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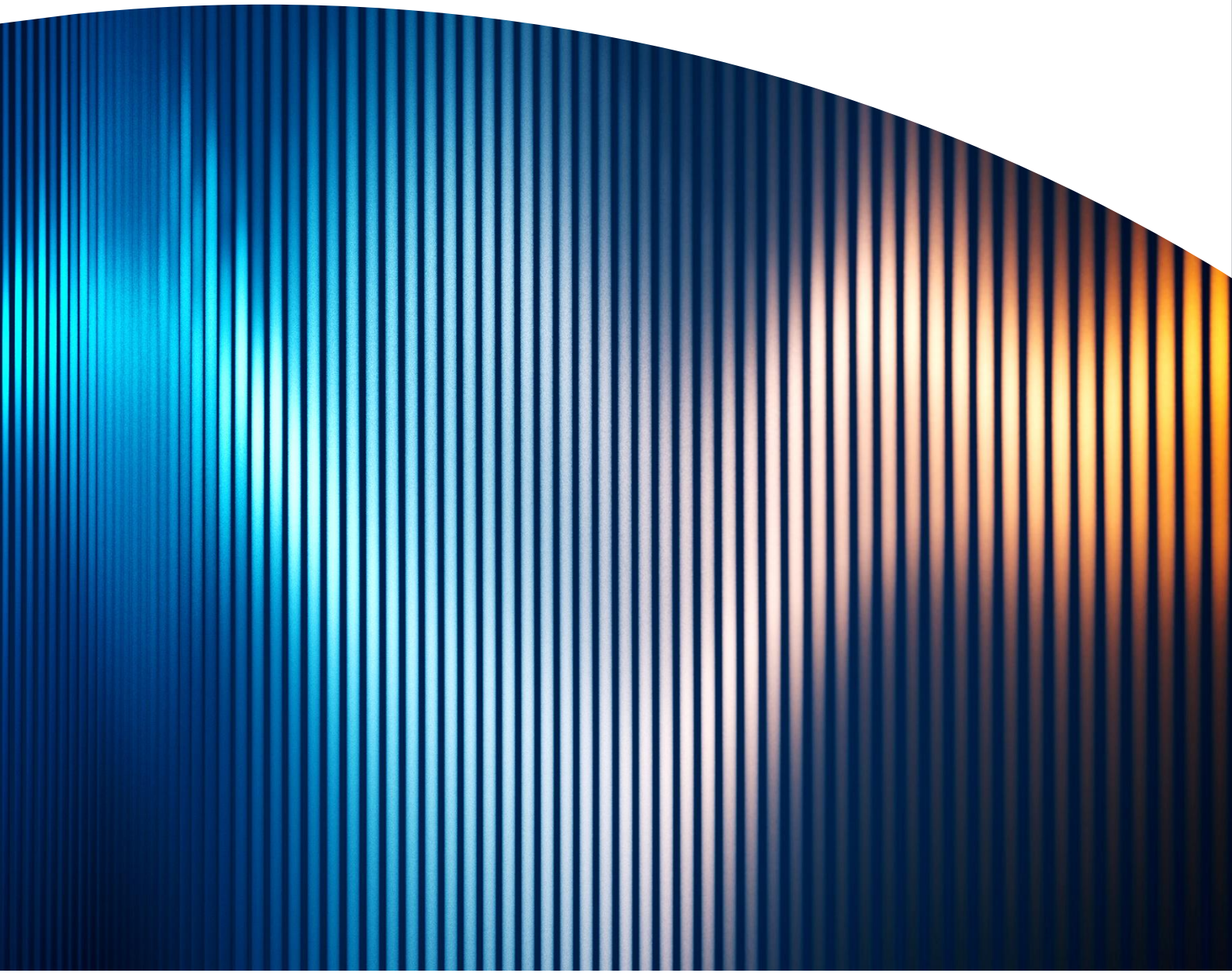
Transition Trends: International Shipping Emissions from 2018 to 2022

November 2024



About UMAS

UMAS is an independent commercial consultancy dedicated to catalysing the decarbonisation of the shipping industry. With our deep industry expertise, exceptional analytical capabilities and state-of-the-art proprietary models, we support our clients in navigating the complexities of this transition by providing groundbreaking data, analyses and insights. Internationally recognised for our work, UMAS delivers bespoke consultancy services for a wide range of clients including regulators, governments, NGOs and corporates.

For more information, please get in touch: enquires@umas.co.uk

About UCL

The UCL Energy Institute hosts a world leading research group which aims to accelerate the transition to an equitable and sustainable energy and trade system within the context of the ocean. The Shipping and Oceans Research Group's multi-disciplinary work on the shipping and ocean system leverages advanced data analytics, cutting-edge modelling, and rigorous research methods, providing crucial insights for decision-makers in both policy and industry. The group focuses on three core areas: analysing big data to understand the drivers of shipping emissions, developing models and frameworks to explore the path toward zero-emission shipping, and conducting social science research to examine the policy and commercial structures that enable the decarbonisation of the shipping sector.

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Acknowledgements

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This report was authored by Dr Tristan Smith (UCL) and Dr Haydn Francis (UMAS). The views expressed are those of the author, and do not necessarily represent those of the client.

Disclaimer

Contents

List of Abbreviations

AER	Annual Efficiency Ratio
AIS	Automatic identification System
DWT	Deadweight Tonnage
EEDI	Energy Efficiency Design Index
EEOI	Energy Efficiency Operational Index
EIV	Estimate Index Value
GHG	Greenhouse Gas
GT	Gross Tonnage
IMO	International Maritime Organization
MEPC	Marine Environment Protection Committee
SOG	Speed Over Ground
SEEMP	Ship Energy Efficiency Management Plan
TEU	Twenty Equivalent Units
UNCTAD	United Nations Conference on Trade and Development

Executive summary

Purpose and scope of this report

UMAS and UCL have worked to produce data and analysis relating to trends in international shipping emissions from 2018 to 2022. This work seeks to expand upon the findings of the IMO's Third and Fourth GHG Studies, which cover the period from 2008 to 2018, by providing an analysis of greenhouse gas and carbon intensity trends within the international shipping fleet from 2018 to 2022 using a unified methodology (UMAS and UCL produced the GHG inventories in the third and fourth GHG studies and have extended the model to now cover the period to 2022).

This report provides data describing overall trends in international shipping as well as more detailed information on specific vessel types that serve to illustrate the drivers of broader sectoral patterns in recent years. The more granular elements of the report focus specifically on the cruise, oil tanker, container, and bulk carrier fleets, which collectively account for more than 70% of GHG emissions in the sector[1].

The work in this report offers a valuable resource in understanding the response of the sector in the lead-up to the entry into force of short-term measures from the IMO (these were adopted in 2018 but entered into force in January 2023), and the impact of recent global and geopolitical events (e.g. the COVID-19 Pandemic) on the sector. This report will also contribute to the ongoing debates within the IMO regarding mid- and long-term measures aimed at reducing GHG emissions and carbon intensity.

Key findings

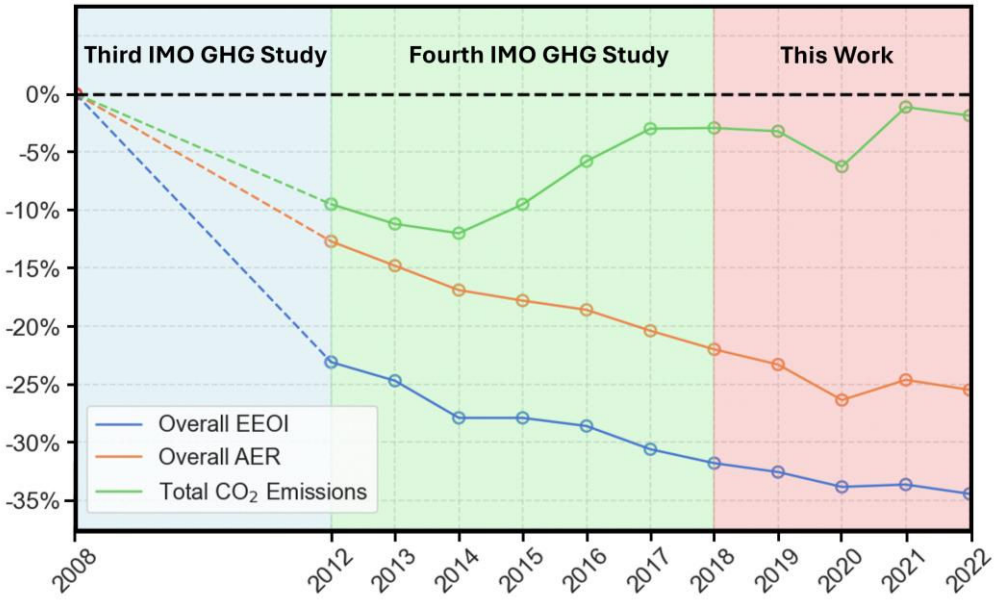
Total CO_2 emissions remained at approximately the 2008 level during the 2018-2022 period. The composite picture taking into account the results of the 3rd and 4th IMO GHG indicated a reduction in absolute emissions from international shipping in the period 2008-2014, rebounding back to 2008 levels by/around 2018, with emissions then holding at that level over the period to 2022.

Relative to 2008-2018, the changes of the key drivers (transport demand/work, and fleet carbon intensity) of emissions in the period 2018-2022 have stagnated. The 2018-2022 period shows only a very small increase in transport work and DWT nautical miles (1.4% p.a.) which is significantly lower than the ~3% p.a. growth observed from 2008-2018. Similarly, the trend in carbon intensity has slowed with an estimated 1.1% p.a. reduction from 2018 to 2022, contrasting with the average improvement of ~3% p.a. over the period 2008-2018 (higher p.a. improvements earlier in this period).

These observations are consistent with the broader narrative of events and drivers of change: the 2018-2022 period saw the Covid-19 era disruption to trade and shipping, followed by the slow recovery as supply chain disruption unwound and the global economy gradually returned to normal. This limited the total growth in demand/transport work over the period.

[1] As based on the GHG emissions reported in the 4th IMO GHG Study, vessel-based estimates.

Figure 1: Change in total CO_2 emissions and carbon intensity in international shipping from 2008-2022



Similarly, the rapid efficiency improvements achieved in 2008-2014, including both operational improvements induced through slow steaming and technology improvements such as 'eco ships' contributing to technical efficiency gains, appear to have plateaued. The absence of any driver beyond market forces, EEDI regulation and existence of market failures, limited the incentive to go beyond the 'lowest hanging fruit' in efficiency. In combination, low rates of total transport work increase and lower rates of GHG intensity improvement have cancelled each other out and resulted in negligible overall change in absolute emissions (2018-2022).

An overall finding is that the light regulation (EEDI, SEEMP) that existed during the period 2018-2022, in combination with market forces for that period (varying fuel prices and freight rates/prices), did not produce efficiency improvement or carbon intensity reduction that is in line with the IMO's revised strategy. This implies that the CII regulation that entered into force in 2023 needs to have both stringency and enforcement to drive strong efficiency improvements in line with the IMO's revised strategy, otherwise the efficiency opportunity will be left behind.

Looking into the specifics of trends in individual ship types and their constituent ship sizes reveals some further explanation for the lacklustre improvement in carbon intensity 2018-2022. Even over the period 2018-2022, many individual segments/markets of international shipping have seen reductions in productivity/utilisation – ships are spending more time at berth, less time at sea, and in many instances the 'median' ship is doing less useful transport work per year (when they are loaded, many ships have smaller cargoes in 2022 than in 2018). This is against a backdrop of continued ordering – tonnage has increased counter to the trends in decreasing demand for different segments (e.g. large oil tankers). This helps to explain how in one example (oil tankers) the overall trend 2018-2022 is for an improvement in AER (the carbon intensity measured assuming 100% utilisation of its cargo carrying capacity), whilst over the same period the EEOI has deteriorated. This is particularly important given EEOI is what matters when considering the long-run trend in absolute emissions as a function of demand for transport and shows it's critical not to take AER improvement as a positive sign if it is not also supported by a trend in EEOI improvement.

Fortunately, the explanation is also an opportunity – if demand in different segments of international shipping comes more into line with the fleet capacity/supply over the coming years, there is a lot of potential for higher utilisation and rapid improvement in operational carbon intensity as measured by EEOI – given average ship sizes are higher, technical efficiency of individual ships is (modestly) lower and average speeds are, at least in 2022, remaining low.

1. Introduction

1.1. Context

The Third (2014) and Fourth (2020) GHG Studies published by the International Maritime Organization (IMO) offer detailed analysis of greenhouse gas (GHG) emissions trends and carbon intensity drivers in international shipping from 2008 to 2018.[2,3] This report seeks to complement these previous studies by providing comparable data on GHG emissions and carbon intensity trends from 2018 to 2022, using a consistent methodology.

Between 2008 and 2012, as detailed in the Third GHG Study (2014), there was a general decrease in both overall GHG emissions and emissions intensity across the international fleet due to widespread decreases in time at sea and/or average sailing speeds. This trend was primarily ascribed to the acute and lasting effects of the global financial crisis in 2008 and the subsequent overcapacity of the fleet during a time of economic downturn allowing for more efficient operation. Concerns were raised regarding the underutilisation of the growing fleet and the risk of latent emissions becoming real emissions as the economy continued to recover.

The Fourth IMO GHG Study, covering the period from 2012 to 2018, indicated that while carbon intensity continued to improve across most parts of the sector in line with fleetwide increases in average ship size as well as improved design and operational efficiency, the pace of reduction slowed significantly towards the end of the period. In addition, despite an initial decrease in total CO_2 emissions from 2012-2014, by 2018 total CO_2 emissions were returning to near 2008 levels as overall transport work continued to grow in line with demand.

Trends also varied across ship types, with bulk carriers showing a significant increase in total transport work, leading to a rebound in total CO_2 emissions to close to 2008 levels by 2018. This was despite the bulk carrier showing the greatest improvement in carbon intensity compared to 2008 levels of the four vessel types studied, a trend that was linked to large improvements in design efficiency in this period. The container sector saw consistent increases in levels of total annual transport work, resulting in total CO_2 emissions surpassing 2008 levels by 2018. This was despite improvements in emissions intensity over the same period driven by increasing vessel sizes.

Oil tankers, characterized by slight increases in average ship size and total annual transport work from 2012-2018, showed a similar improvement in emissions intensity alongside a steady rise in total CO_2 emissions from 2014 onwards but remained well below 2008 levels up to 2018. These findings underscore the complexities of emissions dynamics within the shipping industry and the importance of targeted interventions to achieve emissions reduction goals.

By centring on the 2018-2022 period, the present report offers data to enable an analysis of trends in the period immediately following the preceding IMO studies. The 2018 to 2022 period is of particular importance as it encompasses the period between the announcement the announcement of the IMO's Initial GHG Strategy and the implementation of short-term measures, most of which began being enforced in late 2022 / early 2023. In addition, an understanding of emissions trends in this period can facilitate an understanding of the nature of perturbations caused by geopolitical and global events during this time (e.g. COVID-19

[2] **International Maritime Organization (IMO)**. (2014). *Third IMO GHG Study 2014*

[3] **International Maritime Organization (IMO)**. (2020). *Fourth IMO GHG Study 2020*

pandemic and the Russian invasion of Ukraine), both in terms of their immediate impacts and their potential influence on long-term trends within the maritime sector.

This report provides data describing aggregate trends in international shipping as well as homing in on developments in specific segments, which provide illustrative examples of drivers behind broader emissions intensity trends. The aggregate data offers a comprehensive overview of emissions patterns within the international shipping sector to aid holistic analysis of the industry's performance. The vessel type-specific data analysis focuses on the cruise, oil tanker, bulk carrier, and container fleets. The oil tanker, bulk carrier, and container segments are included in detail as these represent the three segments with the highest total fuel consumption and emissions of the international fleet—collectively accounting for nearly two-thirds of total emissions from the sector.

The cruise segment is also spotlighted due to its distinct market drivers and dynamics compared to cargo-carrying segments, the variation this may cause in response to recent global events, and to provide insight into the passenger-carrying portion of the international fleet. The analysis in this report considers only cruise vessels larger than 60,000 GT as this is where the model used for this work is most accurate and encompasses more than 70% of emissions from the cruise sector.

Identifying and understanding trends in GHG emissions and emissions intensity within the maritime sector is crucial for informing future policy and regulatory decisions, particularly amidst ongoing discussions at the IMO regarding mid- and long-term measures to target emissions reductions. The recent adoption of the 2023 Revised GHG Strategy at MEPC80, which targets net-zero emissions by 2050 (with interim targets in 2030 and 2040) underscores the urgency of understanding and addressing emissions trends within the shipping sector.

