BRITISH PORTS ASSOCIATION

30th December 2021

# The Impact of the Pandemic on UK Trade

Working Paper

# Contents



# The British Ports Association

The British Ports Association is the national membership body for ports. We represent the interests of operators that handle 86% of all UK port traffic, to Westminster and devolved Governments, and other national and international bodies.

The UK ports industry plays a fundamentally important role in the country's economy. 95% of the UK's international trade – imports and exports – is carried through UK ports which also handle 25 million international passenger journeys each year.

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# Executive Summary

## Depressed Liquid Bulk Masks Recovery in Some Sectors

New Q3 2021 cargo statistics published recently show how different cargo segments are recovering (or not) from the impacts of the pandemic. This working paper examines how the pandemic has impacted cargo volumes in both 2020 and for the first three quarters of 2021.

UK port volumes look like they are heading for lower volumes in 2021 overall. Once you remove liquid bulk cargoes from this the volume of other cargo types will be highest for the last four years, however. Liquid bulk (oil and gas, primarily) is the largest cargo handled by UK ports, accounting for 40% of pre-pandemic port throughput. Oil and gas demand remains relatively low as reduced demand from transport persists coupled with warmer weather. The first quarter of 2021 saw 'roro' volumes fall amongst volatile trading conditions resulting from both covid and Brexit, particularly in the Channel. Since then roro volumes have returned to pre-pandemic levels for the most part and the most recent data shows that the third quarter of 2021 was level with Q3 2019. Other sectors are above pre-pandemic levels in both in comparative year-to-date totals and when comparing Q3 2021 with Q3 2019.

Given the focus on supply chain issues and global container port congestion throughout 2021, we conclude that port volumes themselves are not on their own the cause of this congestion, as 2020 saw the lowest volumes for non-liquid bulk cargoes and 2021 the highest. Other factors in the supply chain, such as driver shortages, warehousing capacity, are the primary causes. Volatility is a secondary factor contributing to congestion, from staff shortages during the 'pingdemic' to wild swings in cargo volumes from one quarter to the next, and unreliable vessel schedules. These all make it harder for ports to plan their work.

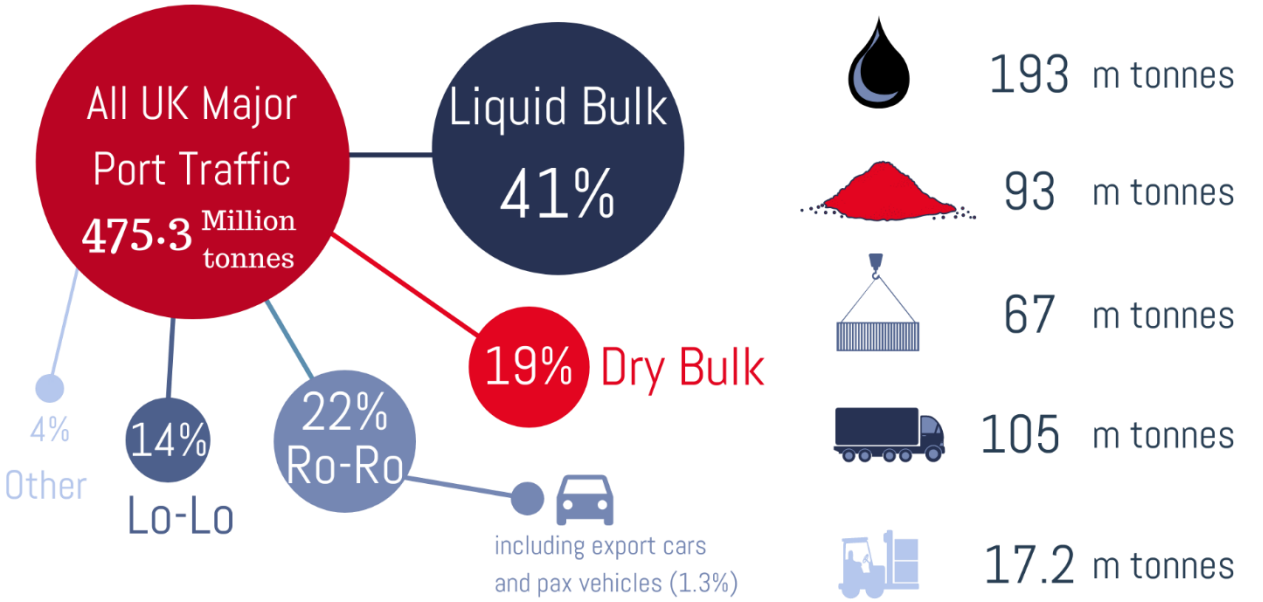
### 2021 cargo throughput by type

| | Q3 2021 Change on Q3 2020 | Q3 2021 Change on Q3 2019 | Change from 2019 first three quarters with first three quarters of 2021 |
|---|---|---|---|
| General Cargo | 11% | 18% | 5% |
| Dry Bulk | 9% | 5% | 4% |
| Containers (Units) | 16% | 4% | 5% |
| Roro Freight (Units) | 1% | 0% | -5% |
| Liquid Bulk | 9% | -13% | -19% |
| Roro Non-Freight (Units) | -2% | -56% | -58% |
| **Total (Tonnage)** | **6%** | **-4%** | **-8%** |

# The pandemic and trade volumes

## What cargoes do UK ports handle?

UK ports handle nearly 500 million tonnes of cargo every year, in addition to 25 millions passengers and hundreds of thousands of tonnes of seafood. Ports are also critical to coastal leisure and tourism and the offshore energy industry.




Source: Department for Transport, Port Freight Statistics 2019

# Pre-Pandemic and Now

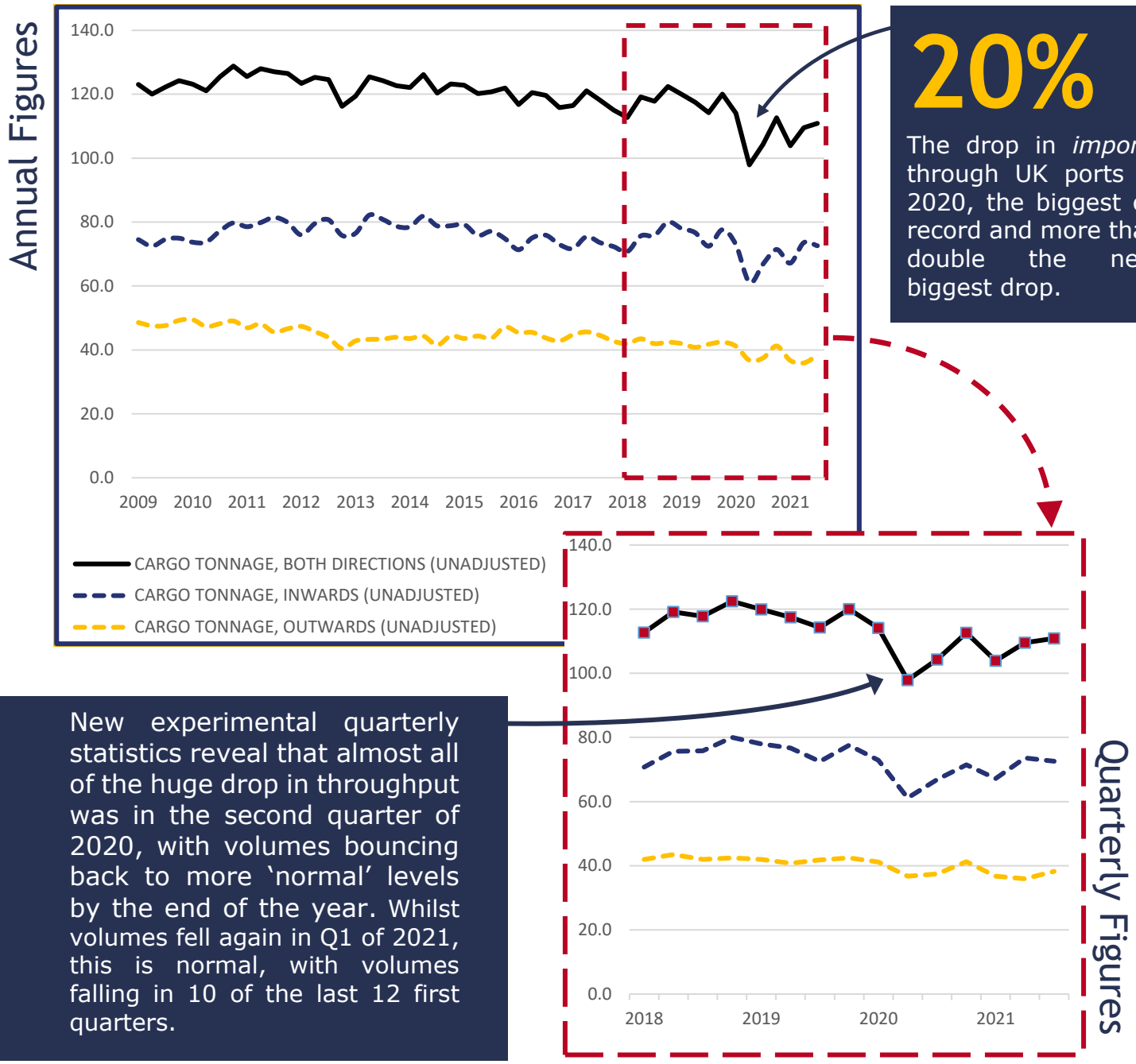
## Q3 2021 change on Q3 2019, by cargo type

**Breakbulk +18%** | **Dry Bulk +5%** | **Containers +4%**

**RoRo 0%** | **Non-Freight -56%** | **Liquid Bulk -13%**

## Q2 2020: An unprecedented decline in overall volumes

UK port volumes saw an unprecedented 17% decline in 2020, primarily caused by a 20% drop in inward cargo volumes as the global pandemic struck the UK. As an import driven economy, inbound cargo accounts for 60% of overall UK port volumes. New experimental figures reveal that different sectors are recovering at different rates that these overall figures do not capture.




