allowed by the number of freight shuttles in the fleet.

Between them, service capacity employed through Dover and the Channel Tunnel amounts to 35% of all short sea RoRo and LoLo capacity serving the UK mainland.

Capacity utilisation on Dover ferry services and Freight Shuttle services is estimated to be in the region of 70%, given current capacity provision. On North Sea routes utilisation, in terms of the numbers of trailers carried, appears to be much lower but these services also carry a range of other 'rolling' traffic, ranging from trade cars and trucks to containers carried on MAFI trailers (equipment used solely on the ferry services for loading, shipping and unloading containers and other non-mobile units).

**Graph 4.2: Capacity Development in Different Market Sectors**



The majority of ferry and short sea container service connections between the UK and the Near Continent call at either Rotterdam (including Hook of Holland and Vlaardinggen) or Zeebrugge. Nearly 80% of service capacity is focussed on these port and terminal locations, demonstrating their importance to UK supply chains.

Similarly cross-Channel capacity linking the UK with ports in France, Spain and Portugal is concentrated on Calais, Dunkerque and the Channel Tunnel terminal at nearby Cocquelles. Over 86% of carrying capacity for the whole of the Channel market is served through these three gateways and the further development of distribution hubs in this area could concentrate the flows even further, although there could be scope to introduce additional ferry services from Calais, Dunkerque and Boulogne to connect with other UK ports, reducing UK road miles and the over-reliance on Dover.

The UK Capacity Analysis does not include an assessment of the infrastructure and capacity at ports on the Continent but such an exercise could prove useful in assessing the flexibility and transferability of service capacity on the Continent.

Further information is provided in **Tables 4.1** and **4.2**.



<b>Continental Port</b>	<b>Capacity</b>	<b>Share</b>
Cuxhaven	117,842	2.6%
Hamburg	31,684	0.7%
Bremerhaven	2,102	0.0%
Amsterdam	40,748	0.9%
Hook of Holland	572,523	12.6%
Rotterdam	1,402,475	30.9%
Vlaardingen	464,151	10.2%
Vlissingen/Flushing	104,172	2.3%
Moerdijk	100,464	2.2%
Antwerp	233,909	5.2%
Zeebrugge	1,140,066	25.1%
Ostend	235,698	5.2%
Dunkerque	24,596	0.5%
Duisburg	48,256	1.1%
Italy direct by rail	20,384	0.4%
	<b>4,539,069</b>	

<b>Continental Port</b>	<b>Capacity</b>	<b>Share</b>
Andalusia & Canaries	25,359	0.5%
Bilbao	155,567	2.8%
Caen	147,238	2.6%
Calais	2,347,040	42.1%
Cherbourg	96,731	1.7%
Cocquelles	1,493,881	26.8%
La Coruna	4,033	0.1%
Dieppe	69,342	1.2%
Dunkerque	973,440	17.5%
Le Havre	58,160	1.0%
Leixoes	20,768	0.4%
Lisbon	43,968	0.8%
Roscoff	51,816	0.9%
Santander	43,325	0.8%
St. Malo	25,608	0.5%
Valencia	15,392	0.3%
	<b>5,571,669</b>	

## 5. TOTAL UK MARITIME IMPORTS; KEY CARGO TYPES AND PORTS OF ENTRY

### 5.1 Total UK maritime imports

The Department for Transport's (DfT) annual *Maritime Statistics* provide a sound basis from which to assess inbound freight traffic (foreign and domestic) passing through UK ports. Although specific freight commodities are not identified, except in a very broad sense, the comprehensive information obtained from shipping lines, agents and ports does quantify the types of traffic passing through UK ports and clearly identifies the leading ports, in terms of tonnage, cargo type and unit load (RoRo trailers and Lift-on Lift-off / LoLo containers) traffic handled. The DfT also captures and aggregates information on the volume of freight moving by air and through the Channel Tunnel.

Total inbound freight traffic (foreign and domestic) through UK ports in 2010 amounted to 312 million tonnes with the country's largest ports (52 Major Ports) accounting for 304 million tonnes (97%). Of this 304 million tonnes of inbound freight traffic, 239 million tonnes was reported as from foreign origins with the remaining 65 million tonnes being either 'coastwise' (48m tonnes) or 'one-port' (17m tonnes) traffic (Channel Tunnel volumes totalling 15.4 million tonnes inbound and outbound, are not included).

The nature of the DfT figures means that within the 'coastwise' traffic there will be an element of international traffic defined by inbound traffic into UK west coast ports shipped from Northern Ireland but originating from southern Ireland. (Such Irish Sea traffic will include a high proportion of food commodities in both directions).

Nearly 43% of all inbound traffic through the UK's major ports is liquid bulk, largely comprising bulk oil and fuels. Goods carried in containers and on RoRo ferry services account for 29% of total inbound traffic, with Dover, Felixstowe, Grimsby & Immingham, Liverpool, London and Southampton accounting for 68% of the unit load total.

Cargo type		Tonnes k	% share
<b>Liquid bulk</b>	Liquefied gas	15,525	6.5%
	Crude oil	39,907	16.7%
	Oil products	32,439	13.6%
	<b>Other liquid bulk traffic</b>	<b>5,928</b>	<b>2.5%</b>
	<b>Liquid bulk traffic</b>	<b>93,799</b>	
<b>Dry bulk</b>	Ores	12,497	5.2%
	Coal	24,805	10.4%
	<b>Agricultural products</b>	<b>8,570</b>	<b>3.6%</b>
	Other dry bulk	9,794	4.1%
	<b>Dry bulk traffic</b>	<b>55,666</b>	
<b>All bulk traffic</b>	<i>Bulk fuels</i>	112,676	
	<i>Other bulks</i>	36,789	
	<b>All bulk traffic</b>	<b>149,465</b>	
<b>Container &amp; roll-on/roll-off traffic</b>	<b>Container traffic</b>	<b>31,408</b>	<b>13.1%</b>
	<b>Roll-on/roll-off traffic</b>	<b>46,212</b>	<b>19.3%</b>
	<b>All container and ro-ro</b>	<b>77,620</b>	
<b>Other general cargo</b>	Forestry products	5,236	2.2%
	Iron and steel products	4,217	1.8%
	<b>General cargo &amp; containers &lt;20'</b>	<b>2,373</b>	<b>1.0%</b>
	<b>All other general cargo</b>	<b>11,826</b>	
<b>Total inwards foreign traffic</b>		<b>238,912</b>	<b>100.0%</b>

Source: DfT Maritime Statistics 2010, Table PORT0107

Note: Additional to Foreign freight: Coastwise inward traffic = 48m tonnes; One-port inward traffic = 17m tonnes.

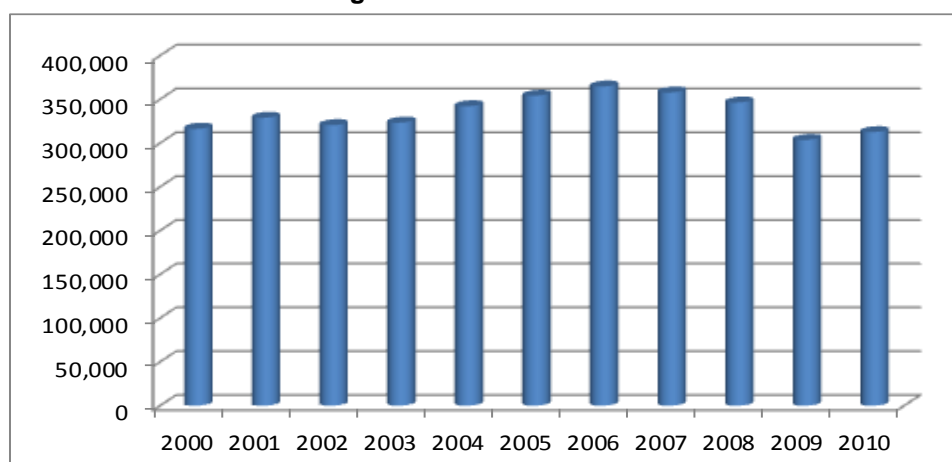
In addition to the UK's ports, the other major import supply routes are the Channel Tunnel and Heathrow Airport. Figures from Eurotunnel show that 1,089,051 trucks utilised the Freight Shuttle services in 2010, with a further 1,128,079 tonnes of freight passing through the Tunnel on through freight train services. Converted into tonnes of freight, the trucks transported through the tunnel carried approximately 14.2 million tonnes of freight (according to Eurotunnel published figures).