Given that the IMO currently regulates ships based on their carbon intensity index (CII), a thorough examination of trends in carbon intensity is essential for developing effective regulatory frameworks aligned with the IMO's ambitious emissions reduction goals. By identifying key trends and drivers of emissions intensity, policymakers can tailor interventions to accelerate progress toward decarbonisation while ensuring sustainability, competitiveness, and equity. Insights derived from the data presented in this report will play a pivotal role in shaping IMO discussions and guiding the implementation of impactful measures to achieve emissions reduction targets.

1.2. Methodology

1.2.1. FUSE data Comparison to Fourth IMO GHG Study

All of the data presented was modelled using the proprietary FUSE (Fuel Use Statistics and Emissions) platform. FUSE is a cloud-based platform that leverages Spire AIS data to provide operational and market insights into the performance of vessels. These outputs are in turn packaged into performance/activity statistics at a variety of levels of aggregation.

The FUSE model functions based upon the methodology that was designed for a bottom-up estimation of fleet emissions and intensity performance in the Fourth IMO GHG Study—a detailed description of the method is provided in Chapter 2 of that report. As such, the key assumptions and uncertainties in the methodology used to generate the data presented in this work are comprehensively described in the relevant sections of the Fourth IMO GHG Study (Sections 2 and 3). In particular, cargo estimates and parameters based on these estimates (e.g. transport work, EEOI, ballast / laden distances, etc.) are known to contain significant uncertainty. All annual activity statistics for each year are based on all active vessels in our

database, including newbuild vessels that may enter into operation partway through the year. This inclusion of newbuild vessels leads to trends in days at sea and days at berth that often do not correlate as they would if only vessels active for the entire year were considered. This is due to new vessels having fewer total operational days, depending on when they entered service, which affects the overall trend analysis.

The Third IMO GHG Study allocated ship activity by assigning vessels within the international fleet to domestic and international services, based on the activity vessels within specific segments were most likely to conduct. The same assignment methodology was used in the Fourth IMO GHG Study (as well as an additional voyage-based processing method). To allow for meaningful comparison to the results of these previous studies, the same vessel-based method for the assignment of domestic and international shipping activity is applied in generating the data in this report (see Table 1).

Table 1: Allocation of vessel types and sizes according to assumed international or domestic shipping activity

International		Domestic	
Vessel Type	**Vessel Sizes (unit)**	**Vessel Type**	**Vessel Sizes (unit)**
Bulk Carrier	All sizes	Ferry – pax only	0-1,999 (GT)
Chemical tanker	All sizes	Ferry – ro-pax	All sizes
Container	All sizes	Yacht	All sizes
General cargo	All sizes	Service – tug	All sizes
Liquefied gas tanker	All sizes	Miscellaneous - fishing	All sizes
Oil tanker	All sizes	Offshore	All sizes
Other liquids tankers	All sizes	Service – other	All sizes
Ferry – pax only	>2,000 (GT)	Miscellaneous - other	All sizes
Ro-ro	All sizes		
Vehicle	All sizes		

The only notable difference between the methodology used to generate the data in this work for the 2018-2022 period and that presented in the Fourth GHG Study for the 2012-2018 period is that the current data includes only vessels for which there is a matching IMO number in both the IHS database and the AIS dataset (defined as 'Type 1' in the Fourth IMO GHG Study). In contrast, the Fourth IMO GHG Study used three extra matching criteria to include vessels that are present in the AIS dataset but do not have a valid IMO number. Using only the matching criteria applied in this work encompasses the majority of vessels in most segments, with the biggest discrepancies occurring for vessels in the smallest size categories.

Throughout this work, vessels are categorised by their type and size. Table 2 shows the vessel type categories considered in this work, which are identical to those used in the Third and Fourth IMO GHG Studies, and the definition of the size bins that are referred to in this report.

Table 2: Definition of size bins for all vessel type

Vessel Type	Size Bin	Size Bands	Size Units
Bulk carrier	1	0-9999	DWT
	2	10000-34999	DWT
	3	35000-59999	DWT
	4	60000-99999	DWT
	5	100000-199999	DWT
	6	200000+	DWT
Chemical tanker	1	0-4999	DWT
	2	5000-9999	DWT
	3	10000-19999	DWT
	4	20000-39999	DWT
	5	40000+	DWT
Container	1	0-999	TEU
	2	1000-1999	TEU
	3	2000-2999	TEU
	4	3000-4999	TEU
	5	5000-7999	TEU
	6	8000-11999	TEU
	7	12000-14499	TEU
	8	14500-19999	TEU
	9	20000+	TEU
Cruise	4	6000-99999	GT
	5	100000-149999	GT
	6	150000+	GT
Ferry-RoPax	1	0-1999	GT
	2	2000-4999	GT
	3	5000-9999	GT
	4	10000-19999	GT
	5	20000+	GT
Ferry-pax only	1	0-299	GT
	2	300-999	GT
	3	1000-1999	GT
	4	2000+	GT

Vessel Type	Size Bin	Size Bands	Size Units
General cargo	1	0-4999	DWT
	2	5000-9999	DWT
	3	10000-19999	DWT
	4	20000+	DWT
Liquefied gas tanker	1	0-4999	CBM
	2	5000-9999	CBM
	3	10000-19999	CBM
	4	20000+	CBM
Oil tanker	1	0-4999	DWT
	2	5000-9999	DWT
	3	10000-19999	DWT
	4	20000-59999	DWT
	5	60000-79999	DWT
	6	80000-119999	DWT
	7	120000-199999	DWT
	8	200000+	DWT
Other liquids tankers	1	0-999	DWT
	2	1000+	DWT
Refrigerated bulk	1	0-1999	DWT
	2	2000-5999	DWT
	3	6000-9999	DWT
	4	10000+	DWT
Ro-Ro	1	0-4999	GT
	2	5000-9999	GT
	3	10000-14999	GT
	4	15000+	GT
Vehicle	1	0-29999	GT
	2	30000-49999	GT
	3	50000+	GT

1.2.2. Comparison to Fourth IMO GHG Study

Specific parameters are benchmarked against 2008 levels based on data published in the Fourth IMO GHG Study. Since the Fourth IMO GHG Study and this work use different vessel identification criteria (Type 1-4 vs. Type 1 only), the datasets contain different vessels. Consequently, the absolute values of parameters at the fleet or vessel-type level cannot be directly compared. In this work, comparisons to the 2008 baseline for various parameters are made by examining the percentage change between 2008 and 2018, as presented in the Fourth IMO GHG Study, and comparing it to the percentage change from 2018 to 2022, as estimated here. For each comparison, this work uses the same vessel types and size aggregations as those used in the Fourth IMO GHG.

1.2.3. Validation

To provide broad validation of the model outputs on which this report is based, the trends have been compared to relevant results from UNCTAD's Review of Maritime Transport from 2022 and 2023.[4,5] The fleet and operational analysis provided in the 2022 Review of Maritime Transport is largely based on data provided by Marine Benchmark, whereas the 2023 Review of Maritime Transport is mostly based on data from Clarksons Research. Neither report provides a basis for a full comparison of all the trends presented in this work. For this reason, the validation focusses only on areas where there is clear overlap of the metric tracked and the portion of the fleet considered between the UNCTAD reports and the current analysis.

The overall trends in the capacity of the global fleet and the total amount of international trade between 2018 and 2022 are largely consistent with those presented in both the 2022 and 2023 Review of Maritime Transport by UNCTAD. An exception is the estimate for total transport work carried out by the global fleet in this work, which shows a slight decrease in 2019, differing from the small growth in total cargo transported and transport work presented in the Review of Maritime Transport reports.

The UNCTAD reports provide more granular data on the container fleet than for other ship types, including disaggregation by vessel size for some parameters. Trends in the total cargo (weight) transported by the container fleet show slight differences, with the Review of Maritime Transport 2022 and 2023 indicating consistent year-on-year growth aside from 2019-2020, while this analysis shows a consistent decrease in total transport work from 2018-2020. However, the trends in total CO_2 emissions and emissions intensity for 2018-2022 match well between both UNCTAD reports and this work. Trends in average distance sailed for container vessels are also largely consistent. The Review of Maritime Transport 2022 estimates more dramatic reductions in average speed during the pandemic, though the direction of change is largely consistent with this work as is the variation in average speed within different container ship size categorisations over this period.

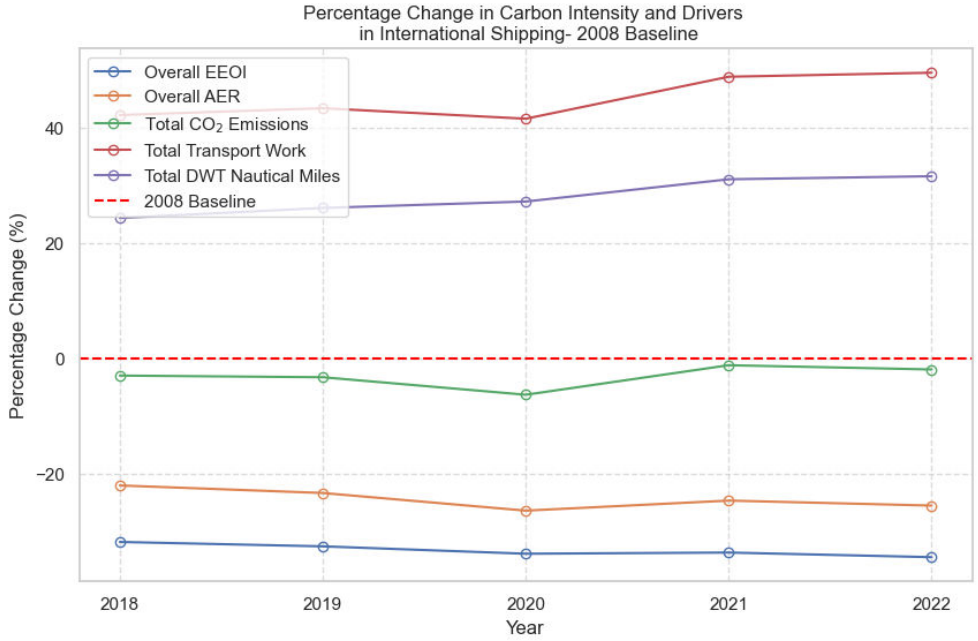
For both the oil tanker and bulk carrier sectors, total trade trends in terms of cargo weight and transport work are largely comparable between this work and the UNCTAD reports. However, this work estimates a steeper decline in total transport work for oil tankers from 2018-2022. Total CO_2 emissions trends for 2018-2022 agree well in both direction and magnitude for these segments, although this work estimates more of a significant slowing in the growth of total emissions during the pandemic for oil tankers than is presented in the Review of Maritime Transport 2022. Emissions intensity and total trade volume trends largely match in both direction and magnitude for both sectors between this work and both UNCTAD reports. Estimates of distance sailed deviate between the two sources; this work shows a slight decrease in the average distance sailed from 2018-2022, while the Review of Maritime Transport 2023 shows an increase of a similar magnitude. It should be noted that the Review of Maritime Transport reports often use categorisations of 'tankers' and 'bulk and general cargo', which are broader in scope than the 'oil tanker' and 'bulk carrier' assignments used in this work. This difference in the scopes of vessels may be a cause of some of the disagreement between the work presented and the UNCTAD reports.

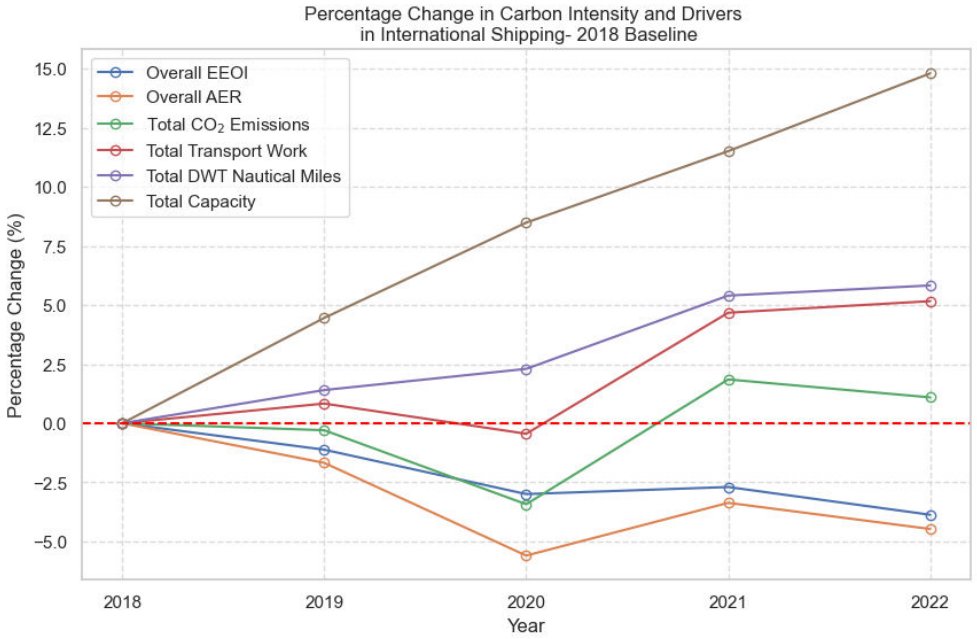
[4] **United Nations Conference on Trade and Development (UNCTAD)**. (2022). *Review of Maritime Transport 2022*

[5] **United Nations Conference on Trade and Development (UNCTAD)**. (2023). *Review of Maritime Transport 2023*