**20%**

The drop in *imports* through UK ports in 2020, the biggest on record and more than double the next biggest drop.

New experimental quarterly statistics reveal that almost all of the huge drop in throughput was in the second quarter of 2020, with volumes bouncing back to more 'normal' levels by the end of the year. Whilst volumes fell again in Q1 of 2021, this is normal, with volumes falling in 10 of the last 12 first quarters.

Interestingly, although not considered in detail here, the UK lockdown does not appear to have had a significant impact on outbound tonnage (exports), although we have not looked at this in detail. Volatility in volumes, in both tonnage and units, has been driven by inward traffic.

The following chapters examine what has happened in each sector in more detail.

# Containers

**15%** **Annual rise in Q3 UK container throughput in 2021**

**843k** **Containers handled by UK ports in Q3 2021**

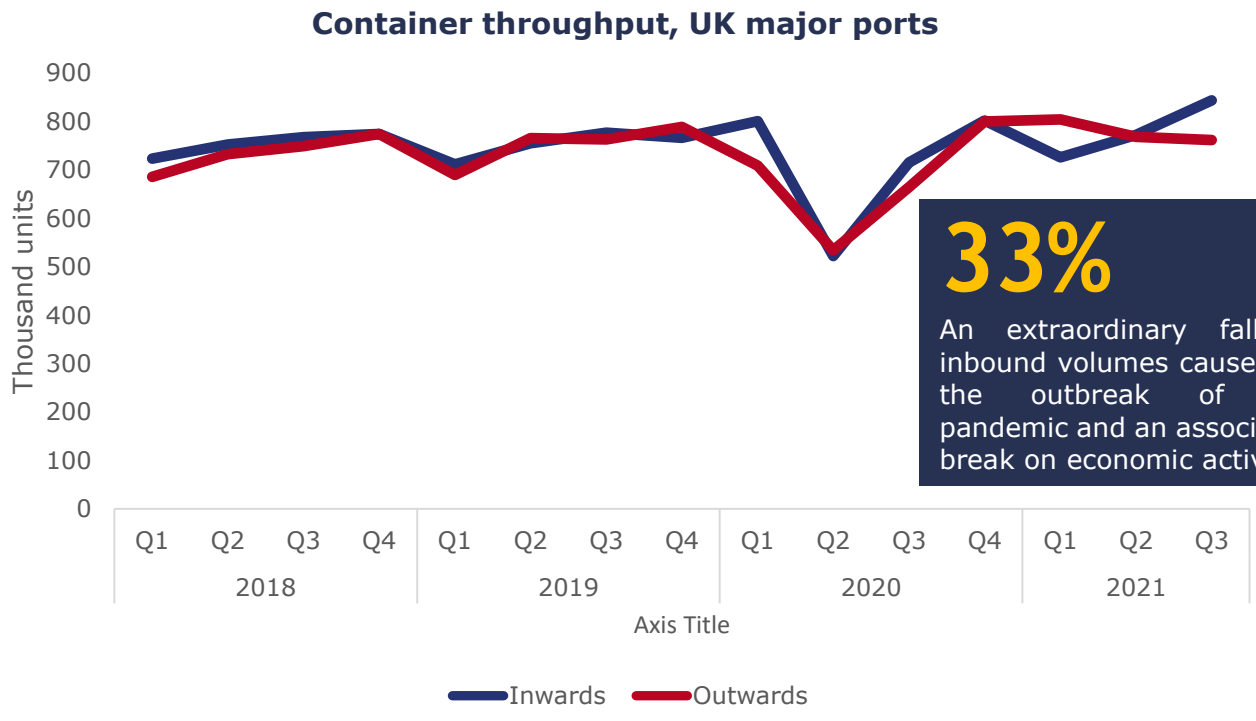
**19%** **rise in volumes for first three quarters of 2021 over first three quarters of 2020**

There are 21 UK ports that handle containers from scheduled liner services. Five ports handle containers from deep-sea services directly from China and the United States (Felixstowe, Gateway, Southampton, Tilbury and Liverpool). Unitised traffic including containers has shown consistent growth in volumes in recent years and that trend is expected to continue.

## What happened in 2020?

Container ports around the world are dealing with backlogs in containers, affecting supply chains. Some of these are experiencing well-publicised congestion. Vessel schedules have been disrupted by global port congestion making planning more difficult and a shortage of HGV drivers and tight warehousing space both mean some traders are leaving goods at ports for longer.

In the UK, inbound container volumes fell by 33% in Q2 2020, but then grew by 50% (from a low base) and then recovered to pre-pandemic levels in Q4. The scale of the drop in Q2 however meant that annual volumes were lower overall despite the reality being that for most of the year container volumes were relatively 'normal'.




**33%**

An extraordinary fall in inbound volumes caused by the outbreak of the pandemic and an associated break on economic activity

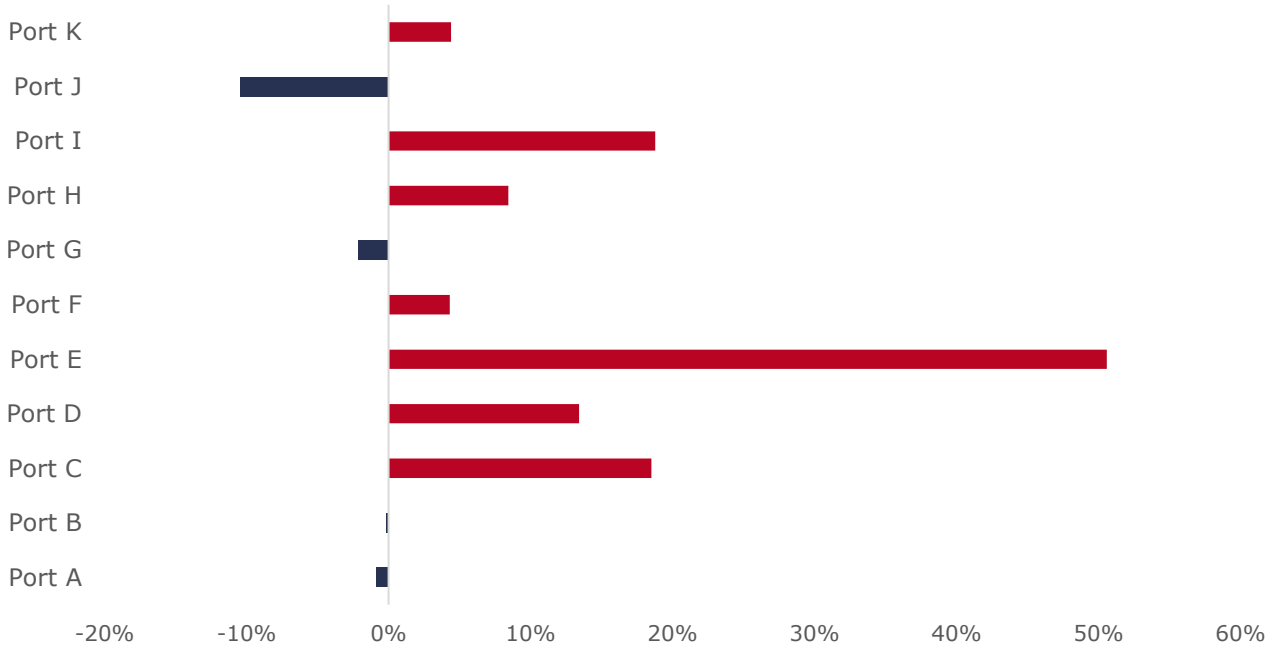
## What has happened in 2021?

The first three quarters of 2021 were busier for inbound and overall container throughput than any of the last three years were at this point. (Unfortunately, we only have data at this granularity from 2018, but we suspect that this peak goes back further.)

The first three quarters of 2021 were 5% busier than 2019 and 19% busier than 2020.

The volatility in container volumes in both 2020 and 2021 was not spread evenly. Generally, larger container ports saw greater volatility as they dealt with the knock-on effects of the pandemic on global trade. Smaller 'feeder' ports and those handling one or two services a week were less affected.