Without more detailed data from Eurotunnel, and assuming a balance between import and export traffic volume, import freight coming into the UK via the Channel Tunnel (on Freight Shuttles and through trains) is c.7.7m tonnes, roughly equal to the RoRo import tonnages coming through Grimsby & Immingham (Immingham and Killingholme terminals) and the Port of London (Purfleet and Tilbury).

In terms of overall tonnage, UK ports are handling less inbound freight tonnes than they were a decade ago. Inbound cargo tonnage peaked in 2006 and is now recovering from the low experienced in 2009. In general, ports are advising that any disruption occurring in the system now can be handled more easily, at a time of lower capacity utilisation, than it could have been four or five years ago.

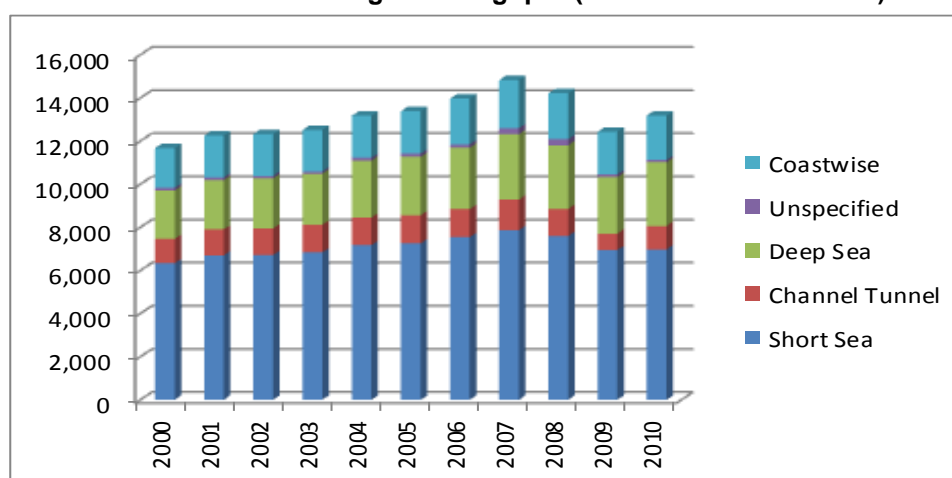
For unitised freight the trend pattern is very similar to the overall inbound traffic pattern, although the numbers of unit loads being handled in 2010 was 13% higher than it was in 2000 (10% higher for short sea and 32% for deep sea). Unit load traffic peaked in 2007 and is now recovering back to previous levels following a low point in 2009. Port operators are advising that lessons learned when port congestion was a feature mid-decade have been dealt with by improved systems (e.g. Vehicle Booking Systems, VBS) and operating procedures, and additional capacity.

**Graph 5.1: All UK Ports Inbound Freight Traffic 2000 – 2010**



Source: DfT Maritime Statistics 2010, Table PORT0101

**Graph 5.2: All UK Ports Unit Load Freight Throughput (Inbound and Outbound) '000 units**



Source: DfT Maritime Statistics 2010, Table PORT0204

The aim of this trade and traffic analysis is to identify those ports that are handling the most significant volumes of food commodity imports (non-EU and EU) and where there may be specific traffic concentrations of food imports. Whether the imports are carried on short sea shipping services, deep sea services, through the Channel Tunnel, on domestic and coastwise services, or as unit load or in bulk, is not relevant. What is relevant is the identification of flow concentrations and the assessment of supply insecurity in the event of port disruption.

Data linking the port of entry and commodity type are available for non-EU imports, from HMRC returns, but the port of entry is not available for EU trade and traffic analysis (EuroStat). Further investigative work is therefore required to overlay the potential additional food import traffic from EU origins moving through UK ports, in addition to the non-EU traffic flows already identified in HMRC statistics (see below and **Annexes 3 to 6**).

Case Study ports	Inbound freight tonnes k	% share	Non-EU food import tonnes k	% share
Dover / Channel Tunnel	22,209	6.9%	351	2.5%
Southampton / Felixstowe	39,859	12.4%	2,918	21.3%
Thames / Medway	51,649	16.1%	3,511	25.7%
Humber ports	59,279	18.5%	1,350	9.9%
Other	147,177	46.1%	5,538	40.6%
<b>UK total</b>	<b>320,173</b>	<b>100.0%</b>	<b>13,668</b>	<b>100.0%</b>

Source: DfT Maritime Statistics 2010, Table PORT0101, Eurotunnel and DEFRA analysis of HMRC non-EU data

For the purposes of this study the DfT's Maritime Statistics confirm that the ports and port groups selected for the Case Study analyses represent significant import cargo handling concentrations.

**Table 5.2** illustrates the degree of significance and the following section begins to highlight the concentration of food imports through these Case Study ports. Further, more detailed insight gained through the Case Study exercises has allowed an even better estimation of the level and type of EU food commodity import through these ports.

## 5.2 Key cargo types

The traffic figures summarised in **Table 5.1** refer to traffic through the 52 Major UK Ports that handle the majority of UK maritime traffic (81 other smaller ports submit annual traffic returns declaring total inward and outward traffic flows only). Detailed information comes from shipping lines and agents that are required to supply vessel, port and freight information for each inward and outward voyage through a major UK port (form MSD1).

UK freight trade information (and some food traffic information) not included in **Table 5.1**, aside from a relatively small amount of freight passing through the minor ports (but still available separately from DfT sources), includes Channel Tunnel traffic and airfreight. Also not included in the data is the high volume of traffic moving between ports in Northern Ireland and the UK mainland west coast. This is classed as domestic traffic, although some will be freight traffic moving to and from the Republic of Ireland through these northern ports. These movements and the ports handling the traffic are vital for the supply of freight (including food) to the whole of Ireland. (Other purely domestic traffic movements and coastal feeder traffic are also excluded).

The headline volumes in **Table 5.1** (shaded in grey) give an indication of the potential food volumes and the proportion of UK foreign inward freight traffic that could be food. More detailed analysis of the *Maritime Statistics* also highlights which UK ports are handling the majority of such traffic (Section 5.2). Information is also available, subject to a specific request to the Department for Transport statisticians, on the overseas port of loading, or country of loading (EU or non-EU) for inward freight traffic, by cargo type.

Some 94,491 thousand tonnes of inward foreign freight highlighted in **Table 5.1** could be food commodities, = 40% of total UK inward foreign freight. 'Other liquid bulk traffic' (5.9m tonnes) includes the full range of edible oils that can be used in food manufacture and preparation (such as palm oil). 'Agricultural products' (8.6m tonnes) would all be considered as food imports in dry bulk form (this

does not include fertiliser but could include animal feed and will include cane sugar volumes passing through Silvertown) and 'General cargo & containers < 20' will include the small volume of food commodities shipped in bags, possibly palletised, and not as bulk.

The most common shipping modes / cargo types for UK foreign food imports are containers and trailers ('Container & roll-on / roll-off traffic'). 13.1% of the UK's inward foreign freight, by volume, arrives in containers, mostly from non-EU origins, and 19.3% arrives in RoRo ferries, mostly from EU origins. These modes will account for a large part of the UK's annual food import of 34 million tonnes.

HMRC import trade data provides the background to the commodity composition of non-EU imports carried in containers while the Border Agency has carried out some sampling analysis of RoRo ferry import manifests to provide an estimate of the amount of food being brought into the country from EU sources, by RoRo mode. Both of these scenarios are examined in more detail later in this section.

### 5.3 Key ports of entry

The UK's top ten import ports handle 72% of all UK inbound freight traffic (foreign and domestic).

The key container handling ports, handling the vast majority of the UK's deep sea container imports, are Felixstowe, Southampton, London (Tilbury), Liverpool and Medway (Thamesport).

For roll-on/roll-off (RoRo) traffic the key ports of entry are Dover, Grimsby & Immingham (including Killingholme), the Channel Tunnel and London (Purfleet and Tilbury).