2. Results

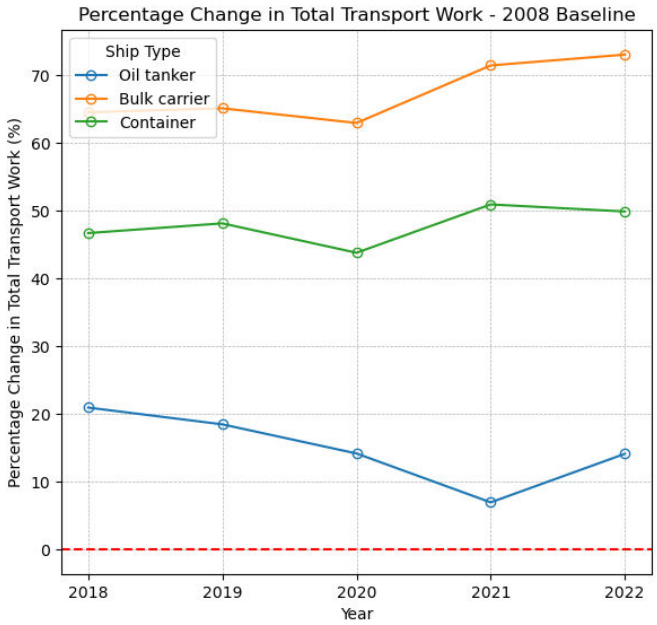
2.1. Aggregate International Fleet Data

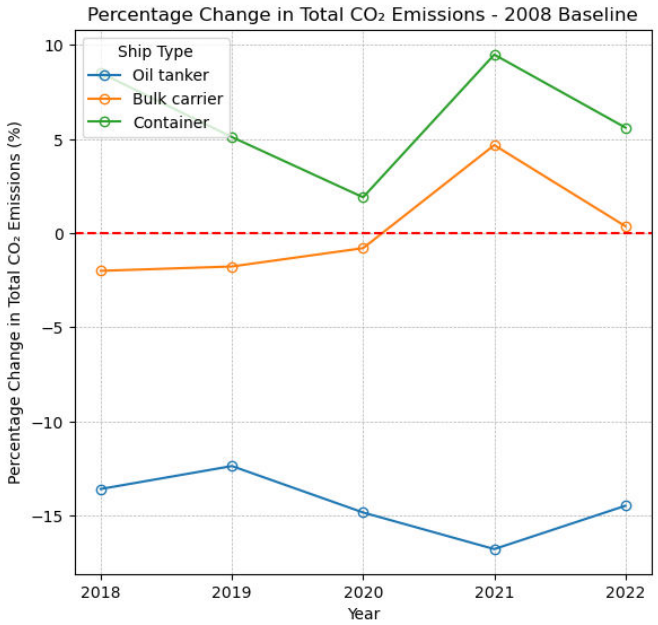


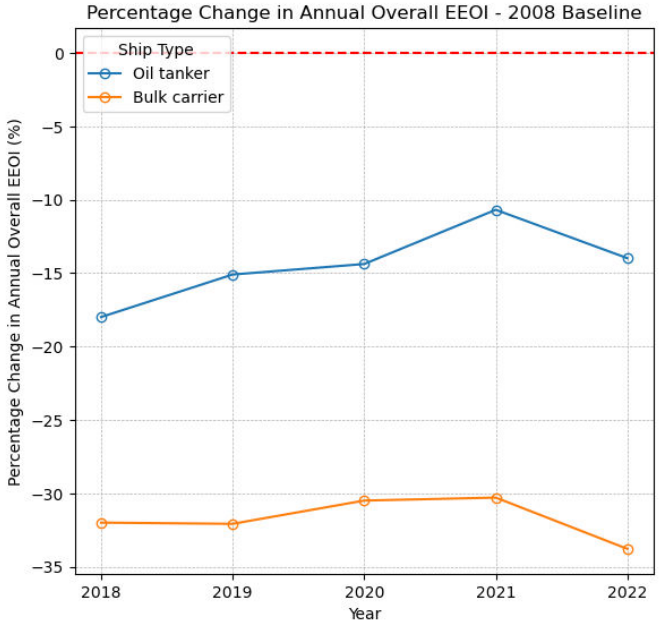


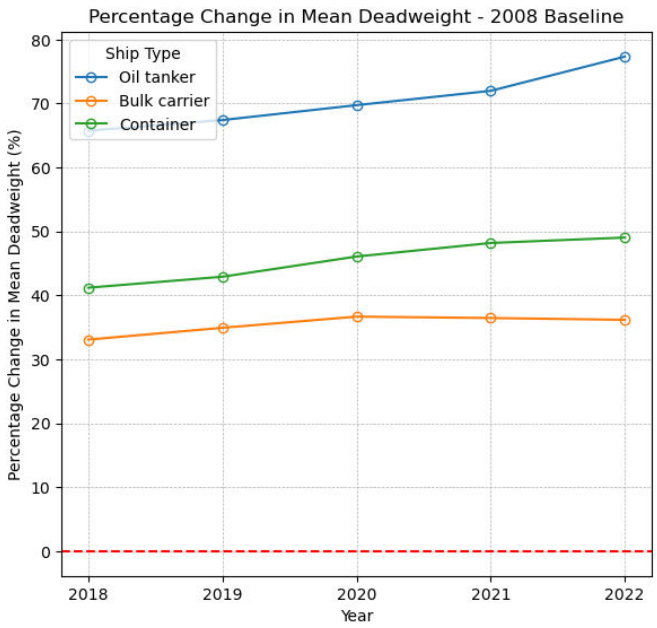
2.2. Vessel Type Data

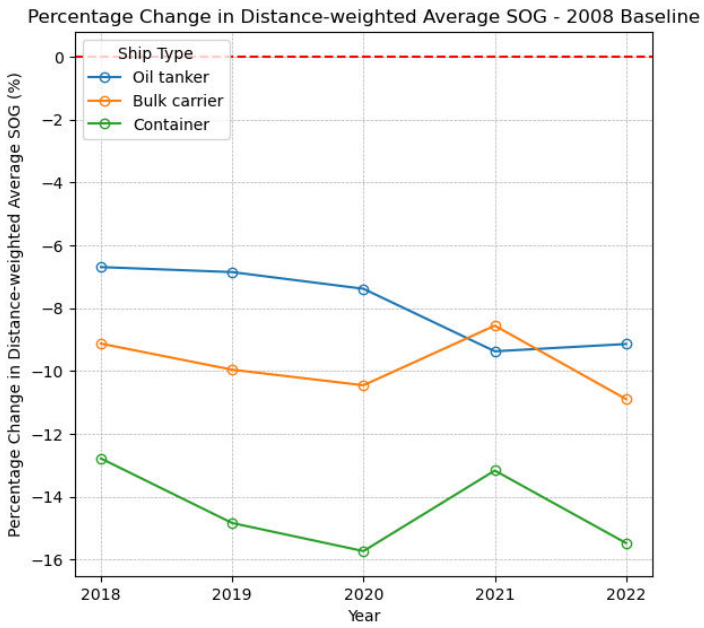
2.2.1. 2008 Baseline



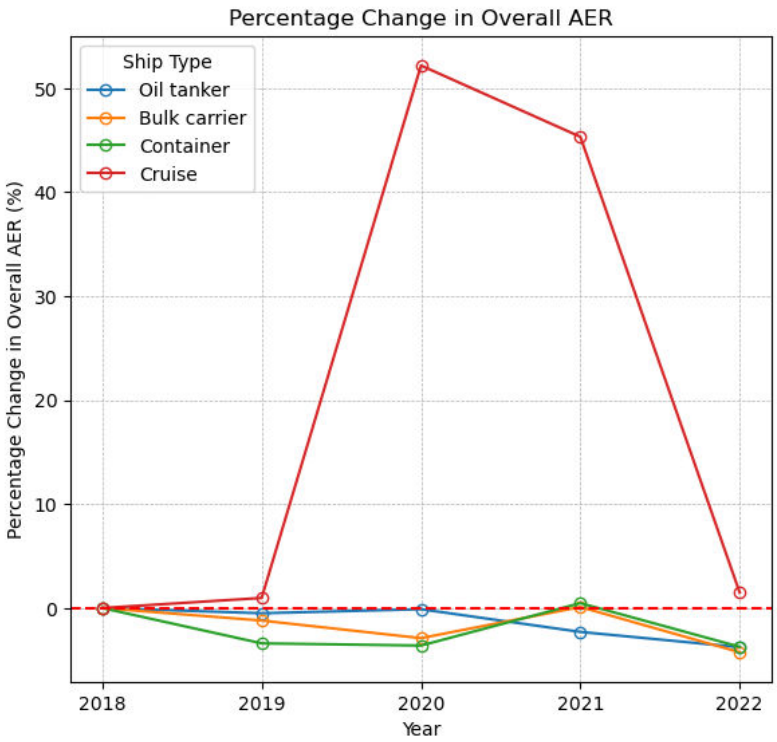


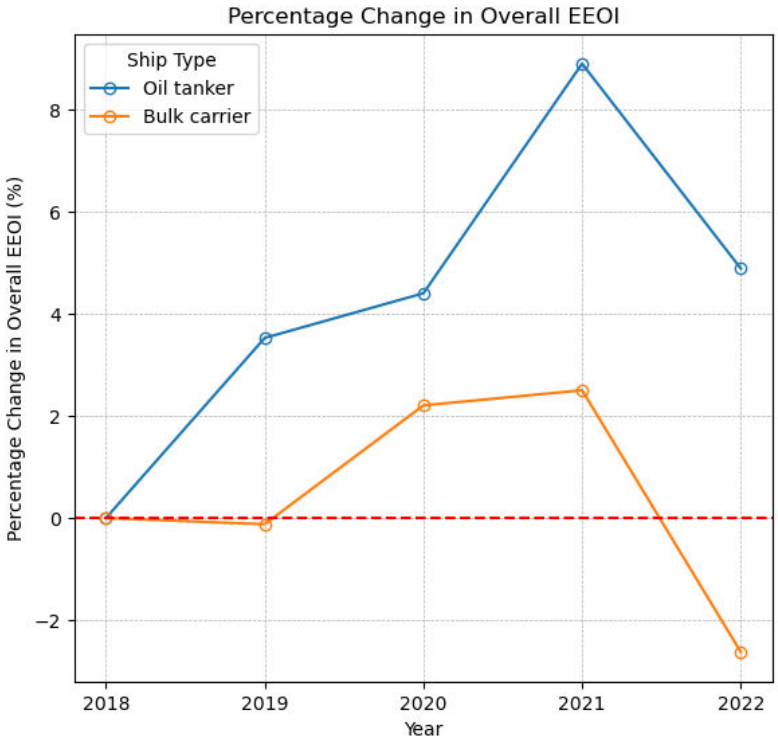



Percentage Change in Mean Deadweight - 2008 Baseline
Ship Type
Oil tanker
Bulk carrier
Container
Percentage Change in Mean Deadweight (%)
80
70
60
50
40
30
20
10
0
2018
2019
2020
2021
2022
Year

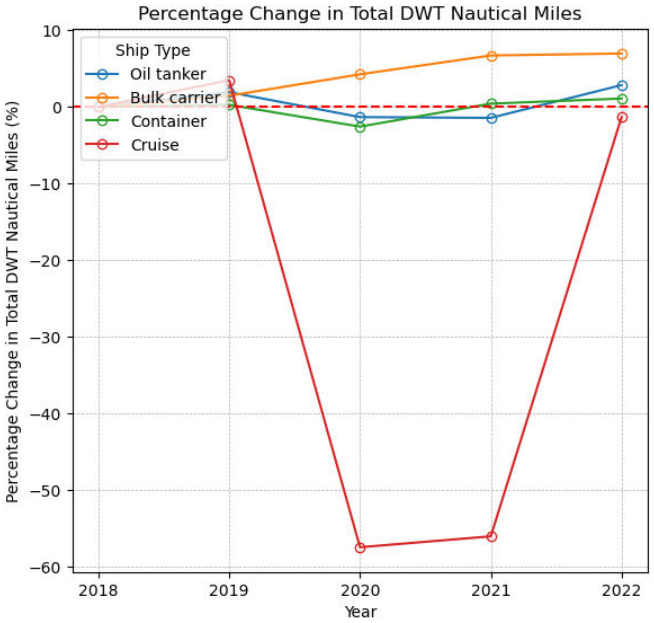

Percentage Change in Distance-weighted Average SOG - 2008 Baseline
Ship Type
Oil tanker
Bulk carrier
Container
Percentage Change in Distance-weighted Average SOG (%)
0
−2
−4
−6
−8
−10
−12
−14
−16
2018
2019
2020
2021
2022
Year

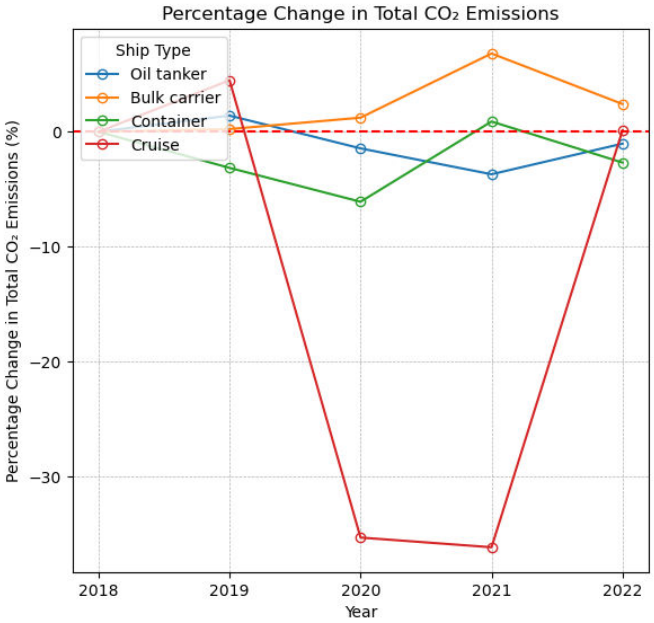
2.2.2. 2018 Baseline

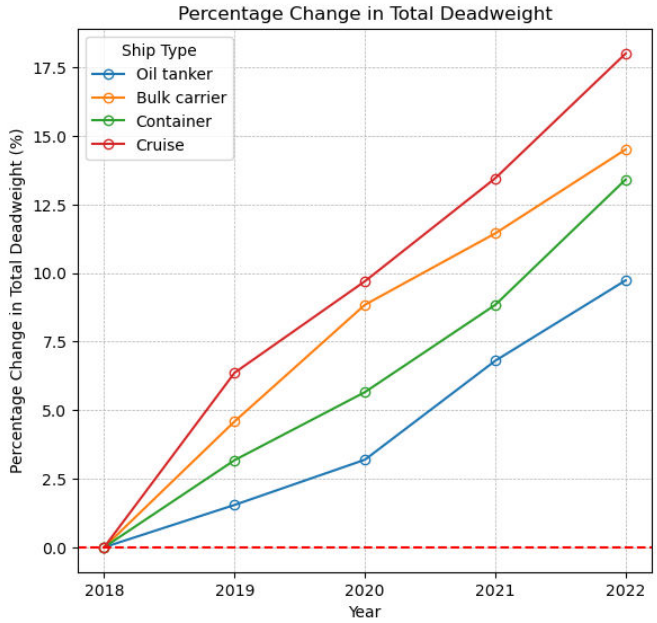


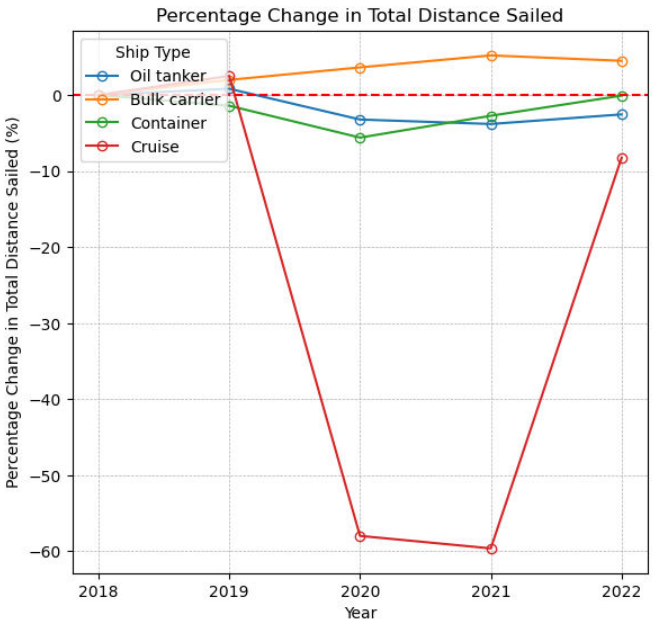


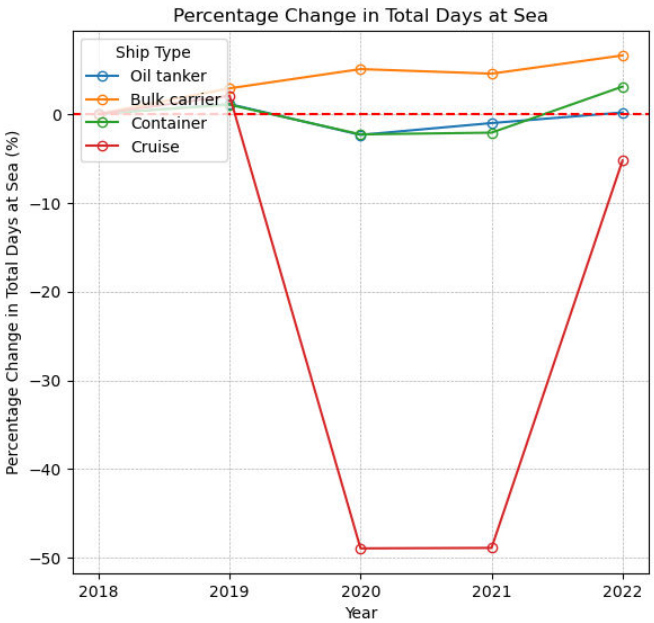
Total

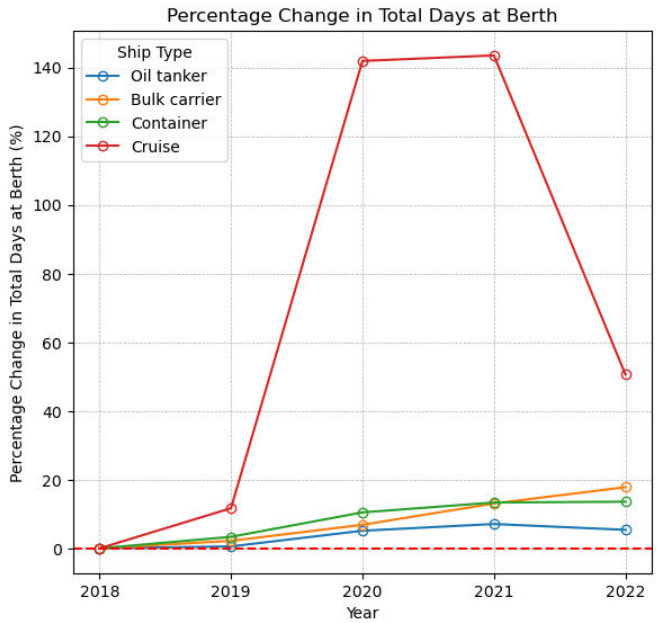

Percentage Change in Total DWT Nautical Miles
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Total DWT Nautical Miles (%)
Year


Percentage Change in Total CO₂ Emissions
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Total CO₂ Emissions (%)
Year