**Change in units handled between Q3 2019 and Q3 2021, anonymised ports with >1% of total container throughput***




**Note: data is experimental and provisional*

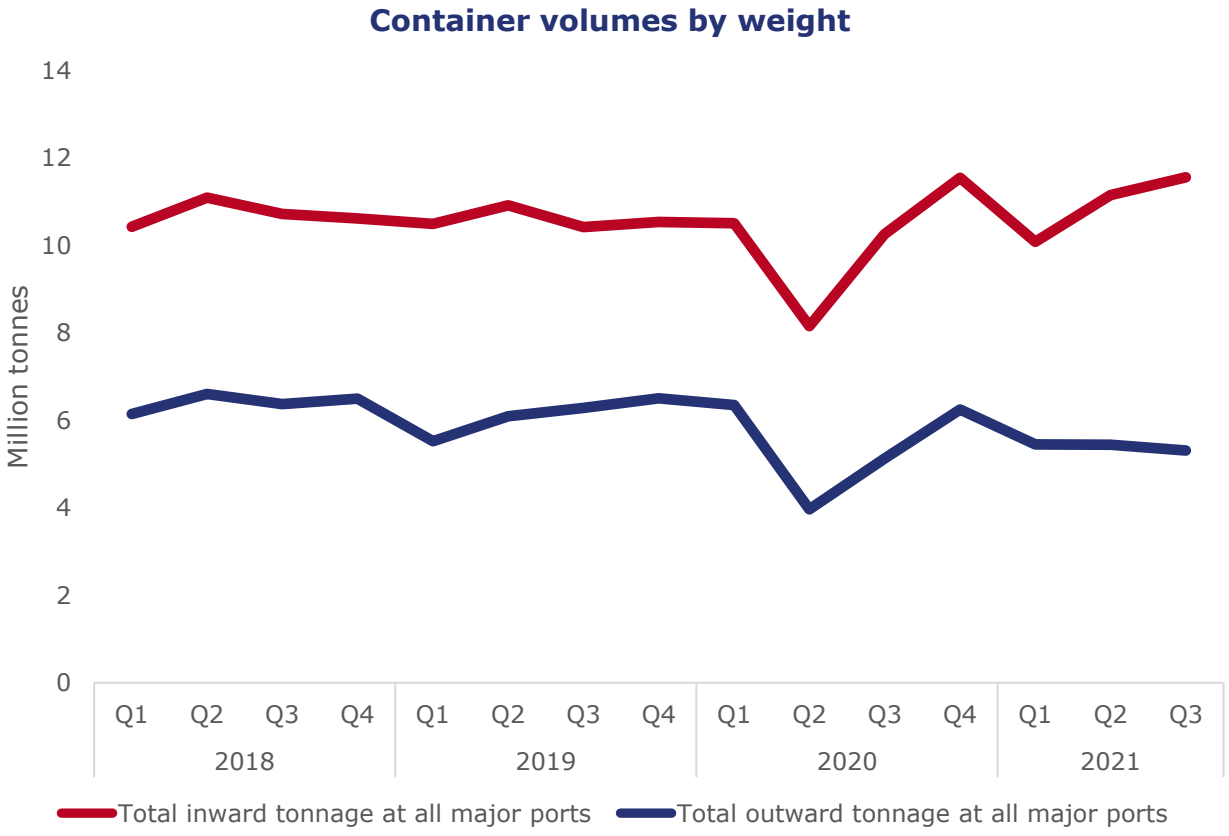
Four ports made up 81% of container throughput in Q3 2021 (London is counted as one port in these statistics, covering both Tilbury and London Gateway). Whilst container throughput in Q3 2021 was 15% higher than Q3 2020 and 4% higher than Q3 2019, this masks wide variation across individual operations and particularly large container ports. Southampton and London both handled nearly 20% more containers in Q3 2021 than they did in Q3 2019 and Hull handled 51% more.

## Fewer ships but more boxes

Analysis of data supplied to the BPA by MDS Transmodal shows that whilst container ports handled 15% more units in Q3 2021 than Q3 2020, the amount of container capacity deployed at UK ports has fallen 15% in 2021, suggesting that congestion issues are stabilising, although container ports remain incredibly busy. Several container ports had their busiest Q3 for years, with some handling 20% more containers in Q3 2021 than the same period in 2019.

## Empty boxes boosting outward numbers?

Performance in containers is usually judged by units handled. Examining the tonnage of container throughput shows that the actual weight of inbound cargo throughput in container ports was strong for Q3 and Q3 in 2021, with Q1 showing a pronounced dip in imports mirrored in the roro sector. Outward tonnage has been declining since it's initial bounce after the initial covid shock.



## Commentary

This data supports our conclusions that port volumes themselves are not on their own the cause of congestion, as 2020 saw the lowest volumes for non-liquid bulk cargoes and 2021 the highest. Other factors in the supply chain, such as driver shortages, warehousing capacity, are the primary causes. Volatility is a secondary factor contributing to congestion, with vessel global congestion causing difficulties for liners' schedules and wild swings in cargo volumes on the seaward side of port operations making planning difficult.

We expect issues in some global container ports to linger throughout 2022. UK container ports and terminals will likely remain busy and we do not expect significant issues despite the volatility and some UK-specific factors such as the driver shortage set to continue. UK container ports are investing in additional capacity in anticipation of long-term growth in volumes, with a new berth at London Gateway and additional storage capacity at Southampton amongst the investment announced this year.

DP World London Gateway

# Breakbulk / General Cargo

**15%** **Drop in iron and steel flows in 2020 as domestic demand dropped**

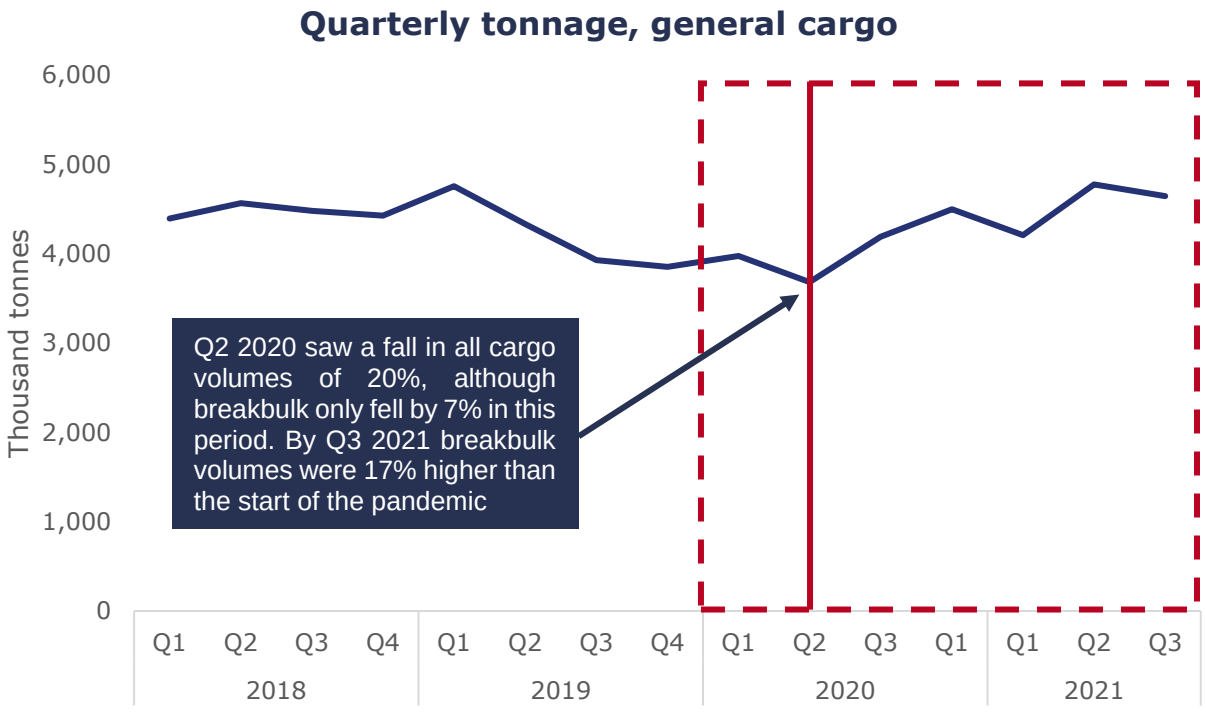
**7%** **Drop in breakbulk cargo in Q2 2020, faring better than other cargo types**

**13.6m** **Tonnes of breakbulk cargo handled in Q1-Q3 of 2021, the most since 2018**

General cargo, often referred to as breakbulk includes timber and forestry products, steel, and goods transported in bags, barrels, or palettes. If individual units of it can be counted but it doesn't travel in an ISO shipping container or road vehicle, it is most likely categorised as general cargo. General cargo is broken down in government statistics into three categories that in recent years have been roughly equal in terms of UK port volumes handled: (1) iron and steel products, (2) forestry products, and (3) other general cargo, which includes cargo like bagged cement and wind turbine blades or jackets or other 'project cargo'.