Port	Liquid bulk	Dry bulk	General cargo	LoLo	RoRo	Total
Grimsby & Immingham	14,891	15,464	744	608	8,768	<b>40,476</b>
London	17,550	9,418	1,982	4,147	6,700	<b>39,797</b>
Milford Haven	27,275	59	12		603	<b>27,948</b>
Southampton	18,532	1,128	14	4,211	263	<b>24,148</b>
Liverpool	10,773	4,340	467	2,968	3,168	<b>21,716</b>
Felixstowe			10	14,517	1,185	<b>15,711</b>
Dover		126	272		14,111	<b>14,509</b>
Tees & Hartlepool	5,089	4,619	282	1,008	1,283	<b>12,280</b>
Medway	5,007	2,934	1,762	1,803	345	<b>11,852</b>
Rivers Hull & Humber	9,051	524	177			<b>9,752</b>
Other major ports	21,710	33,770	6,912	3,813	20,023	<b>86,228</b>
<b>TOTAL</b>	<b>129,878</b>	<b>72,382</b>	<b>12,634</b>	<b>33,075</b>	<b>56,449</b>	<b>304,418</b>
	<b>43%</b>	<b>24%</b>	<b>4%</b>	<b>11%</b>	<b>18%</b>	<b>100%</b>
<b>Channel Tunnel (est.)</b>					<b>7,700</b>	<b>7,700</b>

Source: DfT Maritime Statistics 2010, Table PORT0102

There is a range of ports handling agricultural products in dry bulk form (not broken out from figures above) but the key ones in terms of imports and exports combined are: Liverpool, London, Belfast, Ipswich, Grimsby & Immingham, Bristol, Southampton, Rivers Hull and Humber, and Hull. Between them they handle 83% of UK trade in agricultural products.

On the liquid bulk side: Tees & Hartlepool, Hull, Grimsby & Immingham, London, Medway, River Trent, Liverpool, and Southampton are the ports handling the majority of the cargo type classed as 'other liquid bulk products', including significant amounts of food type product.

The DfT's Maritime Statistics give an indication of the concentration, as well as the spread, of entry points for the UK's foreign import traffic and supports the selection of Dover / Channel Tunnel, Felixstowe / Southampton, Thames & Medway, and Humber as significant food import gateways for the purposes of the Case Study approach.

## 6. UK FOOD IMPORTS

Using trade data (across all modes of transport) from HMRC it is evident that after a substantial fall in 2009, from both EU and non-EU origins, overall foreign import volumes increased again in 2010, due to an increase in imports from EU countries.

The UK's total import volume in 2010 was a little over 264 million tonnes with 64% coming from non-EU markets. The overall import imbalance in favour of non-EU markets is maintained by the very high proportion of 'fuel' commodity imports from outside of the EU, whereas 'food, feed & drink' imports and all other import commodities are balanced in favour of EU market origins.

'Food, feed & drink' category imports made up 13% of the UK's total import volume in 2010 (similar % to 2008 and 2009) but 22% of imports from EU countries were 'food, feed & drink' while for non-EU imports the share of 'food, feed and drink' was just 8%. Overall, 60% of the UK's 'food, feed and drink' imports come from EU countries, highlighting the importance of the EU supply market for the UK and the key supply routes between the UK and the Continent, i.e. Ferry services through Dover; Channel Tunnel services; and RoRo and Short sea container services into the Thames and Humber.

Given further context, the volume of 'food, feed and drink' imports into the UK comes a distant second behind the country's demand for liquid and bulk fuels but it is easily the second most significant import commodity.

In summary, the indicative volumes of trade being considered, based upon Defra statistician's analysis of HMRC trade data, are as follows:

	2008			2009			2010		
	EU	Non-EU	Total	EU	Non-EU	Total	EU	Non-EU	Total
Food, feed & drink	20,946	14,640	35,586	20,446	13,666	34,112	21,193	13,668	34,861
Fuel	17,571	124,491	142,062	15,687	124,033	139,720	20,719	116,789	137,508
Other	56,317	46,363	102,680	46,168	32,635	78,803	52,771	38,867	91,638
<b>Total</b>	<b>94,834</b>	<b>185,494</b>	<b>280,328</b>	<b>82,301</b>	<b>170,334</b>	<b>252,635</b>	<b>94,683</b>	<b>169,324</b>	<b>264,007</b>

Source: Analysis of HMRC data feed by DEFRA statisticians in York

Commodity	Volume tonnes k	% share of UK imports
<b>Food, feed &amp; drink</b>	<b>34,861</b>	<b>13.2%</b>
Fertiliser	3,951	1.5%
Live animals	77	0.0%
<b>Fuel – mineral fuels, mineral oils</b>	<b>137,509</b>	<b>52.1%</b>
Ores, slag, ash	11,284	4.3%
Salt; sulphur; earths & stone; ...	7,568	2.9%
Plastics & plastic products	6,323	2.4%
Wood and articles of wood; ...	6,566	2.5%
Paper & paperboard; ...	8,252	3.1%
Iron & steel	5,978	2.3%
Others	41,640	15.7%
<b>TOTAL</b>	<b>264,009</b>	<b>100.0%</b>

Source: DEFRA Statisticians, York. Derived from data supplied by HMRC

## 6.1 Non-EU food imports

Non-EU trade data and analysis is still obtained in the conventional way through HMRC, based upon Customs Clearance declarations. There are facilities to access this information on the HMRC web site and through UKTradeInfo. For this project Defra's economics and statistics team in York have obtained data and carried out analysis on the Consultant's behalf, in response to bespoke requests.

The table below is an extract of UK import trade data for food commodities, at the 2-digit level of detail. Information at this level is available for EU as well as non-EU trade but for EU trade data the UK port of loading / discharge is not collected. Both non-EU and EU trade data are also deficient in properly identifying the Shipping mode and cargo type (LoLo, RoRo or bulk) although for non-EU trade there is the facility to identify sea, air or Channel Tunnel transport modes.

Attempts to get exporters and importers to identify whether goods are transported by container mode have been partially successful but a lack of full cooperation undermines an accurate evaluation. All that can be said from current returns is that there is a proportion of traffic moved by container mode and a remaining proportion that contains an unknown amount of traffic that could have been carried by container mode. The figures are immediately discredited when Felixstowe's import data is scrutinised, showing an unlikely level of imports not carried by container mode.

**Table 6.3: UK Food Commodity Imports by Commodity, 2009 & 2010**

DIV Code	Description	2009				2010			
		EU	Non EU	Total	%	EU	Non EU	Total	%
01: Meat And Meat Preparations	Bacon and ham	323	0	323	1.0%	313	0	313	0.9%
	Beef and veal	188	43	231	0.7%	205	33	238	0.7%
	Beef products (inc. corned beef)	36	57	93	0.3%	34	47	81	0.2%
	Edible offal and other meat	47	17	64	0.2%	35	15	50	0.1%
	Lamb and mutton	11	105	116	0.3%	11	89	101	0.3%
	Other meat products (inc. pates and poultry preparations)	202	147	349	1.0%	197	167	364	1.1%
	Pork	352	8	360	1.1%	359	5	363	1.1%
	Poultrymeat (inc poultry offal)	314	26	340	1.0%	355	26	381	1.1%
	Sausages and related products	104	28	132	0.4%	86	33	119	0.4%
	<b>TOTAL</b>	<b>1,578</b>	<b>431</b>	<b>2,009</b>	<b>6.0%</b>	<b>1,595</b>	<b>415</b>	<b>2,010</b>	<b>5.9%</b>
02: Dairy Products And Birds' Eggs	Butter	96	0	96	0.3%	102	0	102	0.3%
	Cheese	398	20	419	1.2%	423	12	436	1.3%
	Condensed milk	38	0	38	0.1%	40	1	41	0.1%
	Eggs & egg products	88	2	90	0.3%	75	1	75	0.2%
	Ice cream	124	0	125	0.4%	110	0	110	0.3%
	Milk and cream	158		158	0.5%	193	0	193	0.6%
	Milk powder	82	0	82	0.2%	74	0	74	0.2%
	Other milk products	187	0	187	0.6%	199	0	199	0.6%
	Yogurt	132	1	133	0.4%	135	1	135	0.4%
<b>TOTAL</b>	<b>1,304</b>	<b>23</b>	<b>1,327</b>	<b>3.9%</b>	<b>1,350</b>	<b>15</b>	<b>1,365</b>	<b>4.0%</b>	
03: Fish And Fish Preparations	Crustaceans	27	88	115	0.3%	24	91	116	0.3%
	Fish & crustaceans prepared or preserved	73	145	217	0.6%	81	137	218	0.6%
	Fish fresh or chilled	58	114	172	0.5%	71	91	162	0.5%
	Fish frozen	44	170	214	0.6%	43	163	206	0.6%
	Fish live	0	2	2	0.0%	0	2	2	0.0%
	<b>TOTAL</b>	<b>201</b>	<b>520</b>	<b>721</b>	<b>2.1%</b>	<b>220</b>	<b>484</b>	<b>704</b>	<b>2.1%</b>