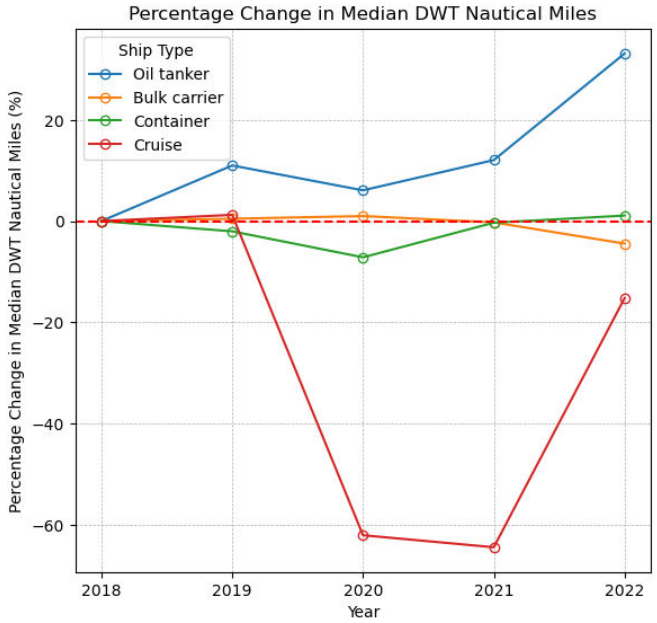

Percentage Change in Total Deadweight
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Total Deadweight (%)
Year

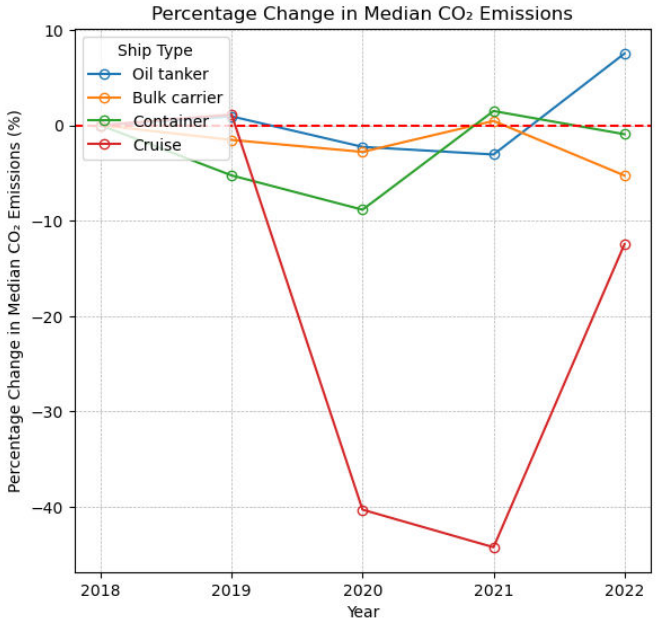

Percentage Change in Total Distance Sailed
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Total Distance Sailed (%)
Year

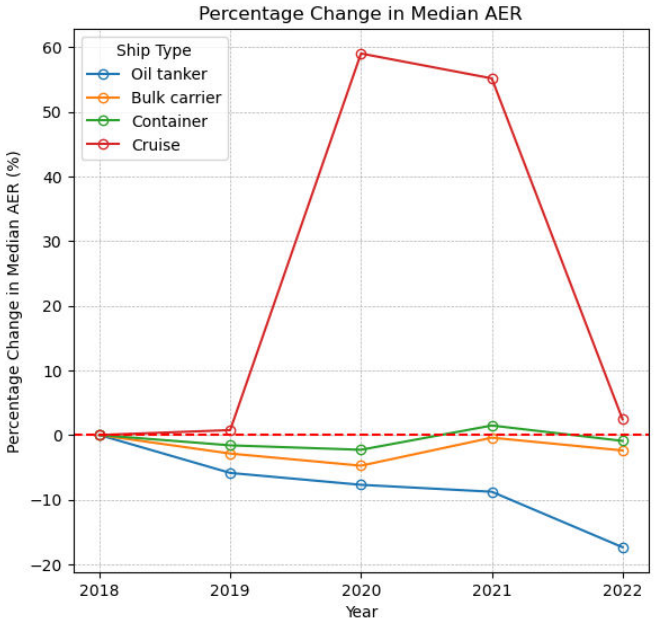

Percentage Change in Total Days at Sea
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Total Days at Sea (%)
Year

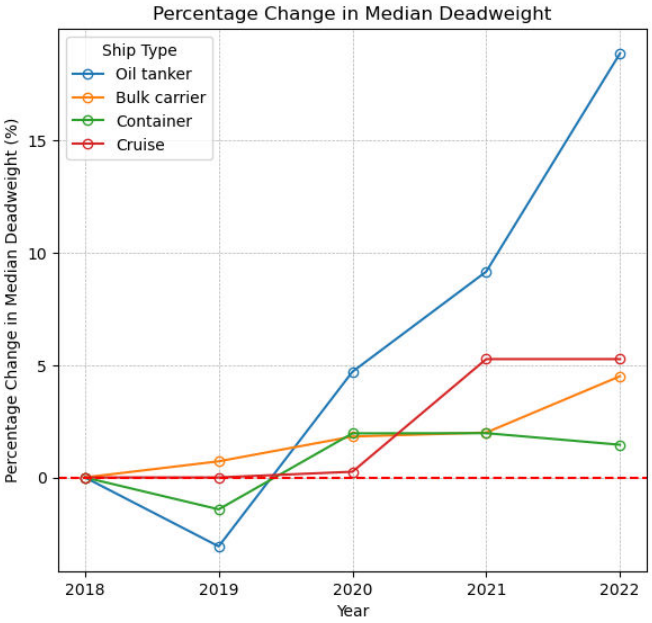

Percentage Change in Total Days at Berth
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Total Days at Berth (%)
Year

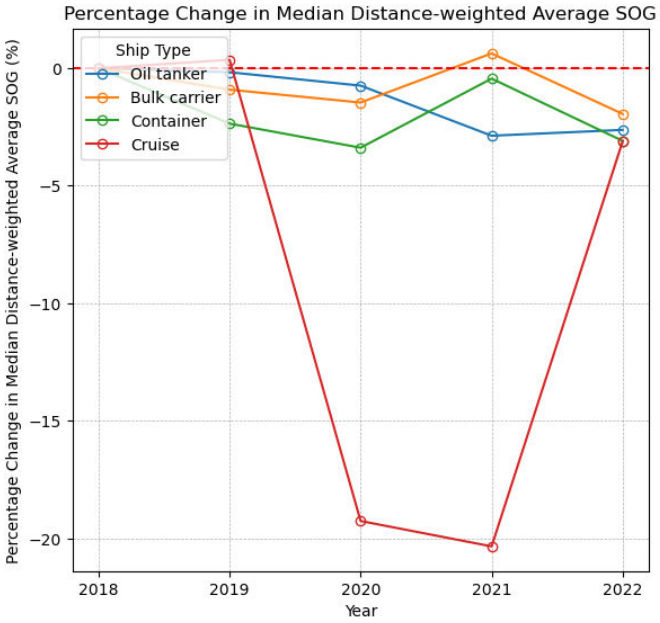
Median

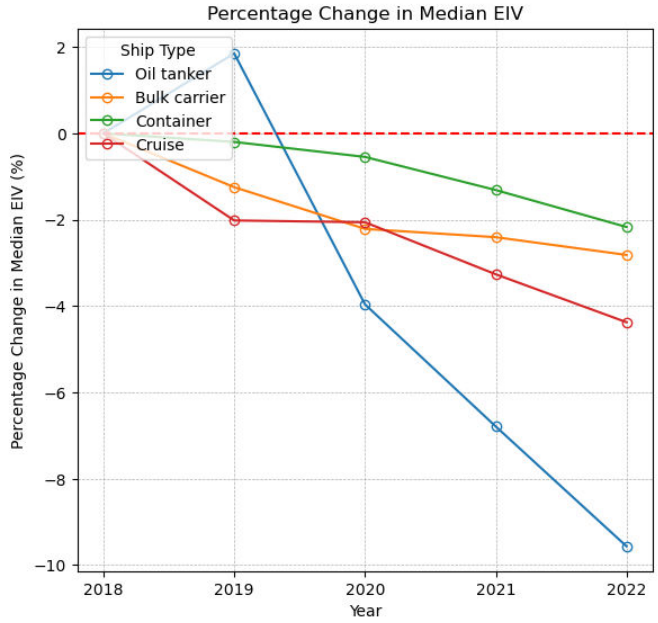

Percentage Change in Median DWT Nautical Miles
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Median DWT Nautical Miles (%)
Year

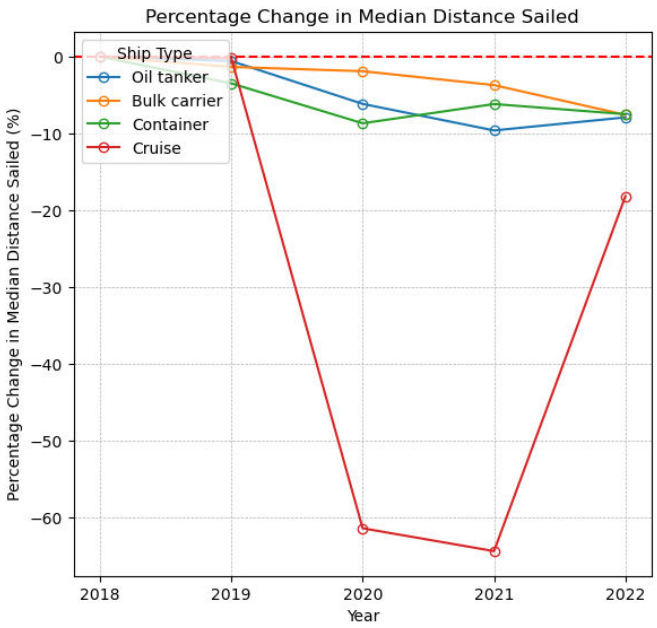

Percentage Change in Median CO₂ Emissions
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Median CO₂ Emissions (%)
Year

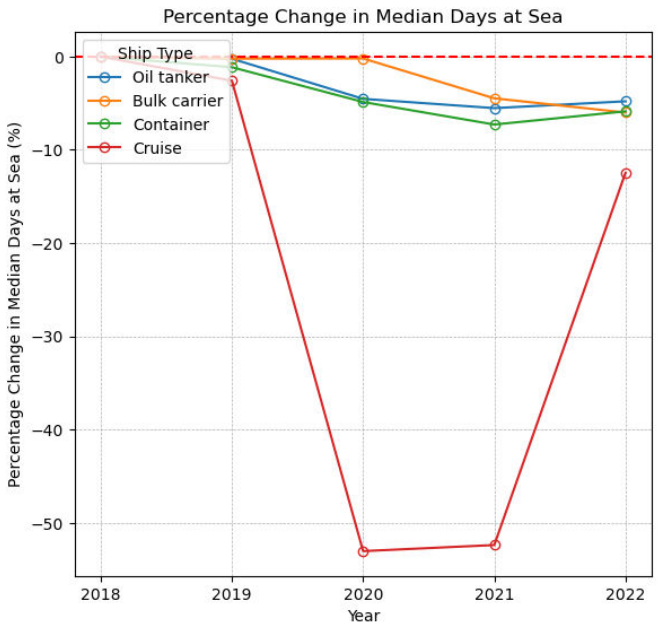

Percentage Change in Median AER
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Median AER (%)
Year

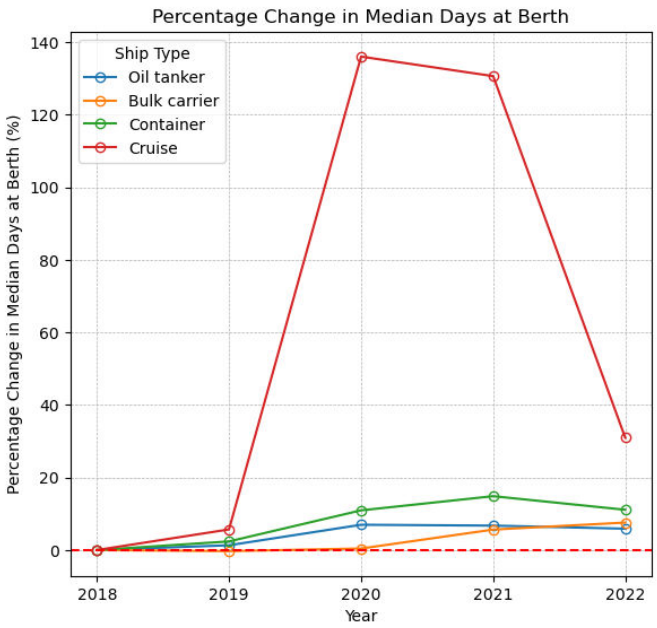

Percentage Change in Median Deadweight
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Median Deadweight (%)
Year


Percentage Change in Median Distance-weighted Average SOG
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Median Distance-weighted Average SOG (%)
Year


Percentage Change in Median EIV
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Median EIV (%)
Year

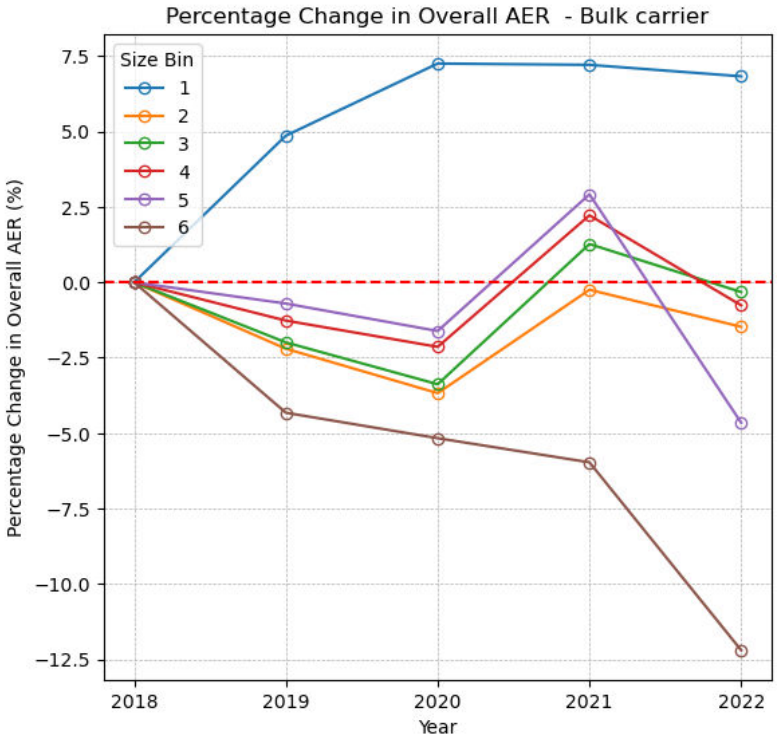

Percentage Change in Median Distance Sailed
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Median Distance Sailed (%)
0
−10
−20
−30
−40
−50
−60
2018
2019
2020
2021
2022
Year

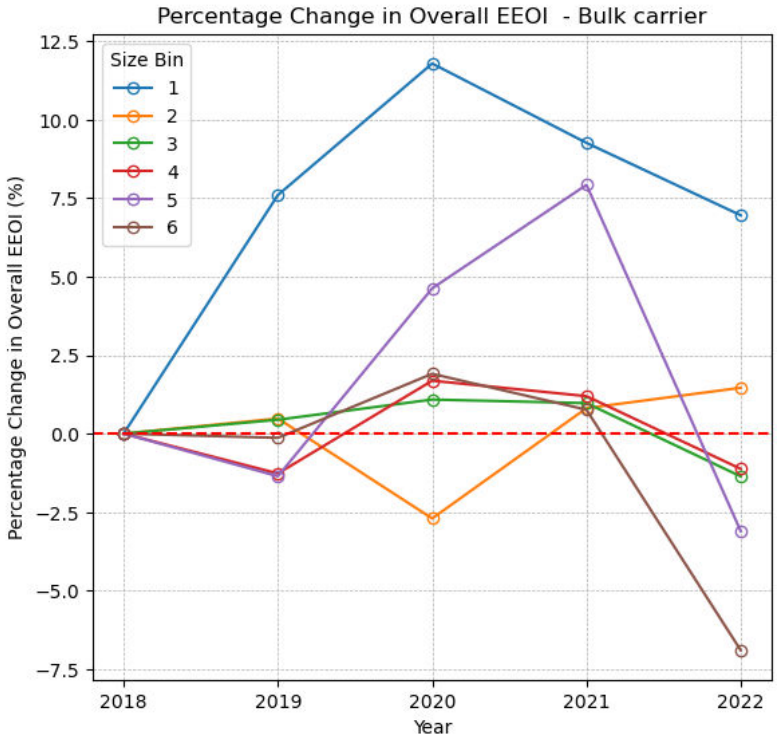

Percentage Change in Median Days at Sea
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Median Days at Sea (%)
0
−10
−20
−30
−40
−50
2018
2019
2020
2021
2022
Year