## What happened in the pandemic?

Volumes in 2020 were just 3% below their 2019 totals, although looking deeper into the figures reveals that iron and steel fell by 15% in that period. Forestry products declined by 1% and other general cargo and smaller containers actually grew by 8%. Figures for the first three quarters of this year alongside reports from BPA members suggest potential growth in 2021.



Demand for steel fell significantly during the early stages of the pandemic, both domestically and internationally as construction and manufacturing sectors stalled leaving some companies facing liquidity issues.[i] According to UK Steel, demand for steel products fell by 45% during the first lockdown in 2020. During that period, demand for steel from the automotive sector fell by 70%. UK Steel say that apparent demand for steel fell from just over 60m tonnes in 2019 to around 53m tonnes in 2020. Approximately 60% of the UK's demand for steel has been met by imports since 2014 but this fell to 50% in 2020 and is reflected in the numbers below.

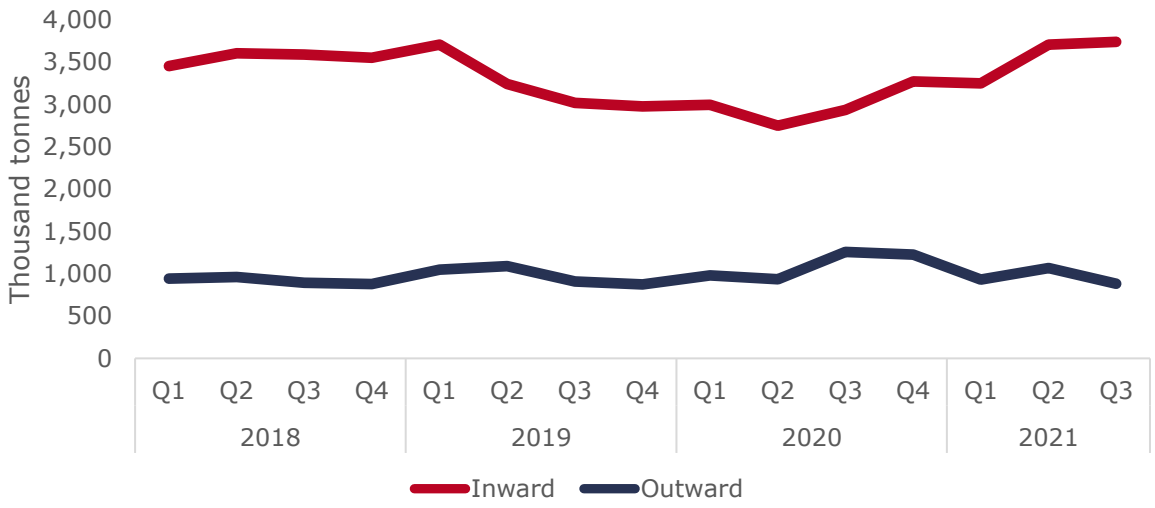
## General Cargo Volumes, 2018-2020 (thousand tonnes), by category

| | 2018 | 2019 | 2020 | 2020 change from: 2018 | 2020 change from: 2019 |
|---|---|---|---|---|---|
| Forestry products | 5,254 | 4,866 | 4,901 | *-7%* | *1%* |
| Iron and steel | 7,001 | 6,553 | 5,572 | *-20%* | *-15%* |
| Other general cargo etc | 5,610 | 5,446 | 5,869 | *5%* | *8%* |
| **Total** | **17,865** | **16,865** | **16,342** | ***-9%*** | ***-3%*** |

## What has happened in 2021?

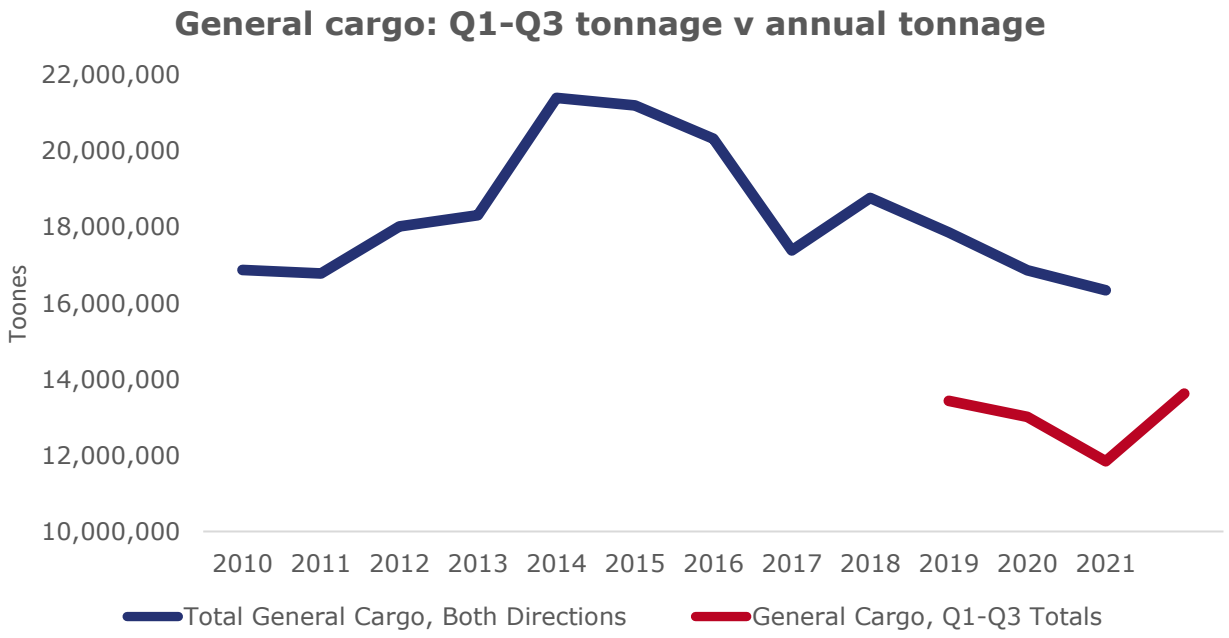
Inward flows of general cargo have grown 15% in the first three quarters of 2021. Inbound cargo usually accounts for around three-quarters of this sector and whilst outward flows have declined slightly, the first three quarters of 2021 have been the strongest of the last four years. Whilst some manufacturing sectors like automotive continue to experience supply chain issues, there are signs that construction output is picking up: infrastructure output in September 2021 was 47.3% higher than its February 2020 pre-pandemic levels.

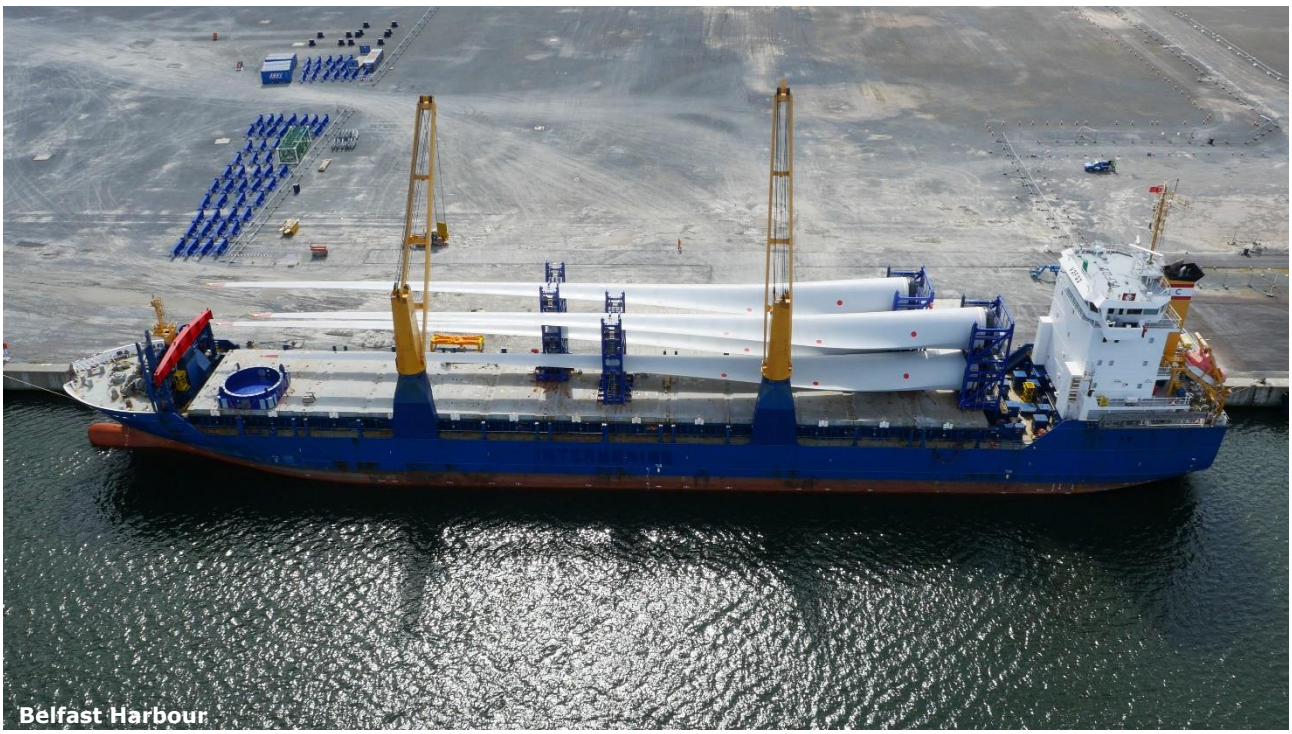
**General cargo quarterly port throughput 2018 - Q3 2021, by direction**



## What next?

The first three quarters of 2021 were the strongest for the last four years for which data is available. As outbound flows make up a relatively small proportion of the overall figures, it is likely that domestic demand for imported construction and manufacturing materials will determine the final volumes. If annual figures reflect YTD figures, this suggests 2021 will finish somewhere around 17.5 – 18 million tonnes. This would put it in line with pre-pandemic (but post 2015 steel crisis) levels. A booming construction market may push volumes higher, particularly if demand for steel was met through increased imports.