**Table 6.3: UK Food Commodity Imports by Commodity, 2009 & 2010 (continued)**

DIV Code	Description	2009				2010			
		EU	Non EU	Total	%	EU	Non EU	Total	%
04: Cereals And Cereal Preparations	Barley, unmilled	120	10	130	0.4%	115	0	115	0.3%
	Bread, crispbreads, savory biscuits	464	34	498	1.5%	458	37	495	1.5%
	Cereal, milled	128	10	138	0.4%	116	9	125	0.4%
	Cereal, rolled or flaked	196	8	204	0.6%	195	10	205	0.6%
	Mixes and doughs for baking	28	15	44	0.1%	62	10	72	0.2%
	Other cereal (including maize), unmilled	759	197	956	2.8%	792	217	1,009	3.0%
	Pasta uncooked	149	2	151	0.5%	138	2	140	0.4%
	Rice	250	356	607	1.8%	261	379	641	1.9%
	Sweet biscuits	106	6	112	0.3%	112	6	118	0.3%
	Wheat, unmilled	780	610	1,390	4.1%	642	469	1,111	3.3%
	<b>TOTAL</b>	<b>2,982</b>	<b>1,248</b>	<b>4,230</b>	<b>12.6%</b>	<b>2,892</b>	<b>1,139</b>	<b>4,030</b>	<b>11.8%</b>
05: Vegetables And Fruit	Apples, fresh	233	223	456	1.4%	272	189	461	1.4%
	Apricots, cherries, peaches, plums and sloes (fresh)	117	42	159	0.5%	104	35	139	0.4%
	Bananas	54	921	975	2.9%	85	928	1,013	3.0%
	Grapes, fresh or dried	85	276	361	1.1%	94	274	368	1.1%
	Jams	203	146	349	1.0%	210	156	366	1.1%
	Juice	804	75	879	2.6%	760	96	857	2.5%
	Lemons and Limes	56	42	98	0.3%	55	49	104	0.3%
	Lettuce and chicory, fresh or chilled	165	0	165	0.5%	164	1	166	0.5%
	Mushrooms and truffles, fresh or chilled	93	0	94	0.3%	98	1	98	0.3%
	Nuts	19	61	80	0.2%	25	59	84	0.2%
	Oranges and Mandarins etc	221	319	540	1.6%	213	315	528	1.5%
	Other Citrus fruit	6	29	36	0.1%	8	30	38	0.1%
	Other fruit	233	371	605	1.8%	255	368	623	1.8%
	Other vegetables, fresh or chilled	978	412	1,391	4.1%	1,019	431	1,449	4.2%
	Other vegetables, prepared or preserved	223	106	329	1.0%	266	117	383	1.1%
	Pears & quinces fresh	79	39	118	0.4%	100	31	131	0.4%
	Potato products	508	2	510	1.5%	525	2	526	1.5%
	Potatoes, fresh or chilled (including seed)	183	99	282	0.8%	167	82	249	0.7%
	Tomatoes, fresh or chilled	375	21	397	1.2%	363	23	387	1.1%
	Tomatoes, prepared or preserved	391	23	415	1.2%	431	25	455	1.3%
Vegetables, frozen or provisionally prepared	407	113	520	1.5%	396	119	515	1.5%	
<b>TOTAL</b>	<b>5,437</b>	<b>3,322</b>	<b>8,759</b>	<b>26.0%</b>	<b>5,610</b>	<b>3,329</b>	<b>8,939</b>	<b>26.2%</b>	
06: Sugars, Sugar Preparations And Honey	Honey	7	23	30	0.1%	7	25	32	0.1%
	Molasses	142	429	571	1.7%	130	405	536	1.6%
	Other beet or cane sugar	99	4	103	0.3%	239	25	264	0.8%
	Other sugars	343	5	349	1.0%	453	4	457	1.3%
	Raw beet or cane sugar	160	1,182	1,341	4.0%	179	980	1,159	3.4%
	Sugar confectionery	127	22	149	0.4%	130	24	154	0.5%
	<b>TOTAL</b>	<b>879</b>	<b>1,665</b>	<b>2,543</b>	<b>7.6%</b>	<b>1,138</b>	<b>1,463</b>	<b>2,602</b>	<b>7.6%</b>



**Table 6.3: UK Food Commodity Imports by Commodity, 2009 & 2010 (continued)**

DIV Code	Description	2009				2010			
		EU	Non EU	Total	%	EU	Non EU	Total	%
07: Coffee, Tea, Cocoa, Spices Etc.	Chocolate	262	10	273	0.8%	281	11	292	0.9%
	Cocoa	92	134	226	0.7%	68	104	172	0.5%
	Coffee	74	130	204	0.6%	76	140	215	0.6%
	Spices	16	52	68	0.2%	18	52	71	0.2%
	Tea	8	143	151	0.4%	8	145	153	0.4%
	<b>TOTAL</b>	<b>452</b>	<b>469</b>	<b>922</b>	<b>2.7%</b>	<b>451</b>	<b>451</b>	<b>902</b>	<b>2.6%</b>
08: Feeding Stuff For Animals (Excluding Un-milled Cereals)	Dog or cat food for retail	394	21	415	1.2%	362	19	381	1.1%
	Flours, meals and pellets of meat, offal or fish	64	67	132	0.4%	83	45	128	0.4%
	Oil cakes and meal	1,101	2,534	3,635	10.8%	1,260	2,491	3,751	11.0%
	Other animal feeding stuffs	720	550	1,270	3.8%	708	941	1,650	4.8%
	<b>TOTAL</b>	<b>2,280</b>	<b>3,172</b>	<b>5,452</b>	<b>16.2%</b>	<b>2,413</b>	<b>3,496</b>	<b>5,909</b>	<b>17.3%</b>
09: Misc. Edible Products	Infant food for retail	40	0	40	0.1%	41	0	41	0.1%
	Margarine	69	1	70	0.2%	71	1	72	0.2%
	Other food products and preparations	403	57	460	1.4%	374	58	432	1.3%
	Pasta, cooked or stuffed	167	32	199	0.6%	186	34	220	0.6%
	Sauces, condiments, seasonings	375	86	461	1.4%	381	84	465	1.4%
	<b>TOTAL</b>	<b>1,054</b>	<b>176</b>	<b>1,230</b>	<b>3.7%</b>	<b>1,053</b>	<b>177</b>	<b>1,230</b>	<b>3.6%</b>
11: Beverages	Beer	669	108	777	2.3%	695	112	807	2.4%
	Cider & other fermented beverages	68	7	75	0.2%	78	4	82	0.2%
	Mineral water	951	90	1,041	3.1%	1,101	105	1,206	3.5%
	Other spirits	67	15	82	0.2%	89	17	106	0.3%
	Whisky	8	15	24	0.1%	12	14	25	0.1%
	Wine	546	671	1,217	3.6%	636	692	1,328	3.9%
	<b>TOTAL</b>	<b>2,310</b>	<b>907</b>	<b>3,217</b>	<b>9.6%</b>	<b>2,611</b>	<b>944</b>	<b>3,555</b>	<b>10.4%</b>
22: Oil Seeds And Oleaginous Fruits	Oil seeds and oleaginous fruits	634	961	1,596	4.7%	375	946	1,321	3.9%
S4: Oils And Fats	Animal oils and fats, not chemically modified	89	28	118	0.3%	66	29	95	0.3%
	Processed fats and waxes	318	62	380	1.1%	308	78	387	1.1%
	Vegetable oils and fats, soft, crude, refined or fractionated	543	579	1,123	3.3%	525	539	1,064	3.1%
	<b>TOTAL</b>	<b>951</b>	<b>669</b>	<b>1,620</b>	<b>4.8%</b>	<b>900</b>	<b>646</b>	<b>1,546</b>	<b>4.5%</b>
		<b>20,060</b>	<b>13,564</b>	<b>33,625</b>	<b>100.0%</b>	<b>20,608</b>	<b>13,505</b>	<b>34,113</b>	<b>100.0%</b>

Source: DEFRA York, Statistical analysis, using HMRC trade data feed

The key food import commodities, identified in **Table 6.4** below, are 'vegetables & fruit' (from EU and non-EU sources); 'feeding stuff for animals'; 'cereals & cereal preparations'; 'beverages' (particularly from EU); and 'sugars sugar preparations and honey'. 'Meat and meat preparations' volumes are also significant and mostly from EU supply sources.