Percentage Change in Median Days at Berth
Ship Type
Oil tanker
Bulk carrier
Container
Cruise
Percentage Change in Median Days at Berth (%)
140
120
100
80
60
40
20
0
2018
2019
2020
2021
2022
Year

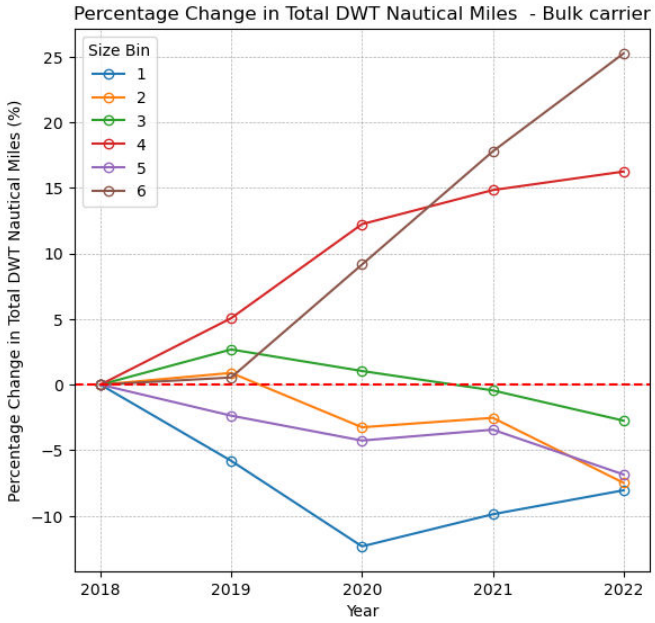
2.3. Vessel Type Data

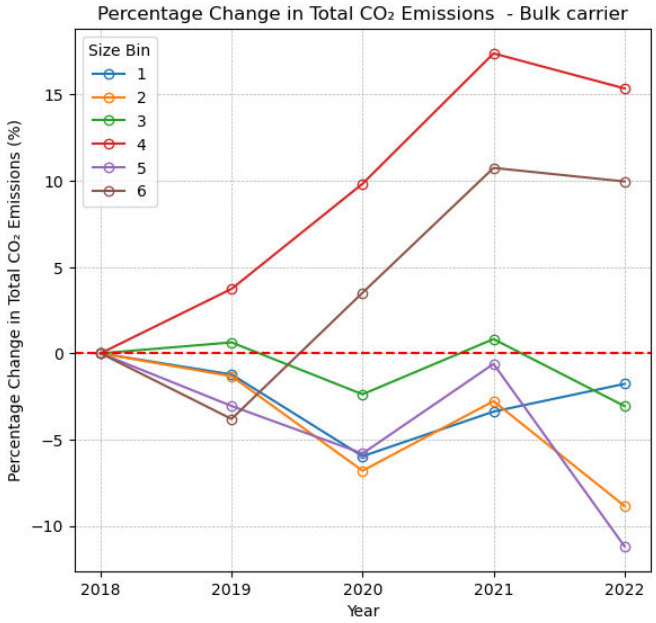
2.3.1. Bulk Carriers

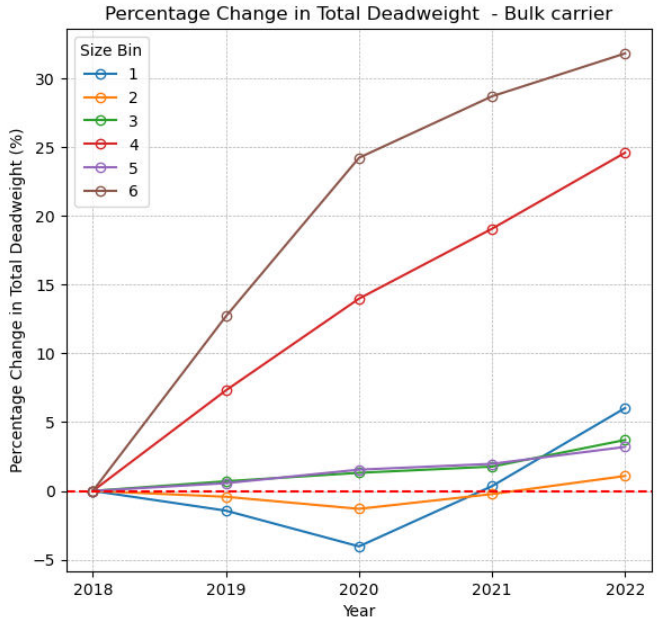


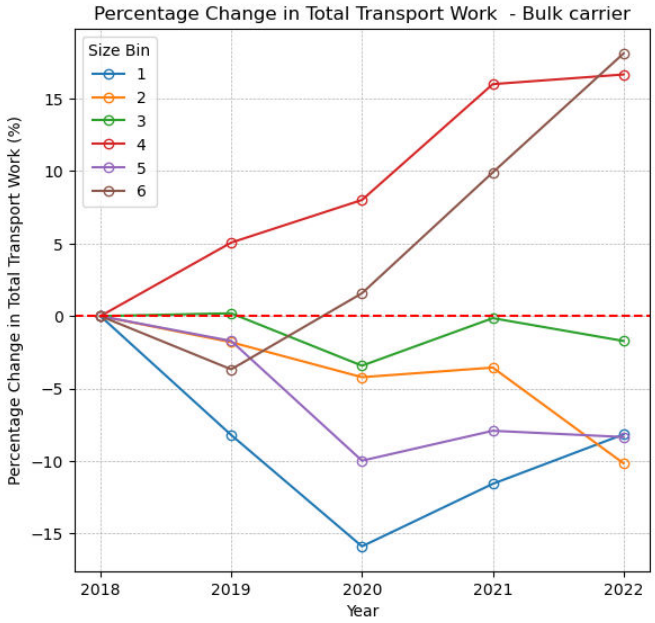


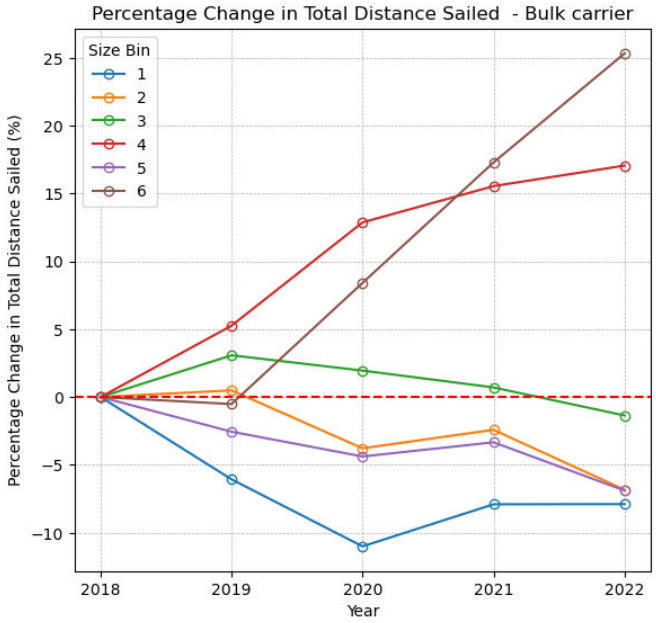
Total

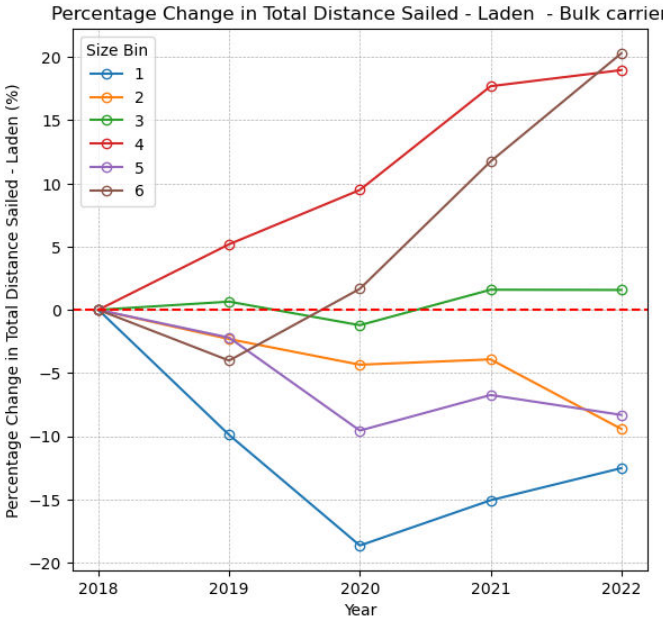

Percentage Change in Total DWT Nautical Miles - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Total DWT Nautical Miles (%)
Year

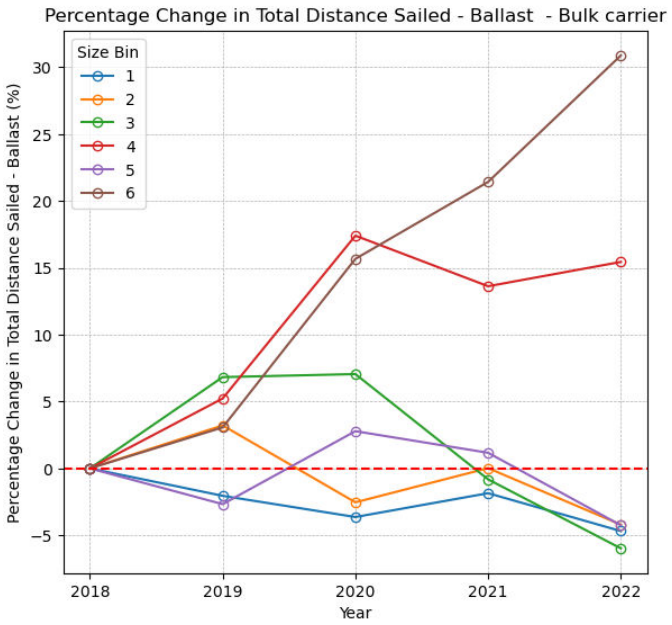

Percentage Change in Total CO₂ Emissions - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Total CO₂ Emissions (%)
Year

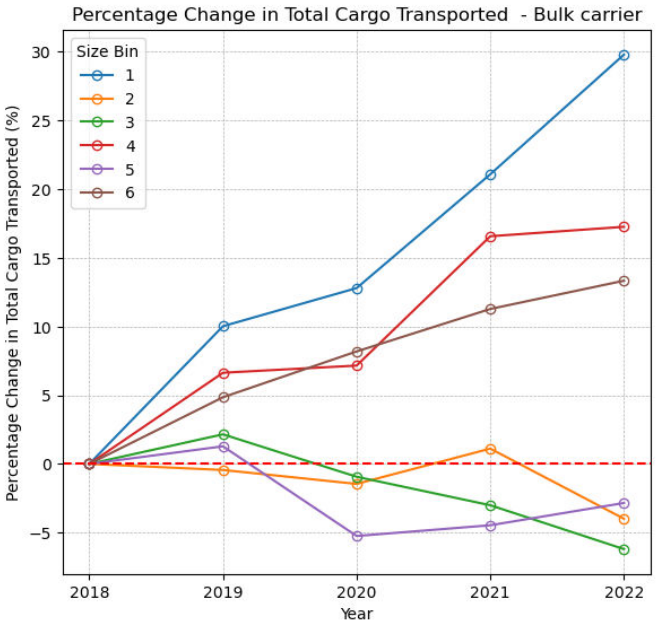

Percentage Change in Total Deadweight - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Total Deadweight (%)
Year

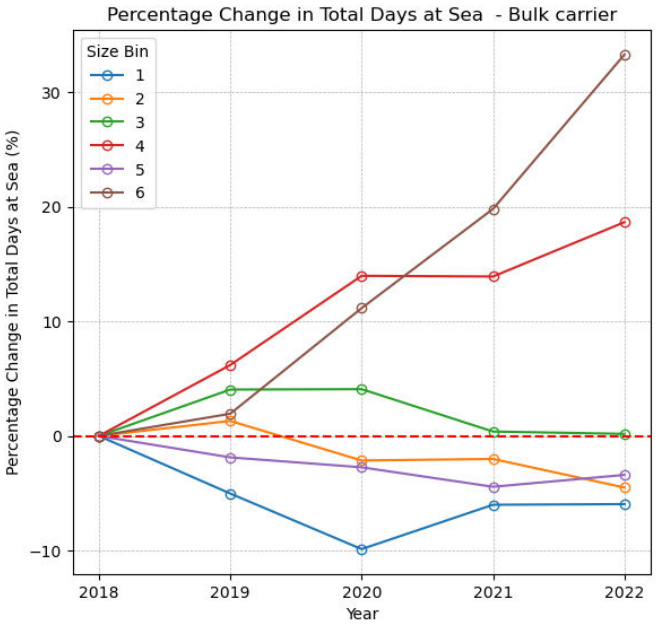

Percentage Change in Total Transport Work - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Total Transport Work (%)
Year

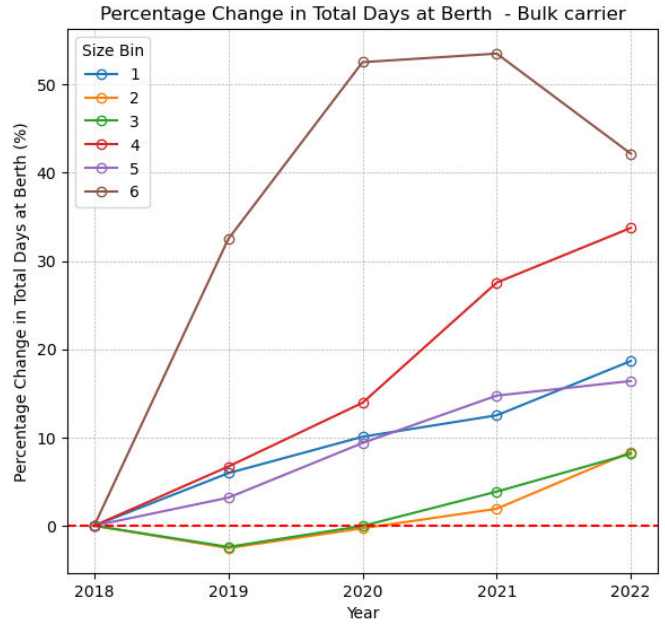

Percentage Change in Total Distance Sailed - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Total Distance Sailed (%)
Year


Percentage Change in Total Distance Sailed - Laden - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Total Distance Sailed - Laden (%)
Year

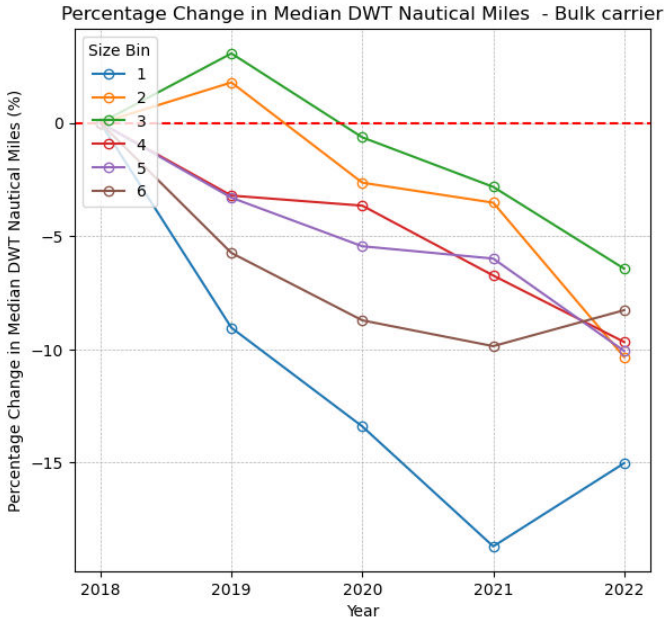

Percentage Change in Total Distance Sailed - Ballast - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Total Distance Sailed - Ballast (%)
Year
2018
2019
2020
2021
2022

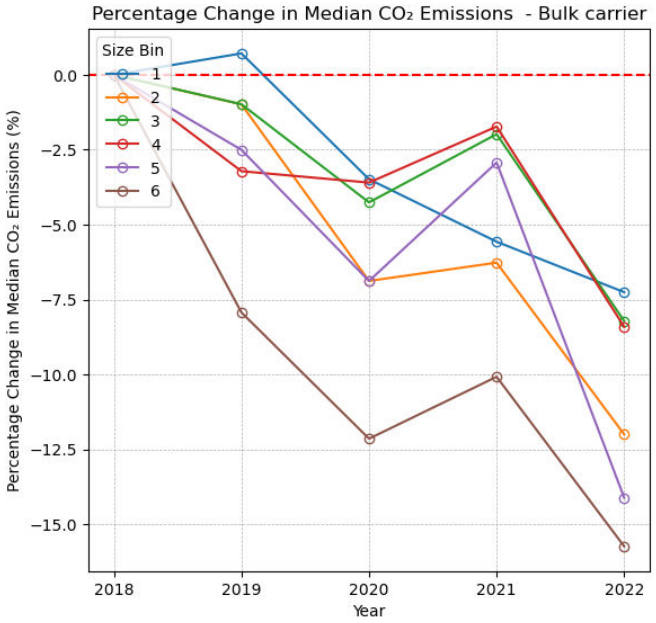

Percentage Change in Total Cargo Transported - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Total Cargo Transported (%)
Year
2018
2019
2020
2021
2022