Belfast Harbour

# Liquid Bulk

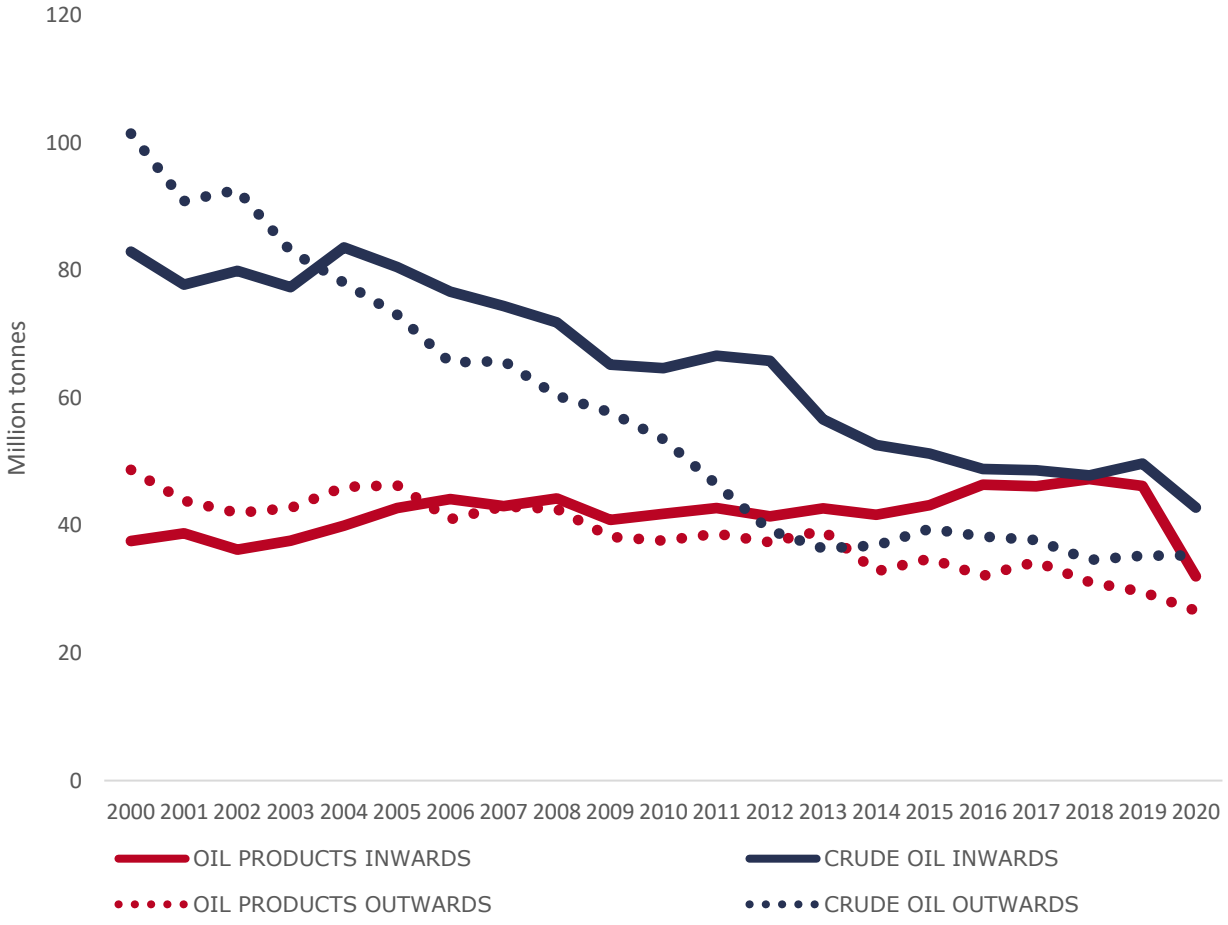
| | | | | | |
|---|---|---|---|---|---|
| 31% | Fall in imported oil products between 2019 and 2020 | 25.9m | Drop in overall liquid bulk volume in 2020 | 8.7m | Drop in overall liquid bulk volumes in 2021 on 2020 |

Liquid bulk typically accounts for around 40% of port cargo volumes. In government statistics it is comprised of four categories:

- Liquefied gas, e.g. butane, propane and LNG
- Crude oil
- Oil products (i.e. derivatives of petroleum), including diesel, gasoil, aviation fuel
- Other liquid bulk, not related to petrochemicals such as juices or liquid fertilizer

Crude oil and oil products accounted for 83% of liquid bulk volumes in 2020 (and 93% in 2000). Crude oil volumes have been in a long-term decline.

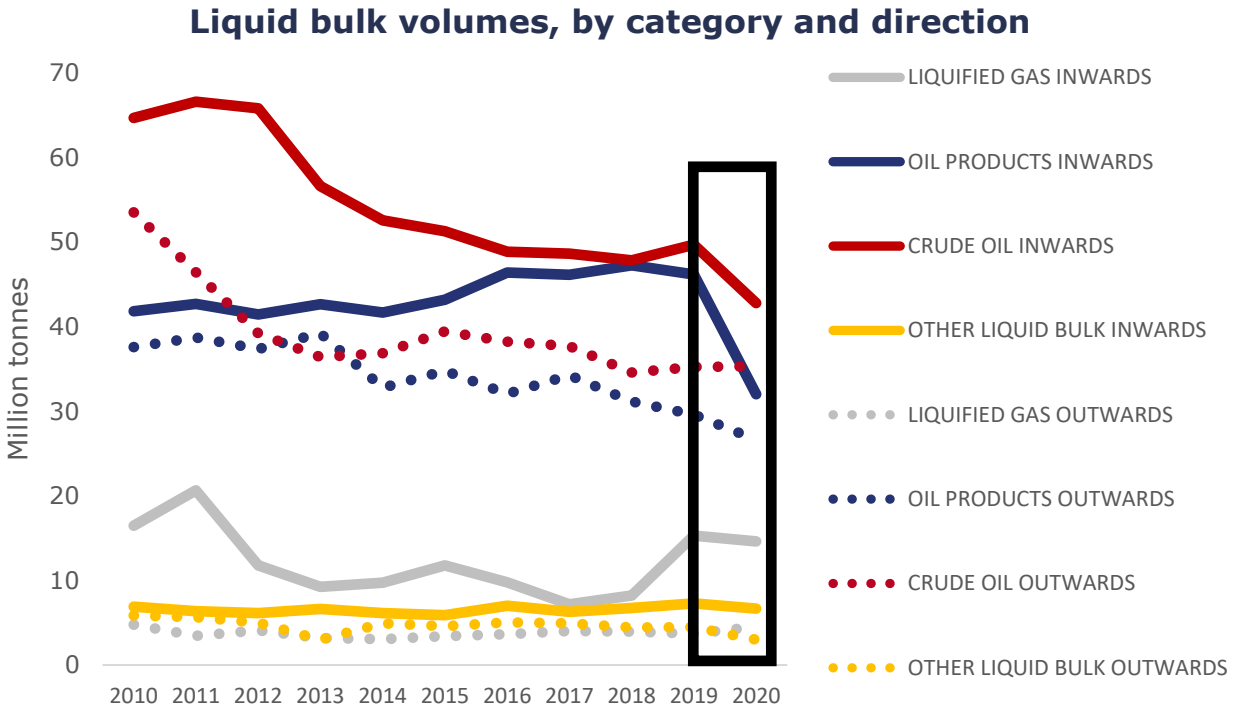
**Crude oil and oil product volumes, 2000-2020**



## What happened in the pandemic?

Overall liquid bulk throughput dropped by 14% in 2020. In Q2 2020, liquid bulk volumes were 27% below Q4 2019 levels and 20% below Q1 2020 levels. The main cause of this was a 31% annual fall in imported oil products such as petrol, diesel and jet fuel due to falling demand.