Commodity	EU	Non-EU	Total	%
Meat & meat preparations	1,595	415	2,010	5.9%
Dairy products & birds eggs	1,350	15	1,365	4.0%
Fish & fish prep.	220	484	704	2.1%
Cereals & Cereal prep.	2,892	1,139	4,031	11.8%
Vegetables & fruit	5,610	3,329	8,939	26.2%
Sugars, sugar prep. and honey	1,138	1,463	2,601	7.6%
Coffee, tea, cocoa, spices etc	451	451	902	2.6%
Feeding stuff for animals	2,413	3,496	5,909	17.3%
Miscellaneous edible products	1,053	177	1,230	3.6%
Beverages	2,611	944	3,555	10.4%
Oil seeds & oleaginous fruits	375	946	1,321	3.9%
Oils & fats	900	646	1,546	4.5%
<b>TOTAL</b>	<b>20,608</b>	<b>13,505</b>	<b>34,113</b>	<b>100%</b>

Source: DEFRA Statisticians, York. Derived from data supplied by HMRC

While the volume of foreign inbound freight through UK ports was estimated to be 239 million tonnes in 2010, according to the Department for Transport's *Maritime Statistics*, total foreign imports according to HMRC data amounted to 264 million tonnes (95m EU, 169m non-EU).

The DfT figure of 239 million tonnes does not include approximately 8m tonnes handled through smaller UK ports (non-Major) and neither does it include Channel Tunnel traffic (Channel Tunnel traffic is in the HMRC figures). A further explanation for the discrepancy is the classifying some Irish traffic as 'domestic' because it is shipped on ferries from Larne, Belfast, and Warrenpoint in Northern Ireland but originates from the Republic. Furthermore airfreight imports, including 171,000 tonnes of food imports in 2010, are included in the HMRC figures but are not included in *Maritime Statistics*.

Port	Non-EU imports				Est. EU import
	Food	Fuel	Other	Total	
London (inc. Tilbury)	2,998	8,512	2,755	14,265	17,020
Liverpool	2,815	3,906	2,298	9,019	6,092
Felixstowe	2,269	16	7,728	10,013	5,321
Belfast	932	561	675	2,168	1,547
Grimsby/Immingham	833	17,648	6,095	24,576	11,642
Bristol/Avonmouth	667	2,439	722	3,828	1,004
Southampton	648	11,597	3,677	15,922	2,325
Portsmouth	591		11	602	1,455
Hull	514	450	763	1,727	4,618
Medway (inc. Thamesport)	513	5,655	1,413	7,581	2,851
Dover	351		342	693	13,689
Other ports*	537	66,005	12,389	78,931	27,120
<b>TOTAL</b>	<b>13,668</b>	<b>116,789</b>	<b>38,868</b>	<b>169,325</b>	<b>94,684</b>

Source: DEFRA Statisticians, York. Derived from data supplied by HMRC, for non-EU traffic; and DfT *Maritime Statistics* to derive estimates for EU traffic

\* Other ports includes Channel Tunnel (7.7m tonnes) and airports

Analysis of HMRC's 'CHIEF' data indicates that out of a total import trade of 169 million tonnes from non-EU countries handled through UK ports, 8.0% was food, feed and drink. Furthermore 96% of food, feed and drink imports into the UK from non-EU sources was handled through just 11 ports (or port groupings in the case of London and Medway). Most of the ports covered in the project Case Studies appear in the Top 11 with the only exceptions being Goole, the River Trent, the rivers Hull & Humber and the Channel Tunnel. Even Dover, the UK's short sea gateway to Europe handled 351,000 tonnes of food, feed and drink import that required customs clearance as non-EU trade not previously cleared (i.e. bananas in bulk, trailers from Turkey etc.).

The data shows some concentration of non-EU food imports through London, Liverpool and Felixstowe and it also raises questions for further research and analysis. Firstly, what is the more detailed break down of food commodity imports from non-EU countries through the ports in question, particularly those included in the Case Studies, which ports handle the case study commodities (from non-EU sources) under review and which ports, not necessarily referred to in the table, handle the bulk of food imports from EU sources?

It is interesting to note that out of an estimated 2010 import volume of 95 million tonnes from EU sources a much larger percentage is food, feed and drink than applies to the non-EU mix. In fact, out of the estimated 95 million import tonnes over 22% is classed as food, feed and drink. Further investigation through the port Case Studies provides a better estimate for the mix of food import among the general EU import figures, specific to each port.

Further information on the country of origin for non-EU food imports into the UK is available if required.

## 6.2 EU food imports

The volume of UK food imports supplied from EU countries (20.6 million tonnes) is 50% greater than food imports from the rest of the world.

Intra-EU trade data is gathered from exporters and importers in each country through completing goods 'dispatches' and corresponding 'arrivals' (volume and value) forms described as IntraStat Supplementary Declarations. Information, collected on a monthly basis, in the UK is first submitted to HMRC who then forward the data to IntraStat.

When aggregated, the data provides an overview of intra EU trade to a detailed commodity level but it does not identify the mode of transport, or the UK port of exit / entry at any level.

The challenge of identifying the UK exit and entry ports is being addressed, in part, by reference to analysis from the Border Agency and its general assessment of the contents of trailer imports (through manifest inspection and physical inspections), indicating an approximate percentage of import trailers carrying, simply, food or drink, linked to UK port of entry.

This analysis has been made possible by an iterative analysis of the description of unit contents from ship's manifests (provided voluntarily by the shipping lines) and trying to make sense of non-standard descriptions used by shipping clerks using often incomplete information provided by shippers.

Border Agency analysis has provided a 'best estimate' for the percentage of import trailers carrying food commodities on the key ferry routes into the UK. Using these parameters and data from the DfT's Maritime Statistics for the number of accompanied and unaccompanied trailers entering the UK from foreign (EU) origins (through ports and Channel Tunnel), it has been possible to estimate the amount of food entering the UK, carried in trailers from EU countries.

The summary result from **Table 6.6** below indicates that such a total is 9.6 million tonnes, with substantial volumes entering the UK via Dover, the Channel Tunnel, the Humber and Thames ports. (Significant food volumes also enter the UK from Ireland, via Liverpool and Holyhead, often on route to Continental destinations).

If this estimate is accurate (and it could be under-estimated) it accounts for nearly 50% of all food imports from EU countries and further highlights the key ports of entry. A rough estimate, using the same basic parameters, for intra European imports carried on short sea container services (such as Samskip services from Rotterdam) indicates a potential further 0.75 million tonnes of EU food import carried by this mode (see **Table 6.7**).

In addition, there are substantial numbers of containers carried on the longer North Sea ferry routes that could also be carrying food commodities, but the numbers of containers carried by this mode are not required from the shipping lines and agents by the Department of Transport as part of the data collection process for the *Maritime Statistics*. Further insight is best derived by gaining a better

appreciation of individual port and terminal operations to identify the liquid and dry bulk imports coming into the UK from EU origins.

<b>Table 6.6: Best Estimate for EU Food Imports Carried By RoRo Mode</b>							
Port	Foreign RoRo imports				Best estimate for food carrying units		
	Units	Cargo tonnes	Average load		%	Units	Tonnes @ 13t
	'000	'000			'000	'000	
Aberdeen	1	13	13.00		10.0%	0	1
Rosyth (Forth)	9	239	26.56		20.0%	2	23
Tyne	10	147	14.70		3.0%	0	4
Teesport	20	367	18.35		16.0%	3	42
Hull	67	1,098	16.39		27.0%	18	235
Immingham & Killingholme	262	4,703	17.95		19.0%	50	647
Felixstowe	89	1,185	13.31		13.0%	12	150
Ipswich	10	190	19.00		16.0%	2	21
Harwich	121	1,686	13.93		23.0%	28	362
Tilbury	170	2,904	17.08		30.0%	51	663
Purfleet							
Dagenham							
Sheerness						0	0
Ramsgate	86	1,041	12.10		16.0%	14	179
Dover	1,017	14,103	13.87		27.0%	275	3,570
Channel Tunnel	545	7,551	13.87		27.0%	147	1,911
Newhaven	18	263	14.61		21.0%	4	49
Portsmouth	87	1,364	15.68		24.0%	21	271
Poole	21	310	14.76		28.0%	6	76
Plymouth	5	51	10.20		17.0%	1	11
Swansea	2	44	22.00		25.0%	1	7
Pembroke	32	602	18.81		27.0%	9	112
Fishguard	19	250	13.16		39.0%	7	96
Holyhead	120	1,220	10.17		39.0%	47	608
Liverpool	177	2,508	14.17		24.0%	42	552
Heysham	21	158	7.52		9.0%	2	25
Stranraer						0	0
	<b>2,909</b>	<b>41,997</b>	<b>14.44</b>		<b>25.4%</b>	<b>740</b>	<b>9,617</b>

Data in **Table 6.4** does indicate particular commodities that are more likely to be shipped in bulk: 'Cereals and cereal preparations' (2.9 million tonnes); 'Feeding stuff for animals' (2.4m); Oil seeds and oleaginous fruits' (0.4m); and 'Oils and fats' (0.9m) conform to such a specification and between them amount to 6.6 million tonnes, 32% of the EU food import total.