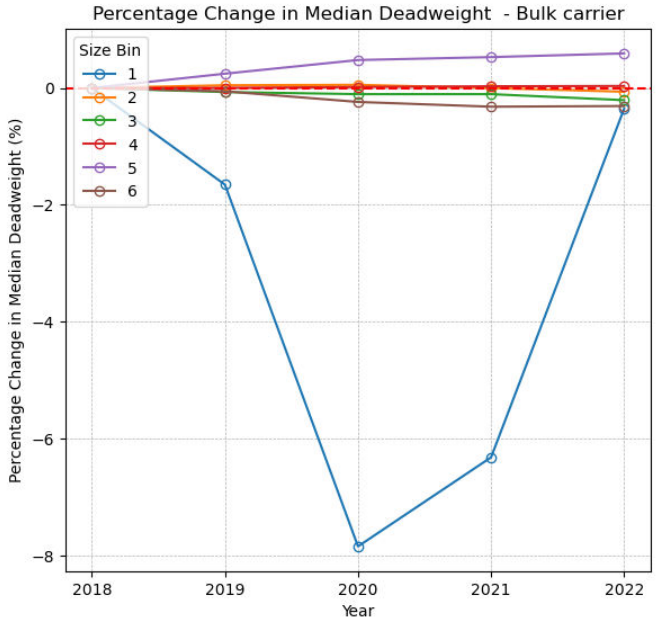

Percentage Change in Total Days at Sea - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Total Days at Sea (%)
Year
2018
2019
2020
2021
2022

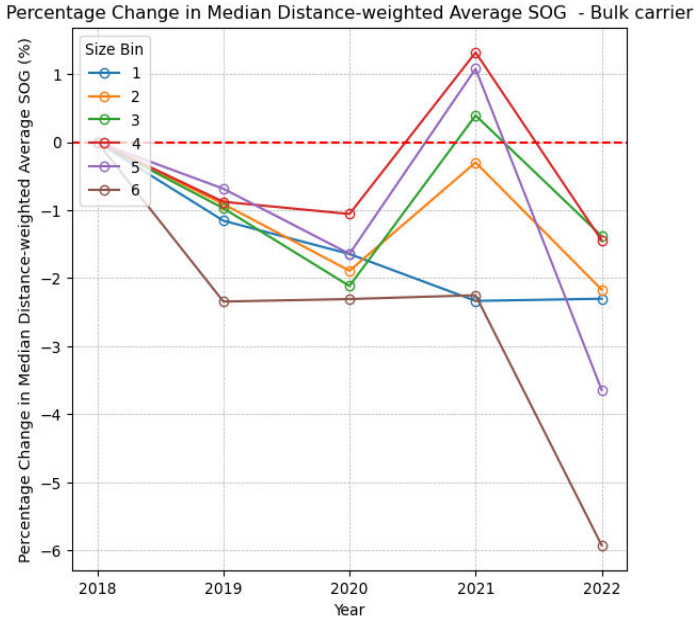

Percentage Change in Total Days at Berth - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Total Days at Berth (%)
Year
2018
2019
2020
2021
2022

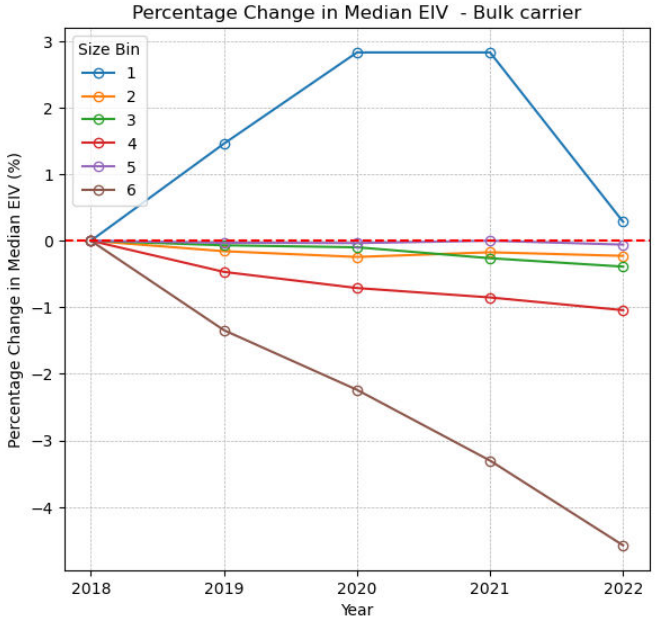
Median

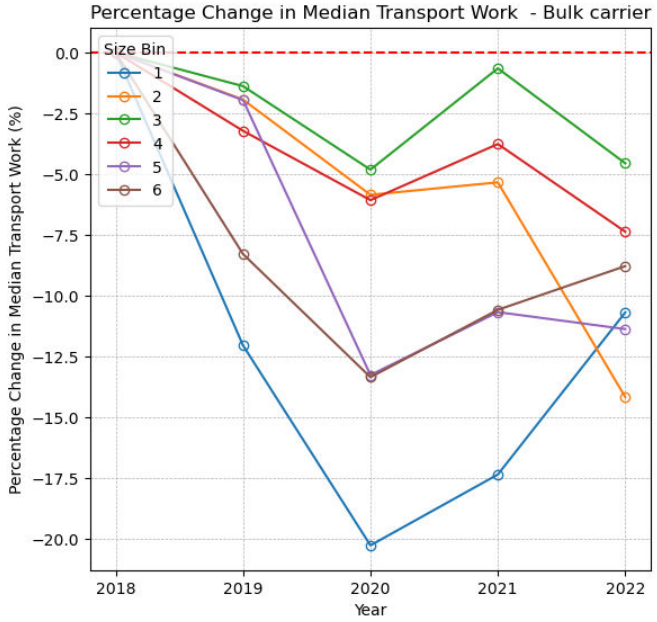

Percentage Change in Median DWT Nautical Miles - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median DWT Nautical Miles (%)
0
−5
−10
−15
2018
2019
2020
2021
2022
Year

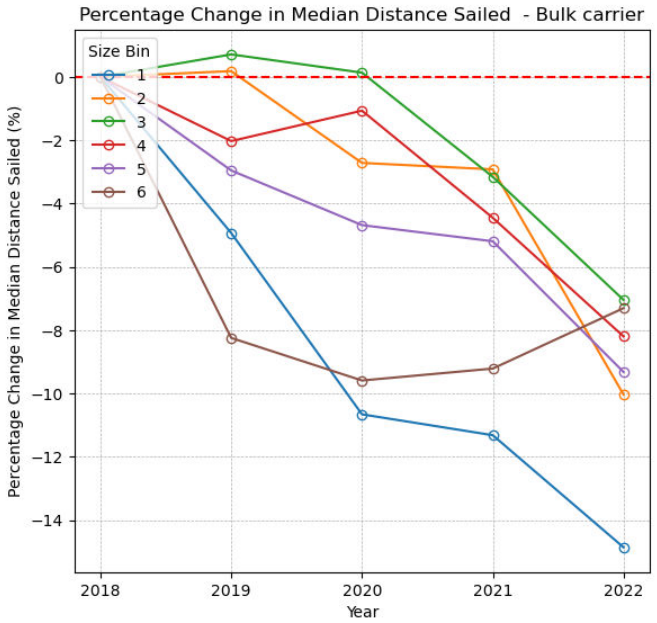

Percentage Change in Median CO₂ Emissions - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median CO₂ Emissions (%)
0.0
−2.5
−5.0
−7.5
−10.0
−12.5
−15.0
2018
2019
2020
2021
2022
Year

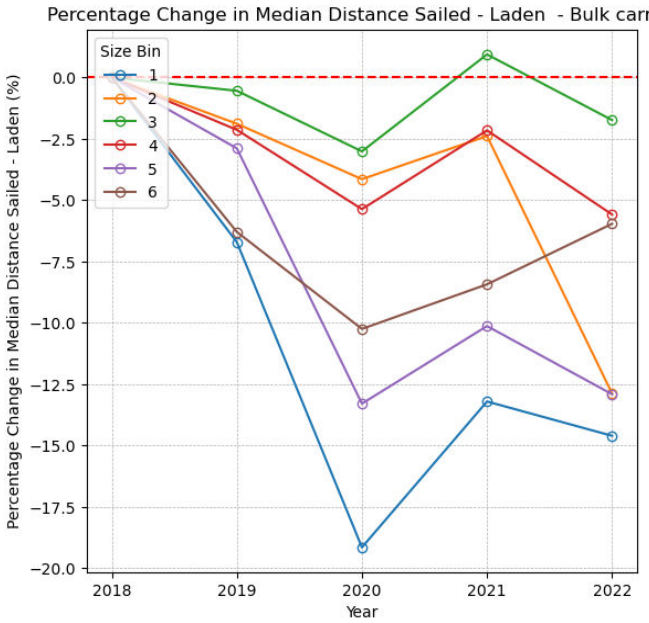

Percentage Change in Median Deadweight - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median Deadweight (%)
0
−2
−4
−6
−8
2018
2019
2020
2021
2022
Year

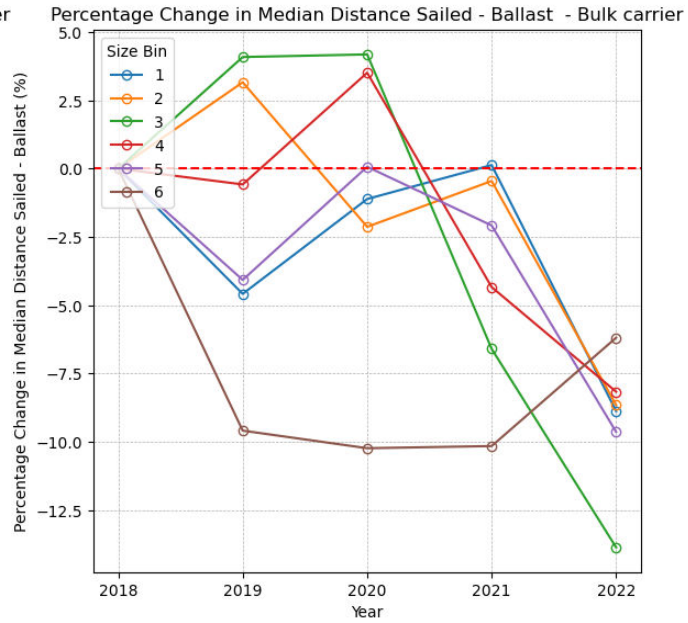

Percentage Change in Median Distance-weighted Average SOG - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median Distance-weighted Average SOG (%)
1
0
−1
−2
−3
−4
−5
−6
2018
2019
2020
2021
2022
Year

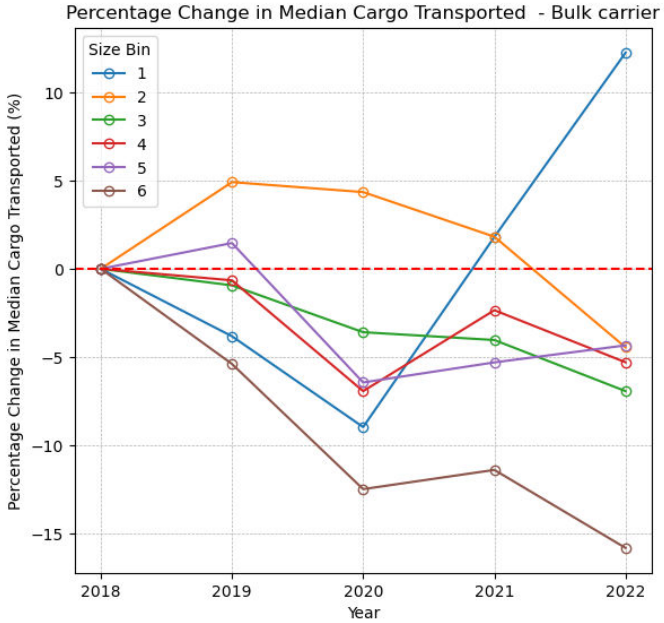

Percentage Change in Median EIV - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median EIV (%)
3
2
1
0
−1
−2
−3
−4
2018
2019
2020
2021
2022
Year

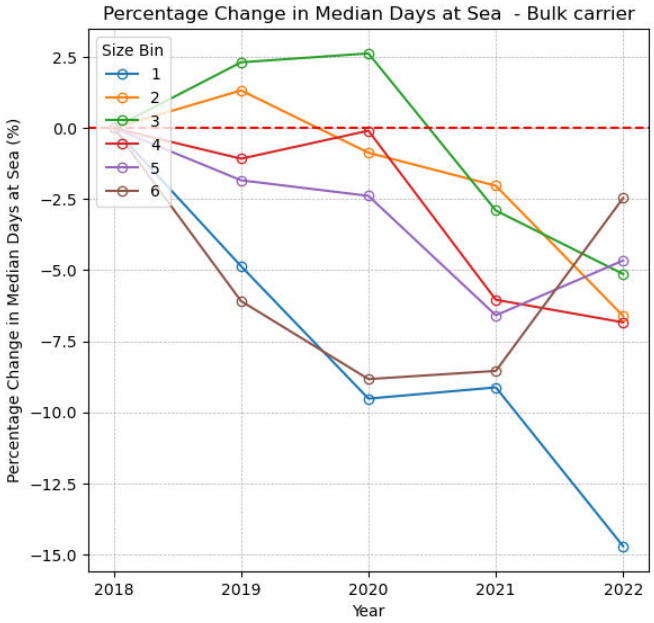

Percentage Change in Median Transport Work - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median Transport Work (%)
0.0
−2.5
−5.0
−7.5
−10.0
−12.5
−15.0
−17.5
−20.0
2018
2019
2020
2021
2022
Year

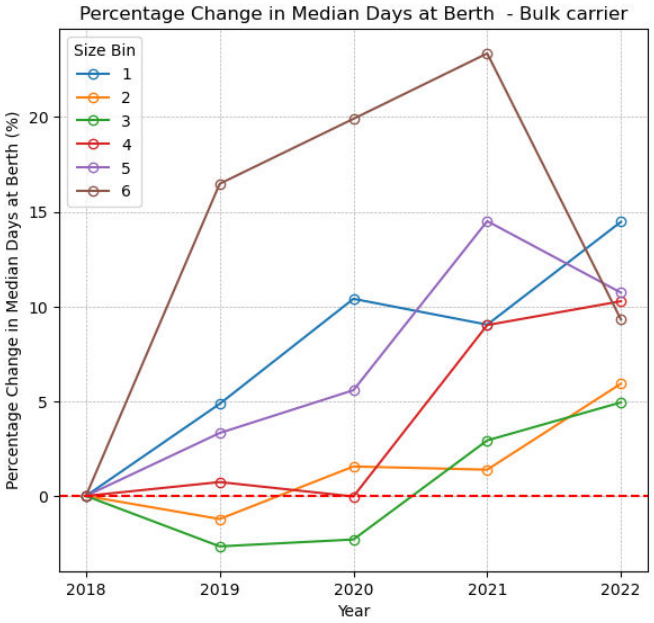

Percentage Change in Median Distance Sailed - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median Distance Sailed (%)
Year
2018
2019
2020
2021
2022


Percentage Change in Median Distance Sailed - Laden - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median Distance Sailed - Laden (%)
Year
2018
2019
2020
2021
2022