Exports of liquefied gas rose during 2020 by 21% and outward flows of crude were flat. Crude oil imports fell by 14%. According to the UK Department for Business, Energy & Industrial Strategy (BEIS), a global oversupply of LNG in 2019 drove inward liquified gas volumes to an 8 year peak as the EU balanced the market. This continued into 2020.[ii]



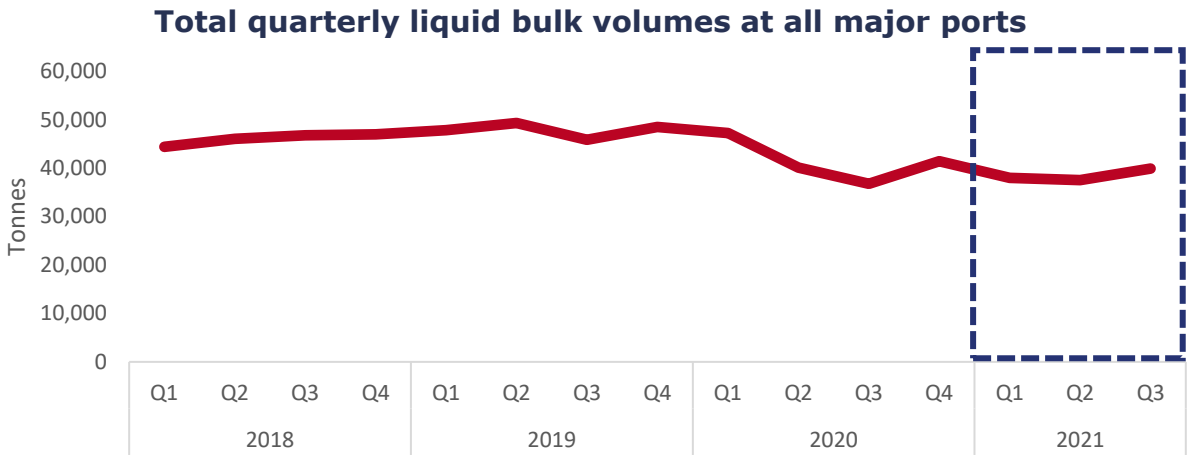

### Liquid Bulk Volumes, 2018-2020 (thousand tonnes), by category

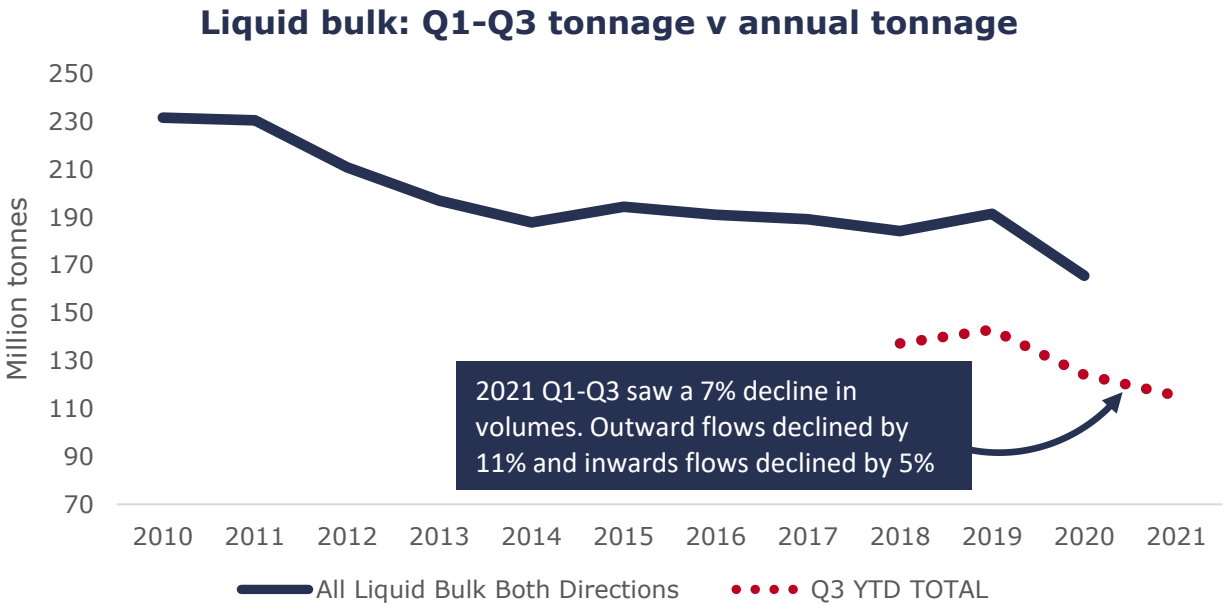
| | 2018 | 2019 | 2020 | 2020 change from: 2018 | 2019 |
|---|---|---|---|---|---|
| Liquefied gas | 12,166 | 19,008 | 19,147 | *57%* | *1%* |
| Crude oil | 82,436 | 84,952 | 78,096 | *-5%* | *-8%* |
| Oil products | 78,410 | 75,767 | 58,649 | *-25%* | *-23%* |
| Other liquid bulk | 11,162 | 11,743 | 9,659 | *-13%* | *-18%* |
| **Total** | **184,174** | **191,470** | **165,551** | *-10%* | *-14%* |

## What has happened in 2021?

Overall liquid bulk volumes fell in the first three quarters of 2021 by 7%. Demand for oil products has remained relatively muted and has yet to return to pre-pandemic levels as of Q3. Warmer than average temperatures have also tempered demand for gas.

A warm Q4 and continued or new covid-19 restrictions may mean that liquid bulk volumes decline again in 2021. We expect volumes to recover when transport demand returns to something closer to pre-pandemic levels, although the longer term downward trend will continue as the economy decarbonises.



# Ferries / RORO

**85%** Drop in non-freight roro traffic in Q2 2020

**43m** Q1-Q3 2021 freight tonnage, a 0% change on the same period in 2019:

**-5%** Change in units Q1-Q3 2021 with Q1-Q3 2019

Ferry traffic accounts for around a fifth of UK tonnage and consists self-propelled trailers and containers that may be accompanied by a driver or dropped-off and collected by different drivers at each end of the journey. Anything that rolls-on to a ship instead of being lifted on is counted in both tonne weight and as singular units, although only freight is counted in tonnage. Vehicles for import/export, usually carried by specialised ships, are also included. This paper primarily looks at freight flows although we have included a chart on non-freight roro flows. Passengers on foot are not counted here.

We have broken down the government statistics into three groups, as below:

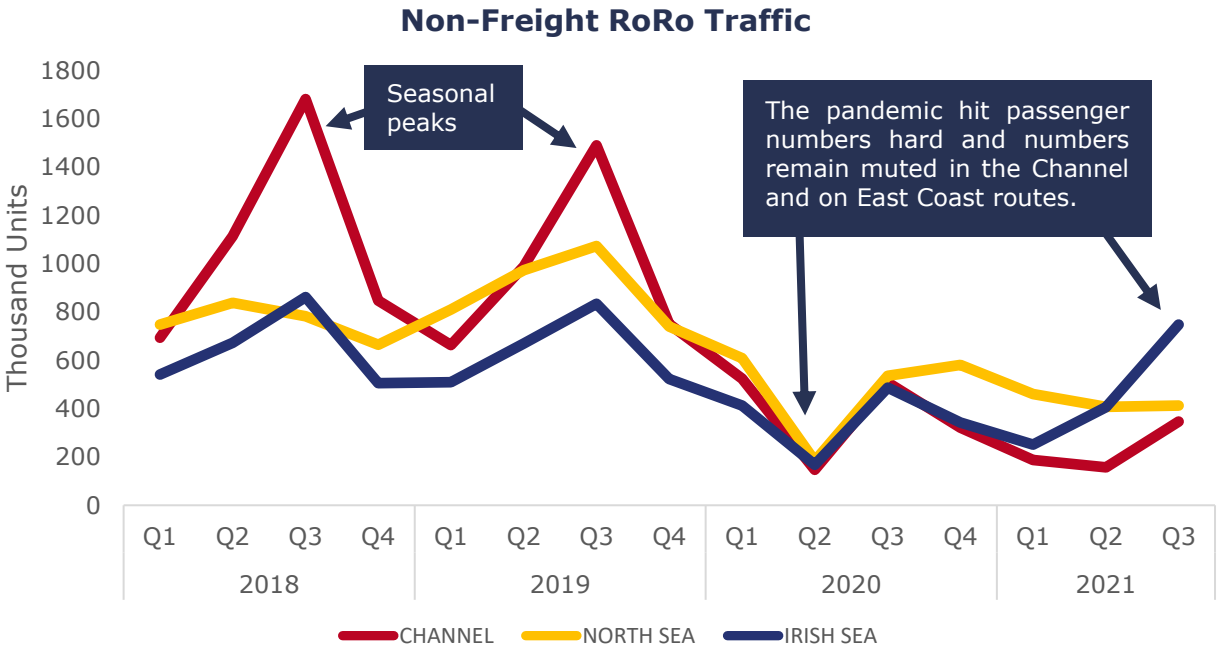
| Channel | Irish Sea | North Sea |
|---|---|---|
| Dover | Belfast | Aberdeen |
| Newhaven | Bristol | Felixstowe |
| Plymouth | Cairnryan | Grimsby and Immingham |
| Poole | Fishguard | Harwich |
| Portsmouth | Heysham | Hull |
| Ramsgate | Holyhead | London |
| Southampton | Larne | Medway |
| | Liverpool | Orkney |
| | Loch Ryan | Tees and Hartlepool |
| | Milford Haven | Tyne |
| | Warrenpoint | |