Similarly, further detail behind the 8.6 million tonnes of 'Agricultural bulk' products imported through the UK's major ports (from DfT *Maritime Statistics*, Table 4.1) can provide the country of origin and UK port of entry detail required to add more definition to the EU food import analysis. Defra's own *Food Security Assessment* report (Theme 3, Supporting Indicator 3.6) did provide a rough estimate for EU bulk food imports arriving through the Humber ports (1.22m tonnes) and London (300,000 tonnes) and these estimates could be updated with further analysis from DfT statisticians.

UK port	Short Sea LoLo service	Port of origin	Est. import FEU	Est. import tonnes	%	Food carrying units	Est. food import tonnes
Grangemouth	Samskip	Rotterdam	5,304	76,626	26%	1,379	17,928
Blyth	UCI	Moerdijk	6,505	93,980	26%	1,691	21,988
Teesport	Samskip	Rotterdam	5,304	76,626	26%	1,379	17,928
Hull	Samskip	Rotterdam	42,884	619,544	26%	11,150	144,949
Hull	MacAndrews	Gdynia	15,850	228,976	26%	4,121	53,572
Goole	UCI	Duisburg	11,856	171,282	26%	3,083	40,073
Immingham	UCI	Moerdijk	6,505	93,980	26%	1,691	21,988
Felixstowe	WEC	Portugal	2,534	36,601	26%	659	8,563
Felixstowe	OPDR	Spain & Portugal	11,237	162,345	26%	2,922	37,982
Tilbury	Samskip	Rotterdam	42,884	619,544	26%	11,150	144,949
Tilbury	MacAndrews	Bilbao	14,602	210,947	26%	3,796	49,353
Tilbury	UCI	Moerdijk	17,129	247,457	26%	4,453	57,895
Bristol	MacAndrews	Bilbao	4,196	60,625	26%	1,091	14,184
Liverpool	MacAndrews	Spain & Portugal	24,812	358,452	26%	6,451	83,864
Liverpool	Coastal Container Line	Dublin	12,168	175,789	26%	3,164	41,128
Greenock	MacAndrews	Spain & Portugal	9,056	130,828	26%	2,355	30,609
<b>Total Estimated Food Import Volume via Short Sea Container Service</b>							<b>786,952</b>

In reality the absence of EU food import data, specific to UK ports of entry has not proved critical to meeting the study objectives because import flows from non-EU sources are identified and key food commodity flows through the Case Study port groups (Dover/Channel Tunnel, Felixstowe / Southampton, Thames, and Humber) have not been difficult to identify and it has therefore not been an issue in assessing the resilience of particular food supply chains to port disruption.

### 6.3 EU Food Imports by Country of Dispatch

Although intra EU trade data does not identify any ports of loading or discharge it does provide a detailed breakdown of commodities traded between EU countries and for food there is a detailed breakdown of the different food commodities traded between EU countries.

This available information could be used to make a better assessment of the mode of shipping used and the likely UK port of entry for imports from EU countries but such an exercise is not considered necessary for this study.

Detailed food commodity information is available for the breakdown of types of food commodity imported from each EU country but **Table 6.8** merely summarises the total food commodity import volume from each EU country, in descending order of importance.

Nearly 90% of food imports from EU countries come from just seven countries and the proximity of those countries to the UK provides a good indication of the UK ports of entry. To assess the mode of shipping more information on the commodity type is required (and is available) and for the purposes of this study the Border Agency analysis of RoRo freight traffic is already indicative enough.

What is evident (and emphasised in Section 3) is the importance of the range of Continental ports between Rotterdam and Calais in serving the food supply needs of the UK. From a west facing perspective Liverpool and Holyhead are also vital for the supply of food commodities from and to Ireland, although they are more significant for Ireland in terms of their own supply and the land-bridge connection they provide for Irish exports to the Continental mainland.

	<b>Country</b>	<b>Volume Tonnes k</b>	<b>%</b>	<b>Cumulative %</b>
1	Netherlands	4,146	20.1%	20.1%
2	France	3,824	18.6%	38.7%
3	Spain	2,331	11.3%	50.0%
4	Germany	2,255	10.9%	60.9%
5	Irish Republic	2,243	10.9%	71.8%
6	Belgium	2,051	10.0%	81.8%
7	Italy	1,542	7.5%	89.3%
8	Denmark	588	2.9%	92.1%
9	Poland	503	2.4%	94.5%
10	Portugal	203	1.0%	95.5%
11	Romania	144	0.7%	96.2%
12	Greece	142	0.7%	96.9%
13	Sweden	138	0.7%	97.6%
14	Austria	115	0.6%	98.1%
15	Czech Republic	79	0.4%	98.5%
16	Hungary	68	0.3%	98.9%
17	Lithuania	66	0.3%	99.2%
18	Finland	54	0.3%	99.4%
19	Cyprus	33	0.2%	99.6%
20	Bulgaria	24	0.1%	99.7%
21	Latvia	23	0.1%	99.8%
22	Luxembourg	20	0.1%	99.9%
23	Slovakia	12	0.1%	100.0%
24	Slovenia	3	0.0%	100.0%
25	Malta	1	0.0%	100.0%
26	Estonia	0	0.0%	100.0%
	<b>Total</b>	<b>20,608</b>	<b>100.0%</b>	

## 7 CASE STUDY PORTS THROUGHPUT ANALYSIS

The data for non-EU trade, with port and commodity details included, with the IntraStat / EuroStat and DfT *Maritime Statistics* provide a basis from which an analysis of food imports by Case Study port group and import port groupings by Case Study food commodity can be carried out.

The missing detail for both sets of analyses is the identification of the UK port of entry for food imports from EU countries. This study, through parameters derived by the Border Agency, the original *Food Security Assessment*, and through local Case Study contact with port and terminal operators, together with more detailed insight through the food commodity Case Studies, provides a preliminary assessment of EU food commodity imports according to port.

Food imports from non-EU origins through **Dover** amounted to 351,000 tonnes in 2010, with a high percentage of bananas. Furthermore 27% of all inbound trailers are considered to be carrying food, equating to nearly 5.5 million tonnes, over 25% of the total amount of food imported into the UK from other EU countries (see **Annex 3**).

Commodity	Non-EU	EU	Total
Frozen and chilled meat (#0201, 0202, 0203, 0204, 0206, 0207)	0.084	5,481.000 (Estimated food via RoRo through Dover and Channel Tunnel)	
Fresh and frozen fish (#0302, 0303, 0304)	2.008		
Citrus fruit, fresh or dried (#0805)	7.960		
Palm oil (#1511, 1513)	0.000		
Sugar (#1701, 1702, 1703)	0.015		
Other commodities	341.244		
<b>Total food import</b>	<b>351.310</b>		
<i>Total foreign import, EU estimated</i>	<i>693.782</i>	<i>21,389.218</i>	<i>22,083.000</i>

Given the nature of the majority of trade through **Felixstowe and Southampton** (deep sea container) it follows that the ports jointly handle nearly 3 million tonnes of food imports from non-EU country origins, 21% of the UK's total food import from outside of the EU. A regular ferry service connection to the Continent from Felixstowe, plus short sea container service connections imply a further 197,000 tonnes of food import from EU country origins and a more detailed knowledge of activities in Southampton should lead to a clearer picture of the amount of bulk food imports from EU origins entering the country through Southampton (see **Annex 4**).