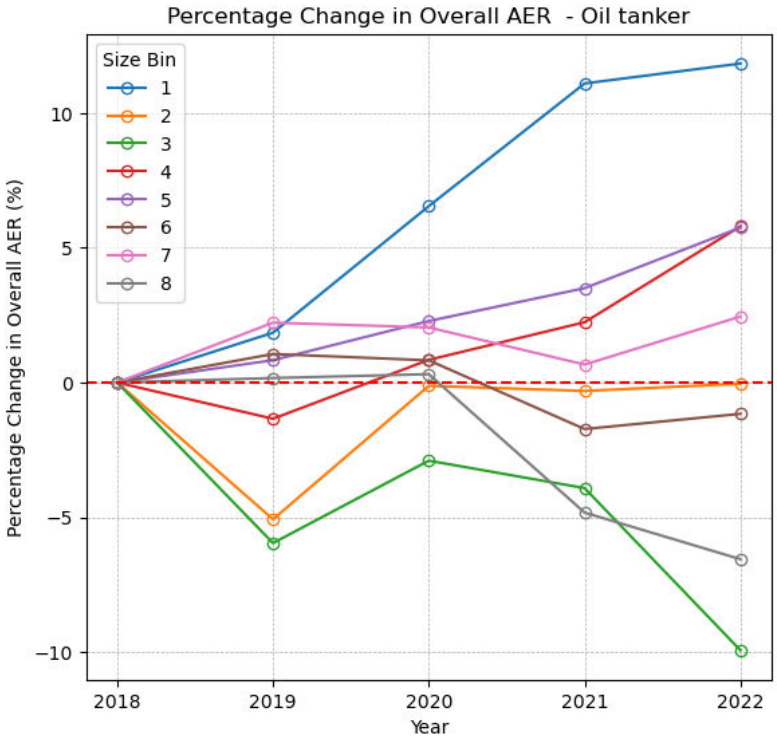

Percentage Change in Median Distance Sailed - Ballast - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median Distance Sailed - Ballast (%)
Year
2018
2019
2020
2021
2022

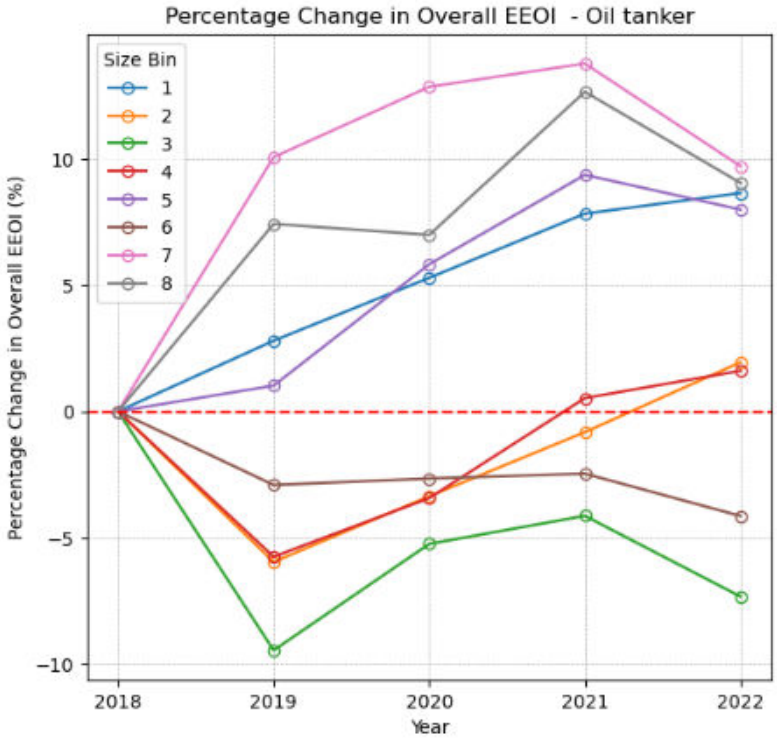

Percentage Change in Median Cargo Transported - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median Cargo Transported (%)
Year
2018
2019
2020
2021
2022


Percentage Change in Median Days at Sea - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median Days at Sea (%)
Year
2018
2019
2020
2021
2022

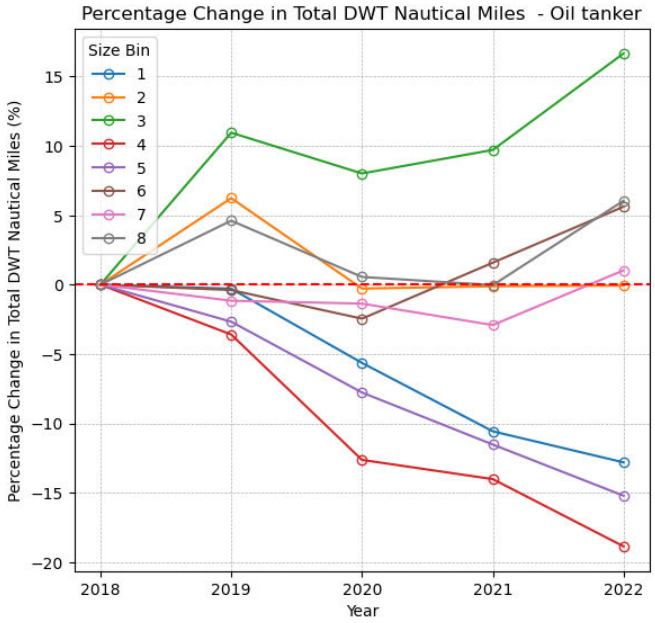

Percentage Change in Median Days at Berth - Bulk carrier
Size Bin
1
2
3
4
5
6
Percentage Change in Median Days at Berth (%)
Year
2018
2019
2020
2021
2022

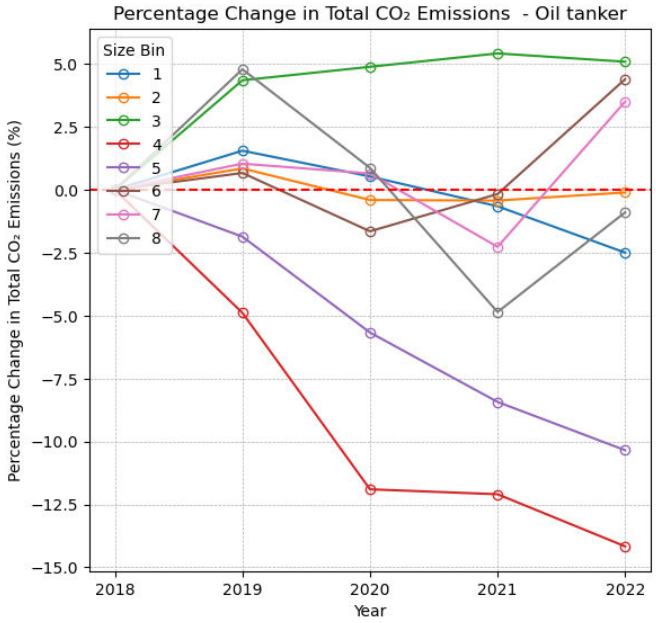
2.3.2. Oil Tanker

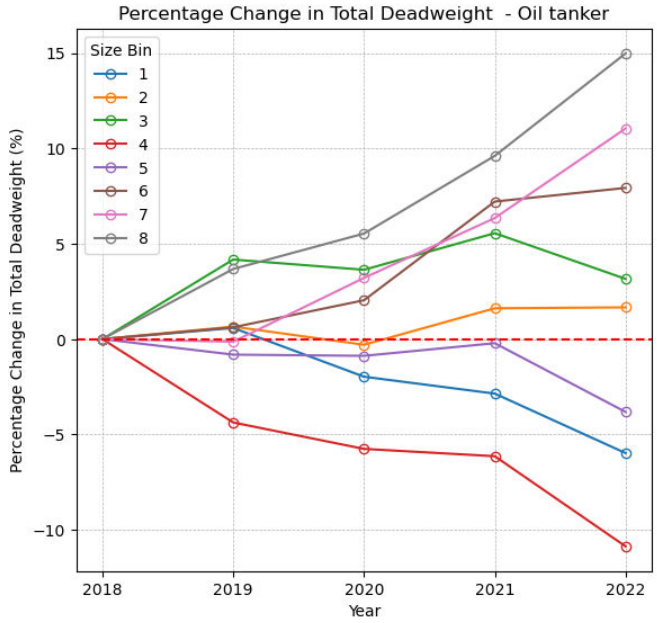


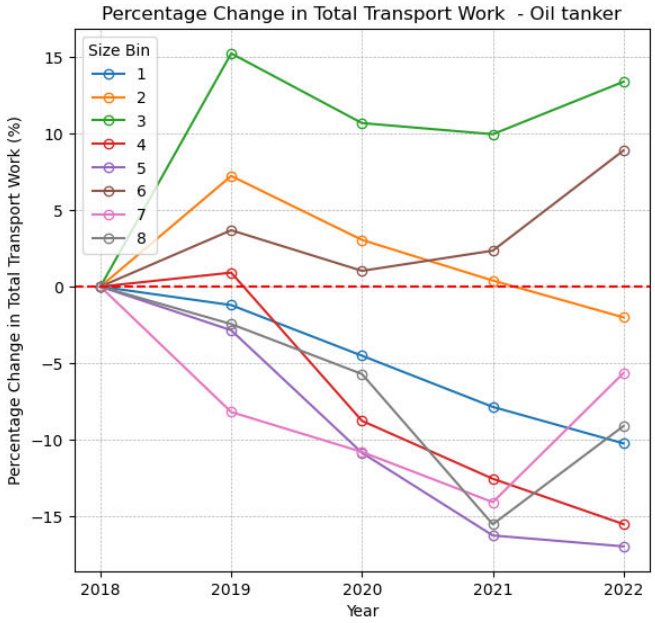


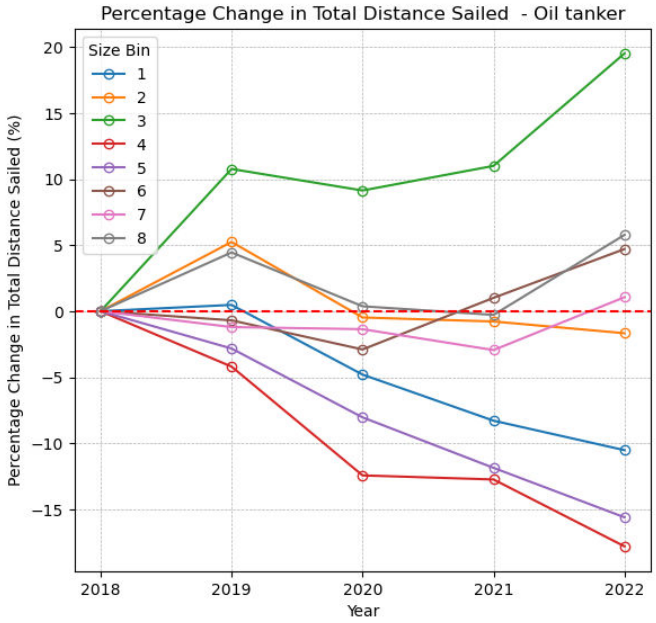
Total

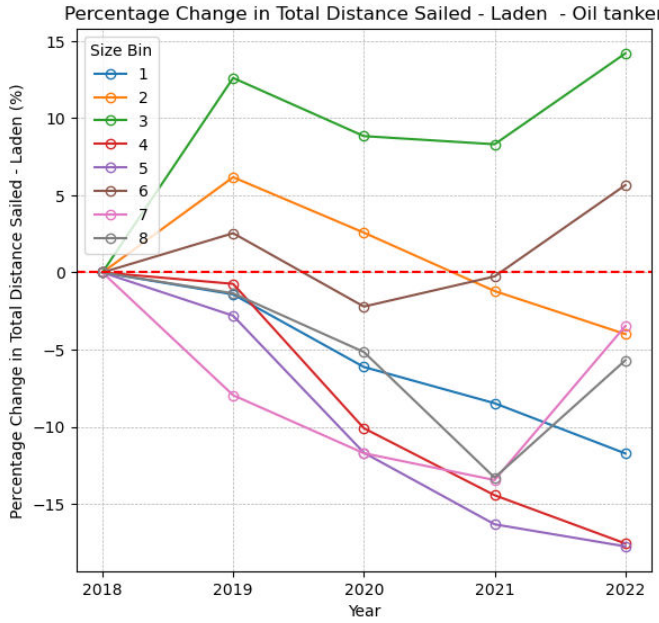

Percentage Change in Total DWT Nautical Miles - Oil tanker
Percentage Change in Total DWT Nautical Miles (%)
Year
Size Bin
1
2
3
4
5
6
7
8

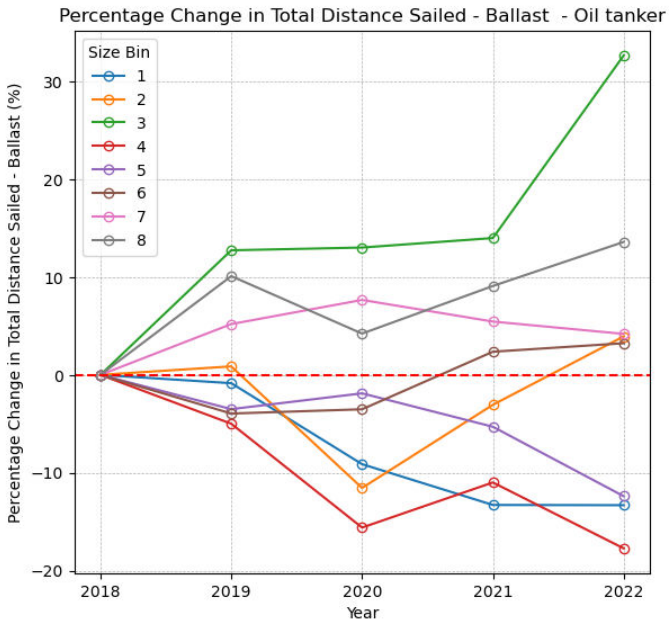

Percentage Change in Total CO_2 Emissions - Oil tanker
Percentage Change in Total CO_2 Emissions (%)
Year
Size Bin
1
2
3
4
5
6
7
8

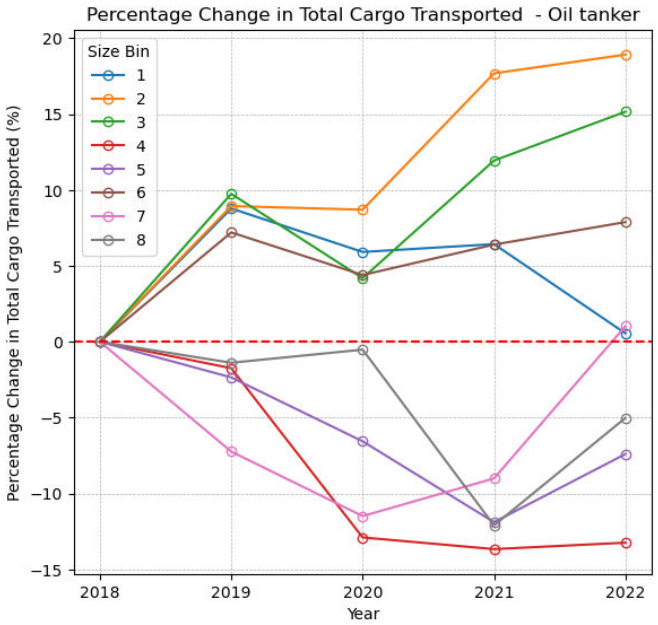

Percentage Change in Total Deadweight - Oil tanker
Percentage Change in Total Deadweight (%)
Year
Size Bin
1
2
3
4
5
6
7
8

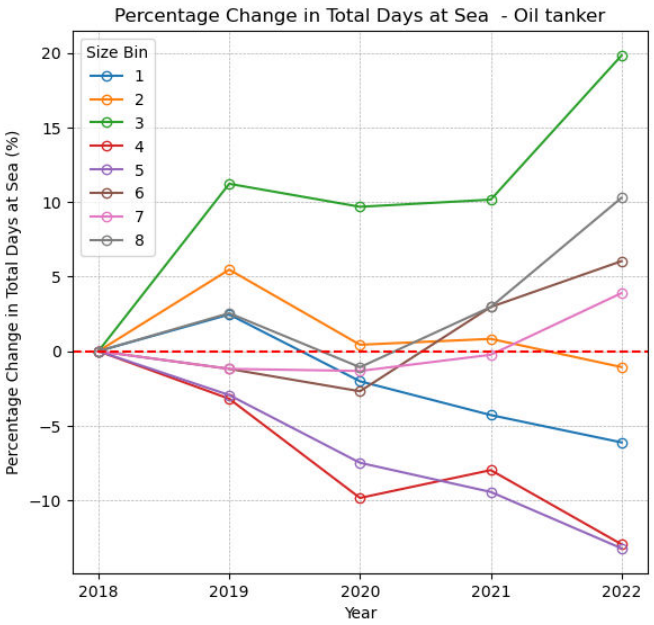

Percentage Change in Total Transport Work - Oil tanker
Percentage Change in Total Transport Work (%)
Year
Size Bin
1
2
3
4
5
6
7
8