Portsmouth International Port

# What happened in the pandemic?

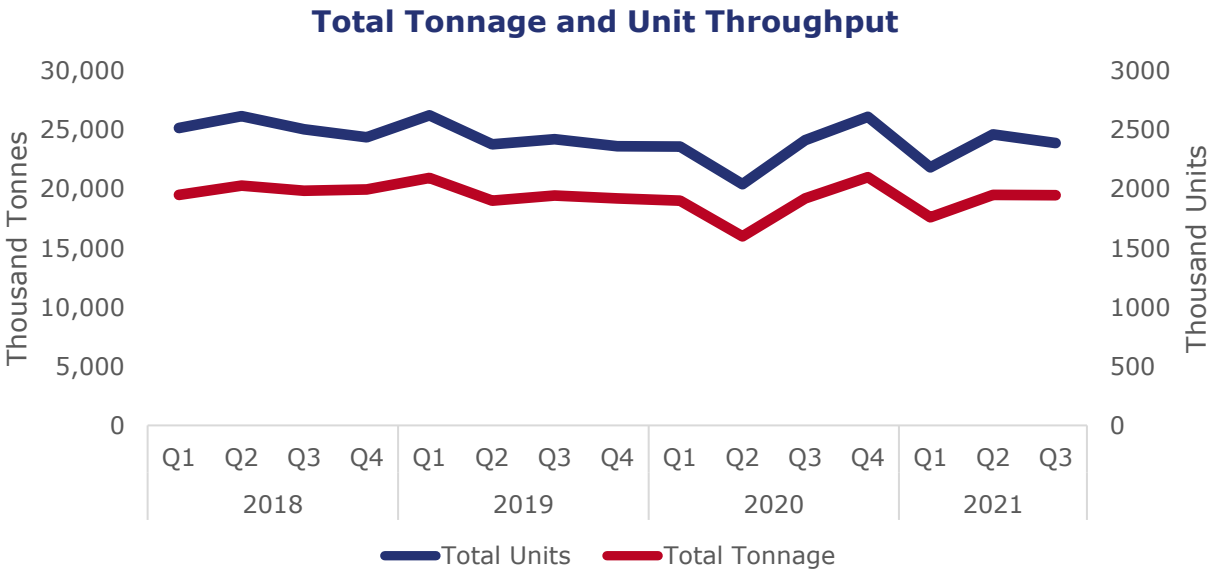
### Non-Freight Traffic

Non-freight roro traffic crashed 85% in Q2 2020 against the same quarter in 2019. Q3 2020 was 66% below Q3 2019. Q3 represents a seasonal peak, particularly for south coast ports. Numbers have begun to recover for Irish Sea routes as of Q3 2021 which were close to pre-pandemic levels. Numbers in the Channel were 75% below the same period in 2019, a worse situation than 2020. The Omicron variant may now mean volatility continues into 2022.

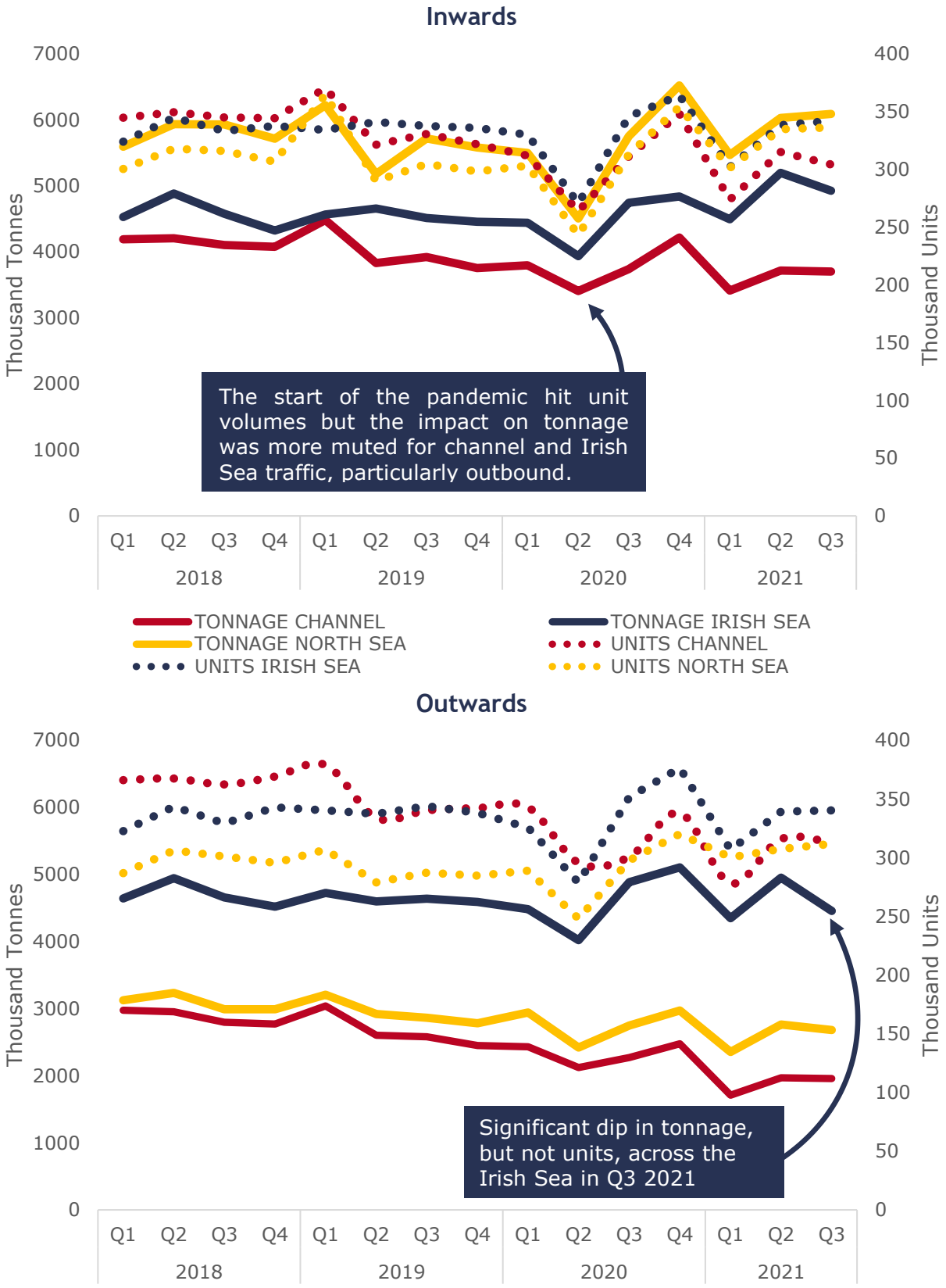



### Freight Traffic

Freight units fell 13% in Q2 2020 (tonnage fell by 16%), before bouncing back in Q3 and Q4. Volatility associated with Brexit and covid saw volumes drop again in Q1 2021 before recovering to be broadly flat in Q2 and Q3 2021, despite a Q3 drop-off in tonnage across the Irish Sea which seems primarily down to a drop in volumes through one port.



# RoRo freight tonnage and units, by group of ports, 2018-2021



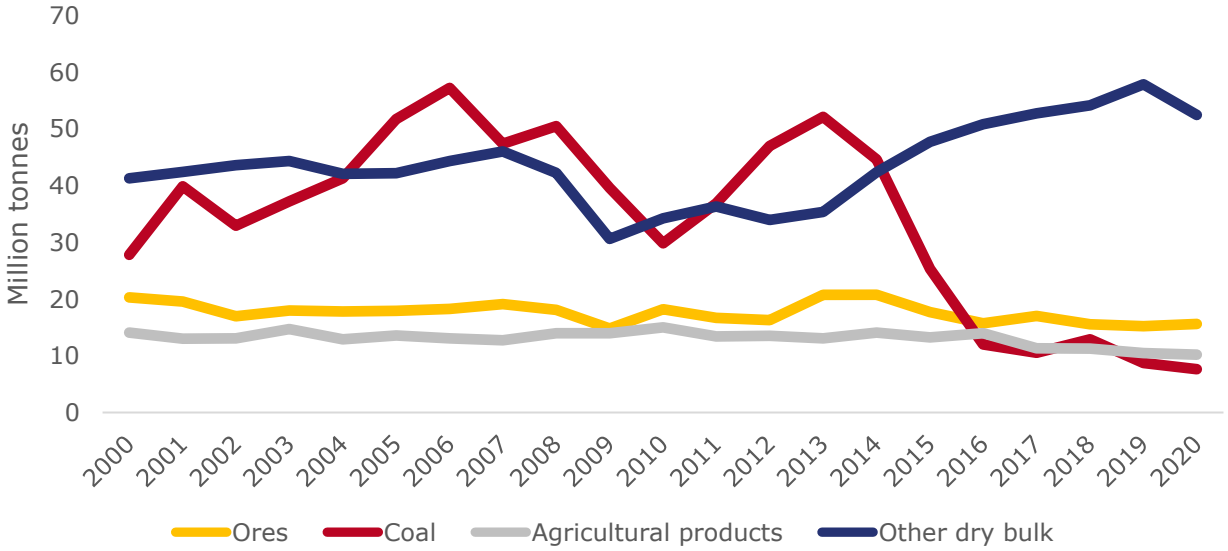

The first three quarters of 2021 saw almost exactly the same tonnage as the first three quarters of 2019, despite a 5% fall in units. New border processes could impact inbound throughput in 2022 although UK ports are ready and the impact is currently not expected to be significant.