Commodity	Non-EU	EU est.	Total
Frozen and chilled meat (#0201, 0202, 0203, 0204, 0206, 0207)	83.568	197.000 (Estimated food via RoRo and short sea LoLo through Felixstowe)	
Fresh and frozen fish (#0302, 0303, 0304)	37.120		
Citrus fruit, fresh or dried (#0805)	110.369		
Palm oil (#1511, 1513)	0.858		
Sugar (#1701, 1702, 1703)	58.326		
Other commodities	2,627.487		
<b>Total food import</b>	<b>2,917.729</b>		
<i>Total foreign import, EU estimated</i>	<i>25,937.005</i>	<i>7,645.995</i>	<i>33,583.000</i>

The volume of food imports from non-EU sources through ports in the **Thames and Medway** surpass the volumes coming through the major deep sea ports of Felixstowe and Southampton. This is due to the volumes of containerised import through Tilbury and Thamesport being supplemented by liquid and dry bulk imports through a range of riverside terminals.

EU-sourced food imports through Purfleet and Tilbury are also significant given the level of RoRo and short sea container service connection to the Continent. It is estimated that food imports from EU countries, carried by the RoRo and short sea container mode alone, amount to 915,000 tonnes. First indications are that there is also roughly 300,000 tonnes of agricultural product from EU countries imported through terminals in the Port of London (see **Annex 5**).

Commodity	Non-EU	EU est.	Total
Frozen and chilled meat (#0201, 0202, 0203, 0204, 0206, 0207)	78.052	1,215.000 (Estimated food via RoRo and short sea LoLo through Purfleet, Tilbury and Dagenham, plus dry bulk food imports)	
Fresh and frozen fish (#0302, 0303, 0304)	5.841		
Citrus fruit, fresh or dried (#0805)	235.946		
Palm oil (#1511, 1513)	99.557		
Sugar (#1701, 1702, 1703)	938.631		
Other commodities	2,152.560		
<b>Total food import</b>	<b>3,510.587</b>		
<i>Total foreign import, EU estimated</i>	<i>21,846.623</i>	<i>19,871.377</i>	<i>41,718.000</i>

Ports in the Humber handle a range of RoRo and short sea container services from the European Continent and Scandinavia and while non-EU import volumes are high they are made up mostly of oil and petroleum products and other dry bulks. However, with Grimsby as the UK's centre for seafood processing there is a high volume of fish import from non-EU sources and substantial volumes of palm oil as well as raw sugar imports (see **Annex 6**).

Commodity	Non-EU	EU est.	Total
#Frozen and chilled meat (#0201, 0202, 0203, 0204, 0206, 0207)	1.211	2,363.000 (Estimated food via RoRo and short sea LoLo through Immingham, Killingholme, Hull & Goole, plus bulk food imports but not containers on RoRo)	
Fresh and frozen fish (#0302, 0303, 0304)	164.005		
Citrus fruit, fresh or dried (#0805)	0.060		
Palm oil (#1511, 1513)	223.645		
Sugar (#1701, 1702, 1703)	57.594		
Other commodities	903.368		
<b>Total food import</b>	<b>1,349.884</b>		
<i>Total foreign import, EU estimated</i>	<i>26,766.581</i>	<i>24,148.419</i>	<i>50,915.000</i>

Although the ports in the Humber handle 1.349 million tonnes of food import from non-EU sources they are likely to handle a larger amount of food from EU countries, carried on RoRo and short sea container services and in bulk to specialist food import terminals. It is estimated that the ports handle 1.143 million tonnes of food import from EU sources entering the country on a range of RoRo and short sea container services, with a further 1.22 million tonnes of agricultural product in bulk being imported through ports and terminals on the River Humber and River Trent. In total, the actual (non-EU) and estimated (EU) volume (based on RoRo, short sea LoLo and bulk agriculture product) of food imports through the Case Study ports is at least 17 million tonnes, more than half the total volume of UK food imports.

From a **food commodity perspective**, the Case Studies will clarify the key ports of entry for imports from EU country sources through consultation with importers, carriers and retailers. The following tables show the spread of entry ports from non-EU sources and quantify the volume coming from EU country sources, for each Case Study commodity.



Felixstowe and Southampton and ports on the Thames and Medway lead in handling imports of **frozen and chilled meat** from non-EU countries and the nature of the traffic (temperature-controlled) is likely to mean that imports from EU sources will be concentrated through Dover and the Channel Tunnel carried in accompanied trailers, plus unaccompanied traffic through Harwich from Hook of Holland (see **Annex 7**).

<b>Table 7.5: Frozen and chilled meat imports (#0201, 0202, 0203, 0204, 0206, 0207)</b>			
<b>Port of Clearance</b>	<b>Non-EU</b>	<b>EU</b>	<b>Total</b>
Dover / Channel Tunnel	0.084	<b>963.818</b> (Mostly through Dover / Channel Tunnel in trailers)	
<b>Felixstowe / Southampton</b>	<b>83.568</b>		
<b>Thames / Medway</b>	<b>78.052</b>		
Humber ports	1.211		
Other UK ports and airports	4.299		
<b>Total</b>	<b>167.214</b>		
<i>Check:</i>	<i>167.214</i>	<i>963.818</i>	<i>1,131.032</i>

65% of **fresh and frozen fish imports** from non-EU countries enter the UK through the Humber ports (mostly in container and as palletised general cargo) and much of the remainder will find its way to processing plants located around the Humber. The Humber is also likely to be the destination for fresh and frozen fish imported from EU countries, given that a high volume comes from Denmark and Germany (see **Annex 7** also).

<b>Table 7.6: Fresh and frozen fish imports (#302, 303, 304)</b>			
<b>Port of Clearance</b>	<b>Non-EU</b>	<b>EU</b>	<b>Total</b>
Dover / Channel Tunnel	2.008	<b>114,546</b> (Mostly through Humber ports in trailers and containers)	
Felixstowe / Southampton	37.120		
Thames / Medway	5.841		
<b>Humber ports</b>	<b>164.005</b>		
Other UK ports and airports	45.016		
<b>Total</b>	<b>253.990</b>		
<i>Check:</i>	<i>253.990</i>	<i>114.546</i>	<i>368.535</i>

Tilbury specialises in the receipt and handling of containerised **citrus fruit** from non-EU origins and Felixstowe and Southampton are also picking up this trade through the transshipment of produce from Australia and New Zealand in the Far East. Much of the UK's imports of citrus fruit from the EU are from Spain and the short shelf life of the product dictates that accompanied trailer services will carry much of the traffic through Dover and the Channel Tunnel (see **Annex 8**)

<b>Table 7.7: Citrus fruit, fresh or dried, imports (#805)</b>			
<b>Port of Clearance</b>	<b>Non-EU</b>	<b>EU</b>	<b>Total</b>
Dover / Channel Tunnel	7.960	<b>275.835</b> (Mostly through Dover / Channel Tunnel in trailers from Spain)	
Felixstowe / Southampton	110.369		
<b>Thames / Medway</b>	<b>235.946</b>		
Humber ports	0.060		
Other UK ports and airports	39.994		
<b>Total</b>	<b>394.330</b>		
<i>Check:</i>	<i>394.330</i>	<i>275.835</i>	<i>670.165</i>

The Thames-side Tate & Lyle Sugars river terminal and riverside processing plant attract large volumes of **sugar imports** from non-EU country sources. The Case Study dedicated to sugar will indicate the key ports of entry for imports from EU sources (see **Annex 9**).

<b>Table 7.8: Sugar imports (#1701, 1702, 1703)</b>			
<b>Port of Clearance</b>	<b>Non-EU</b>	<b>EU</b>	<b>Total</b>
Dover / Channel Tunnel	0.015	1,001.437 (Mostly RoRo traffic)	
Felixstowe / Southampton	58.326		
<b>Thames / Medway</b>	<b>938.631</b>		
Humber ports	57.594		
Other UK ports and airports	359.669		
<b>Total</b>	<b>1,414.236</b>		
<i>Check:</i>	1,414.236	1,001.437	2,415.672

Hull and ports on the Thames, particularly Purfleet, feature strongly in terms of the import of **palm oil**, having the necessary handling facilities and storage and processing infrastructure on adjacent quays. Unless the imports from EU countries are transported in trailers and containers as processed product the same facilities are also likely to be handling bulk imports from EU countries (see **Annex 10**).

<b>Table 7.9: Palm oil imports (#1511, 1513)</b>			
<b>Port of Clearance</b>	<b>Non-EU</b>	<b>EU</b>	<b>Total</b>
Dover / Channel Tunnel	0.000	85.956 (Mostly RoRo traffic)	
Felixstowe / Southampton	0.858		
Thames / Medway	99.557		
<b>Humber ports</b>	<b>223.645</b>		
Other UK ports and airports	70.595		
<b>Total</b>	<b>394.655</b>		
<i>Check:</i>	394.655	85.956	480.611

## 8 DfT DEEP PORT CONTINGENCY PLANNING MODEL

The development of the DfT's 'Deep Port' computerised contingency planning model came about as a result of the "Deep Haddock" exercise a few years ago that attempted to simulate the impacts arising from the closure of Felixstowe Port. Deep Port provides information on UK port facilities, services operating, cargoes handled and capacity available.

Following two meetings with the DfT a limited understanding of the model was gained, including the range of inputs and the information outputs. A more thorough and detailed assessment would be required, with possibly a test case port closure scenario, to understand its full capabilities and deficiencies.

The DfT collect information for the Deep Port model from various sources, including the UK Short Sea Freight RoRo and LoLo Capacity Report, the DfT's own Maritime Statistics and HMRC trade data, although it lacks the detail for EU imports by commodity at the port level. It is a 'static' information based system that provides a range of details (contacts, capabilities, cargo and services handled etc.) for individual ports through drop down menus from map locations.

There are 'dynamic' elements to the model coming from the AIS Maritime Traffic system and Google Earth and other systems that provide a 'birds-eye' view of port locations and facilities, road congestion and the weather. The information in the model requires detailed interrogation and assessment across a range of ports in the event of any disruption to provide indications for alternative suitable terminals and berths with appropriate capacity.

The system has proved useful on occasions such as during the Volcanic Ash Cloud emergency, after eruptions in Iceland, when it was possible to provide advice on the range of passenger ferry services available to get passengers back from European destinations because they could not fly due to airport closures.

While not suitable for commercial decision making, it was also not clear whether the model brings government agencies together for planning and decision making purposes. BIS, DECC and Defra could work with the DfT in the development (provision of information) and use of 'Deep Port'. In the case of Defra and the supply chain resilience project it would be important for government agencies to coordinate recovery efforts in the event that food shortages led to panic buying or social disorder.

In the first instance it has limitations in terms of quickly identifying alternative options in the event of port closures. In any case the private operators and shipping lines will be much closer to the situation and its remedies. For government contingency planning purposes the Deep Port model, or a more interactive successor to Deep Port, can be used to test vulnerabilities and plan options in the event of disruption and inform government on the possible need for intervention.

DfT is trying to develop and improve the Deep Port model and is gaining valuable feedback from local authorities and Resilience Groups (involving port authorities and terminal operators) in aiding the process of maintaining land-side access to ports in the event of disruption.

DfT officials want to develop Deep Port and recognise its deficiencies. There are plans to develop it into a web-based system and there could be opportunities to link it with other transport models such as MDS's GB Freight model.

The experience of University College London staff in developing transport models may be a useful option. The Kent Resilience Group of which the Port of London Authority is a member, commissioned University College London academics in December 2010 to carry out a risk and resilience modelling project, a kind of Business Impact Analysis, allied to an Economic Impact Study.

The emphasis was on Business Continuity surrounding activities linked to port facility operations, involving widespread consultation. It is felt that the project could be very useful in changing attitudes towards risk and mitigation since the project is concentrating on supply chain issues. UCL's experience with the Kent Resilience Group and its use of sophisticated computer modelling techniques may be an option worth considering by DfT, in conjunction with other government agencies, in developing the Deep Port model into a truly interactive contingency modelling tool.

## 9 MESSAGES AND CONCLUSIONS

While not critical to an assessment of the resilience of the food supply chain to port disruption a more detailed knowledge of food commodity imports (EU), through specific ports, linked to particular shipping modes would certainly assist the process in identifying key supply routes and understanding the supply chains in order to target 'weak links' and plan for greater resilience.

It would also help UK planning and development if there was a greater understanding of the volume of goods first cleared on the Continent before transshipment to the UK, including those commodities shipped into the Continent from deep sea origins where they are then stored and processed before being transported to the UK via short sea RoRo and container services.

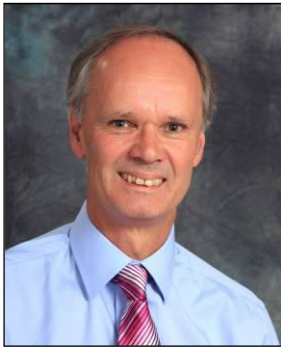
Further work is required in this area to assess the UK's dependence, on one hand, and possible future independence by, for instance, promoting value added and intermediate storage and processing activities at London Gateway, linked to deep sea import traffics.

Other messages and conclusions arising from the study and assessment of the UK's food commodity import trade and port traffic statistics include:

- The need for the identification of EU import commodities according to UK port of entry, possibly by extending the ongoing work of the Port Health and Border Agency services. First consider whether such added information provides any benefit. Will it help to make UK food supply more resilient?
- Deepen and extend the Port Case Study approaches used in this study to improve our understanding of traffic and port infrastructure requirements, available capacity and EU food imports (bulk and unit load)
- Carry out Deep Sea container capacity analysis, specific bulk capacity analysis (for cargo types: Agricultural products and Other Liquid Bulk traffic) and a Continental port capacity analysis (RoRo and container) to supplement the existing UK Short Sea Freight RoRo and LoLo Capacity Analysis and Report
- Use the DfT's Deep Port model to carry out a test case port closure scenario to evaluate the responses and findings and find out more about the 'Deep Haddock' Project (objectives and findings)
- Investigate the possible development of the Deep Port model into an interactive model capable of responding directly to potential 'what if' scenarios such as any potential port closure situation. The UCL involvement and experience with the Kent Resilience Group and its use of sophisticated computer modelling techniques may be an option worth considering by DfT, in conjunction with other government agencies, in developing the Deep Port model into a truly interactive tool.

The Regional Resilience Groups, the Freight Transport Association (involved in cargo monitoring systems), the Border Agency (who run a Freight Tracking System) and others could all make useful contributions in the possible development of Deep Port. Other government departments such as Defra for food, DECC for fuels and BIS for manufacturing, could certainly derive benefits from a more tailored and interactive contingency planning system.

## ABOUT THE AUTHORS



**Peter Baker**, the founder and owner of PRB Associates, specialises in operational, financial and market analysis in the ports and shipping sectors; with working experience in the ports sector and in RoRo ferry operations.

In addition to a range of project commissions in the UK and internationally, Peter has researched and produced the '*UK Short Sea Freight RoRo and LoLo Capacity Analysis and Report*' every year since 2000 and for the first time in 2009 produced an Irish equivalent. The report and database information provide a detailed analysis and assessment of the capacity provision and spread in the market, with comprehensive route, service, vessel and port information contained in detailed appendices.

**PRB Associates Limited** specialises in providing shipping and transport consultancy and analysis services for private and public sector organisations. Founded in 1998, PRB Associates has successfully completed commissions for freight generators, freight transport service providers (shipping lines and road transport operators), port operators and various public sector organisations. Assignments have ranged from service analyses, feasibility studies, financial modelling and economic impact studies, to market research and appraisal and national transport strategy formulation.



**Andrew Morgan**, the founder of Global 78, has extensive international business and logistics experience gained in projects across many industrial sectors, including food supply projects in Europe, Brazil and India. These advisory and implementation projects have ranged in scope from agri-business, through manufacturing and processing, to wholesale and retail distribution in final consumer markets.

A Chartered Member of the Chartered Institute of Logistics and Transport (UK), Andrew is the author of '*Making the Brazil Connection – managing risk in the international food supply chain*' and also co-author of the UKIBC Report '*India Agri-Food Supply Chains: Overview and Opportunities*'.

**Global 78 Limited** is focused on helping commercial clients discover new perspectives for success in local and international markets and for delivery of real bottom-line improvements. It also undertakes research for public sector policy-making. Food supply chains are complex. Innovation, resilience and sustainability are all vital elements for successful policy, strategy, and operations. The Global 78 team therefore provides clients with quality research, specialist advice, and support for implementation.

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