# Dry Bulk

| | | | | | |
|---|---|---|---|---|---|
| 5% | Growth in 2021 Q3 against 2019 Q3 | 4.4m | Drop in 2020 tonnage | 4% | Q1-Q3 2021 total highest three quarter total since 2018 |

Dry bulk cargoes include ores, coal, agricultural products, and other products such as cement, wood chip and wood pellets. It generally includes any product that can be 'scooped' and it is carried in bulk ships. As UK energy production decarbonises, UK ports have seen a significant drop in coal volumes. A number of new biomass power stations have seen wood chip and wood pellet volumes – categorised as 'other dry bulk' – climb steadily.

**Dry Bulk Volumes, by category, both directions, 2000-2020**




## What happened in the pandemic?

Whilst agricultural products look broadly flat at -3% from 2019 to 2020, this hides a fall in outward flows of 30%. Imports of agricultural products grew by 10% in 2020, meeting demand. Exports of ores fell by 4% with ore imports – which make up around 70% of ore throughput – growing by 6%.

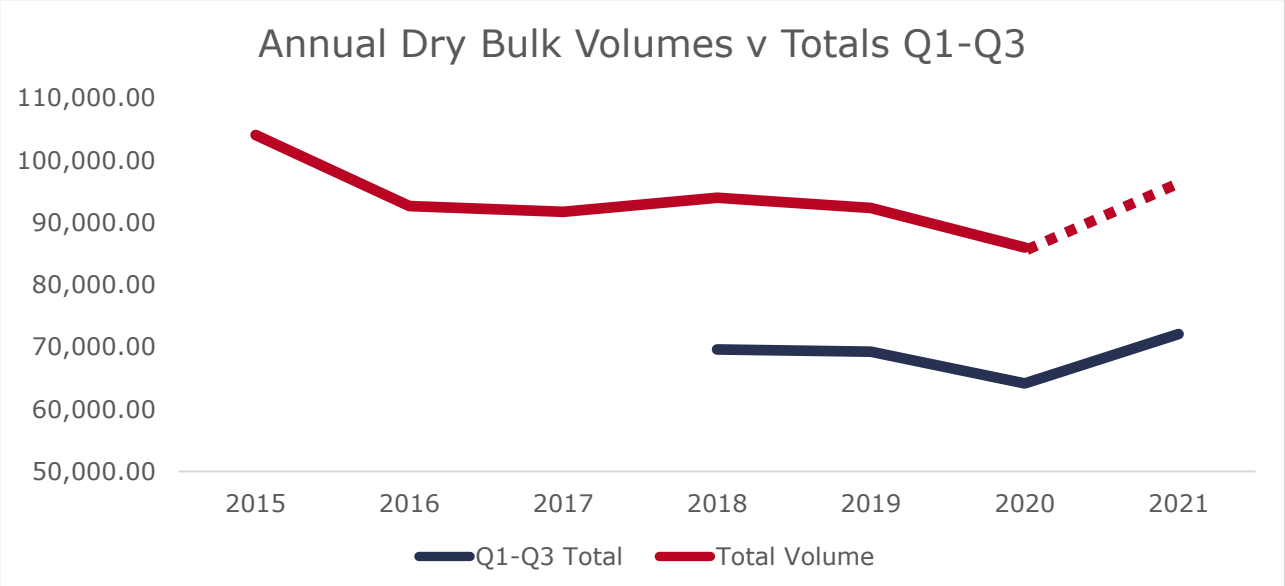
Coal imports fell by 19% whilst coal exports grew by 16%, albeit from a low base of just 1.6m tonnes. Other dry bulks fell by 9%. Given the large number of cargoes included in 'other dry bulks', it is difficult to speculate on what might be behind this fall, although a drop in construction output in Q2 2020 or warmer than average weather may have both had an impact.

## Change in Dry Bulk Volumes, 2019-2020, by category

| | | Freight Volumes (million tonnes) | | |
|---|---|---|---|---|
| | | 2019 | 2020 | 2020 Change |
| **Agricultural products** | Total | 10.5 | 10.2 | -3% |
| | Inward | 7.1 | 7.8 | 10% |
| | Outward | 3.4 | 2.4 | -30% |
| **Coal** | Total | 8.7 | 7.6 | -13% |
| | Inward | 7.1 | 5.8 | -19% |
| | Outward | 1.6 | 1.9 | 16% |
| **Ores** | Total | 15.2 | 15.6 | 3% |
| | Inward | 10.4 | 11.0 | 6% |
| | Outward | 4.8 | 4.6 | -4% |
| **Other dry bulk** | Total | 57.9 | 52.5 | -9% |
| | Inward | 45.6 | 41.0 | -10% |
| | Outward | 12.3 | 11.6 | -6% |
| **Total** | **All** | **92.4** | **86.0** | **-7%** |
| | Inward | 70.2 | 65.5 | -7% |
| | Outward | 22.2 | 20.4 | -8% |

## What has happened in 2021?

Dry bulk volumes Q3 2021 were 5% above pre-pandemic Q3 2019 levels, with Q1-Q3 totals the highest for any of the four years we have data aggregated at this level for. 2021 volumes could hit 96m tonnes, their highest since 2015 if they follow similar patterns in Q4 as they have previously.



# Annex A: Cargo Definitions

| Cargo Type | | What is it? | How is it measured? |
|---|---|---|---|
| **Unitised traffic** | Load on Load off **Container** (LoLo) | Your ubiquitous shipping container. Most are 40ft long but 20ft units and others are also included. Typically carried on specialised container ships.<br>40ft units made up 72% of boxes handled by the UK's largest container port, Felixstowe, in 2020. | In government statistics as a unit, regardless of size. Tonnage of the cargo is also collected.<br>Industry also often counts 'twenty-foot equivalent units' (TEU) |
| | **Roll-On Roll-Off** (RoRO) | This is cargo that is rolled onto the ship either, whether it is self-propelled or not. Some ferries carrying roro cargo will also carry passengers. This category covers trailers, whether accompanied by a driver or not, as well as vehicles for import/export, as well as passenger vehicles and rail wagons. | RoRo Freight is recorded as both units and tonnage |
| Liquid Bulk | | Liquid bulk is broken down into four sub-categories and carried by tankers.<br>• **Liquefied gas**, e.g. butane, propane and LNG<br>• **Crude oil**<br>• **Oil products** such as diesel, gasoil, jet fuel<br>• **Other liquid bulk**, e.g. juices, liquid fertilizer | Tonnes, with one barrel of oil equalling 0.14 tonnes. |
| Dry Bulk | | Any dry cargo that can be scooped, typically carried in the hold of a general cargo ship and handled with cranes or specialised loaders. Includes ores and scrap, coal, coke, bulk agricultural products such as grain or soya, aggregates, wood pellets. | Tonnes |
| Other / General Cargo | | Forestry products such as timber, iron and steel products and cargo not mentioned above that is transported in bags, barrels or palettes etc. | Tonnes |

*Source (and for more information, see) Department for Transport port freight statistics definitions*

# Sources & References

**References**

[i] UK Steel Industry: Statistics and policy, House of Commons Library Briefing CBP-7317.pdf (parliament.uk)

[ii] Trends in trade of Liquefied Natural Gas in the UK and Europe.pdf (publishing.service.gov.uk)

**Port Freight Statistics 2020: notes and definitions**

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1002364/port-freight-notes-and-definitions.pdf

**Port Freight Statistics: Quarterly trends**

The Department for Transport are trialling publishing estimates of cargo group alongside the quarterly port freight statistics. This new data is regarded as Experimental Statistics

PORT0502: UK major port traffic, total tonnage and units, by port: quarterly from 2009 (ODS, 444 KB)

PORT0503: UK major port traffic, total tonnage and units, by port: quarterly from 2018 (ODS, 540 KB)

PORT0400: Individual UK major port freight traffic by cargo type and route (filter by port and year) (ODS, 3.14 MB)

**MDS Transmodal**

- Containership Databank
- Ferry Databank

The BPA is grateful to MDS Transmodal who have made some of their data available to the BPA and its members as part their response to help the maritime and freight transport industries during the COVID-19 crisis. https://www.mdst.co.uk/