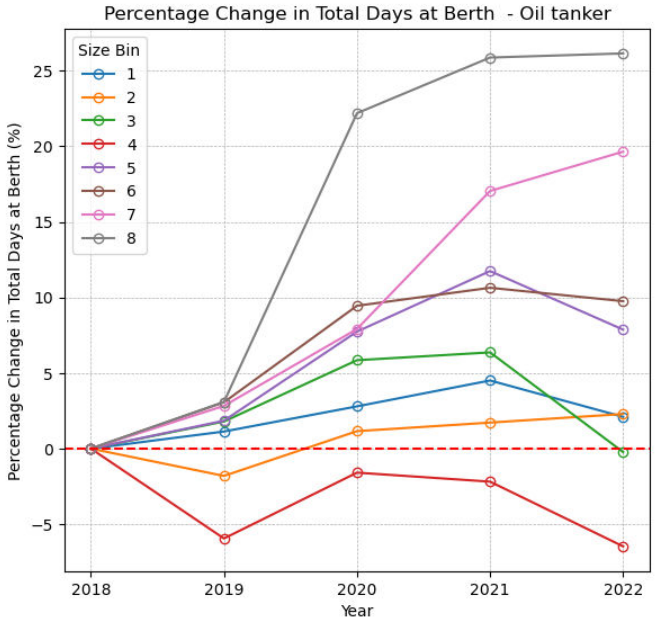

Percentage Change in Total Distance Sailed - Oil tanker
Percentage Change in Total Distance Sailed (%)
Year
Size Bin
1
2
3
4
5
6
7
8


Percentage Change in Total Distance Sailed - Laden - Oil tanker
Percentage Change in Total Distance Sailed - Laden (%)
Year
Size Bin
1
2
3
4
5
6
7
8

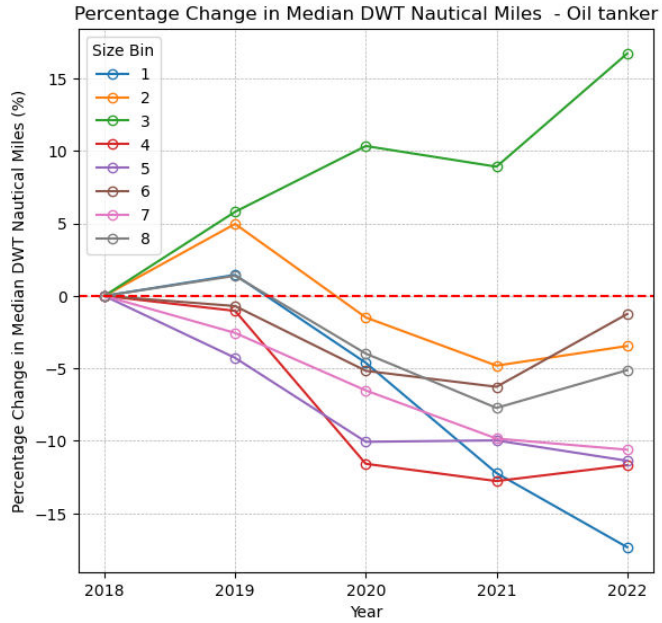

Percentage Change in Total Distance Sailed - Ballast - Oil tanker
Percentage Change in Total Distance Sailed - Ballast (%)
Size Bin
1
2
3
4
5
6
7
8
30
20
10
0
−10
−20
2018
2019
2020
2021
2022
Year

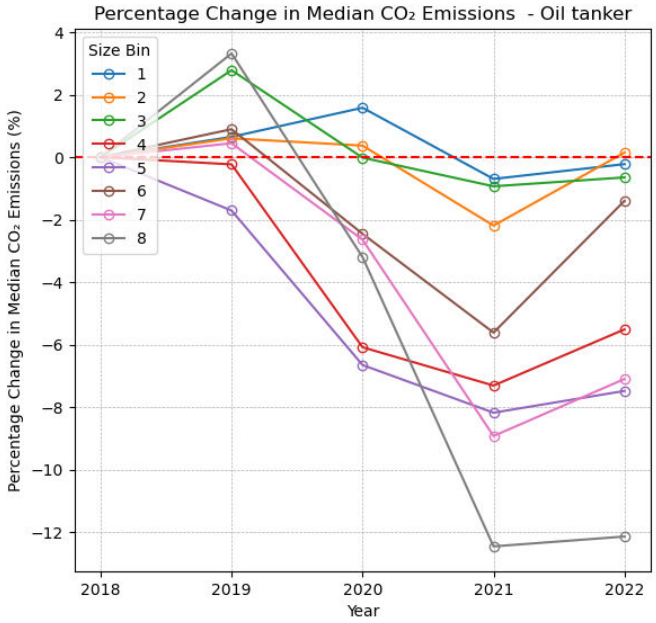

Percentage Change in Total Cargo Transported - Oil tanker
Percentage Change in Total Cargo Transported (%)
Size Bin
1
2
3
4
5
6
7
8
20
15
10
5
0
−5
−10
−15
2018
2019
2020
2021
2022
Year

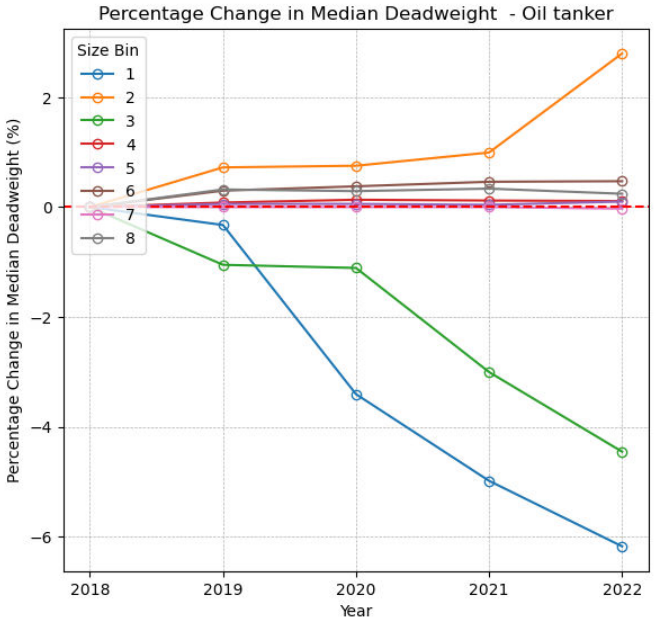

Percentage Change in Total Days at Sea - Oil tanker
Percentage Change in Total Days at Sea (%)
Size Bin
1
2
3
4
5
6
7
8
20
15
10
5
0
−5
−10
2018
2019
2020
2021
2022
Year

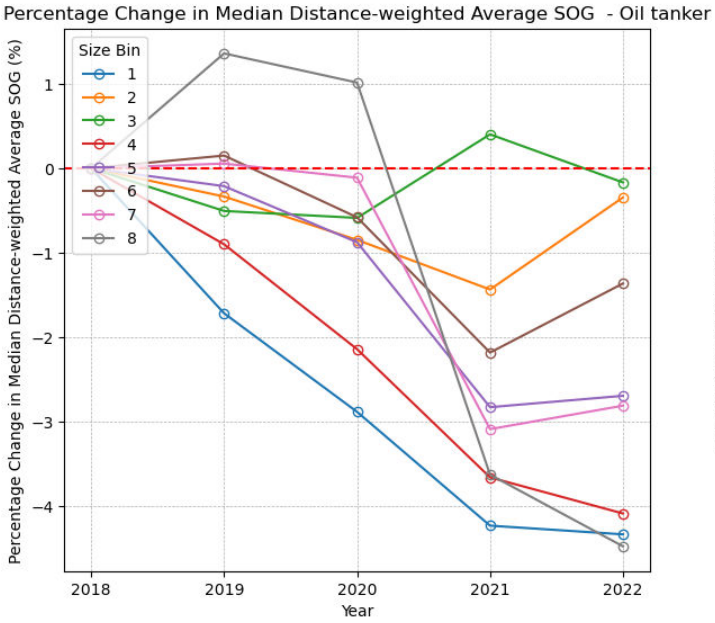

Percentage Change in Total Days at Berth - Oil tanker
Percentage Change in Total Days at Berth (%)
Size Bin
1
2
3
4
5
6
7
8
25
20
15
10
5
0
−5
2018
2019
2020
2021
2022
Year

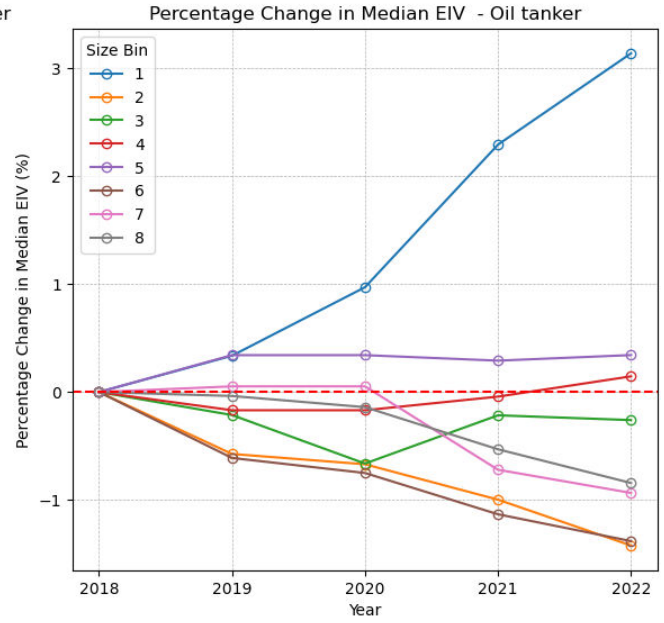
Median

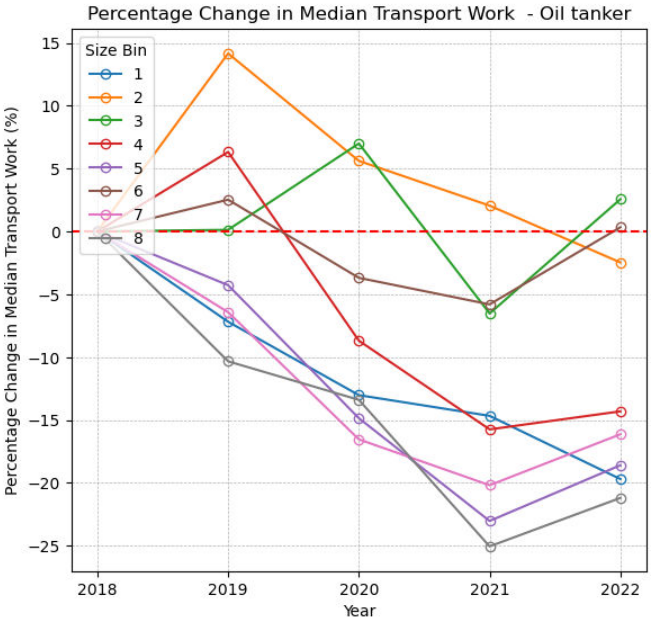

Percentage Change in Median DWT Nautical Miles - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median DWT Nautical Miles (%)
15
10
5
0
−5
−10
−15
2018
2019
2020
2021
2022
Year

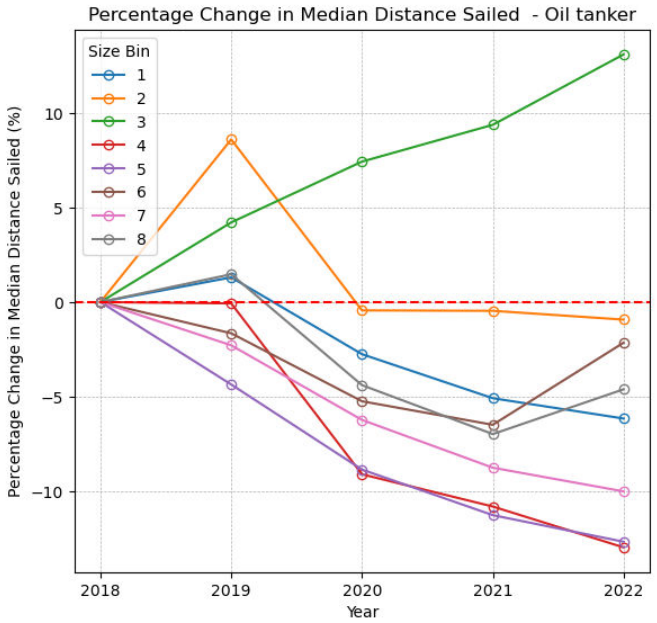

Percentage Change in Median CO₂ Emissions - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median CO₂ Emissions (%)
4
2
0
−2
−4
−6
−8
−10
−12
2018
2019
2020
2021
2022
Year

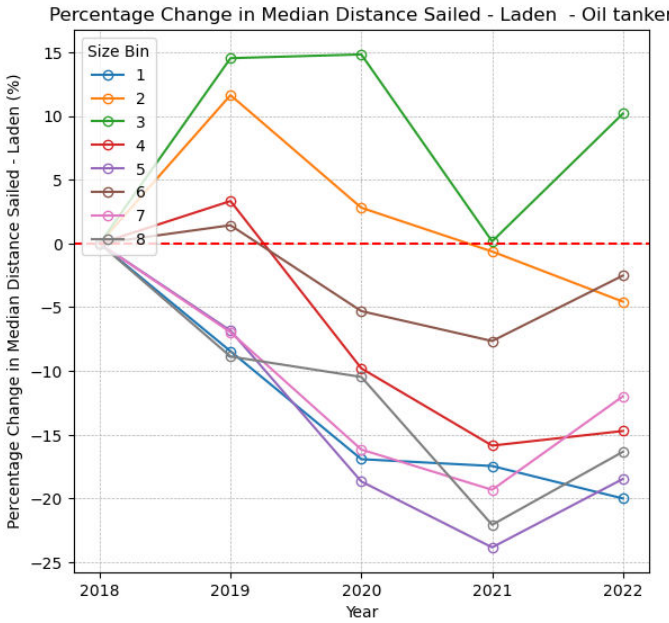

Percentage Change in Median Deadweight - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median Deadweight (%)
2
0
−2
−4
−6
2018
2019
2020
2021
2022
Year

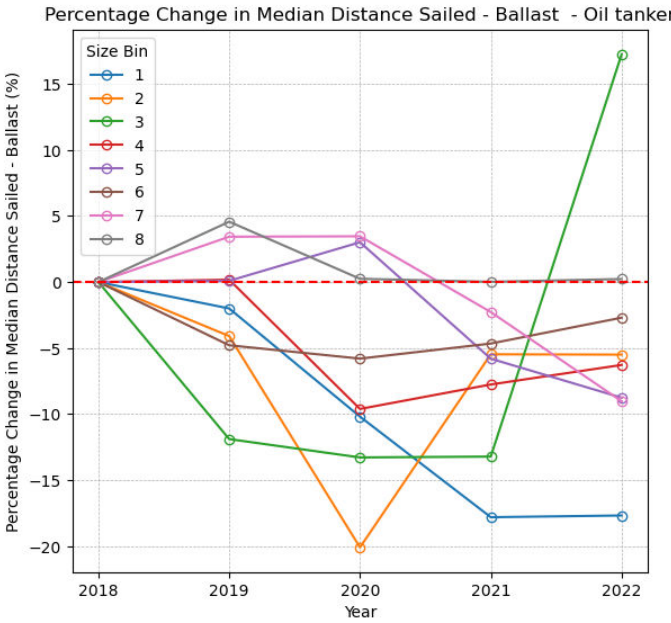

Percentage Change in Median Distance-weighted Average SOG - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median Distance-weighted Average SOG (%)
1
0
−1
−2
−3
−4
2018
2019
2020
2021
2022
Year

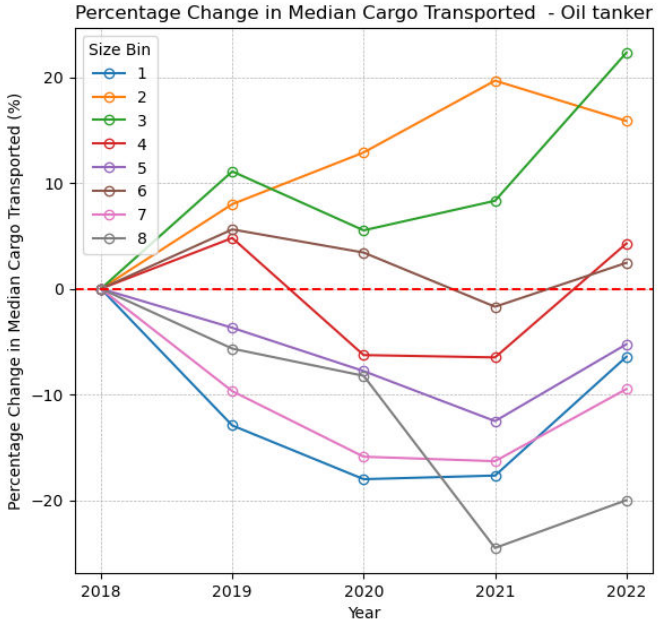

Percentage Change in Median EIV - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median EIV (%)
3
2
1
0
−1
2018
2019
2020
2021
2022
Year

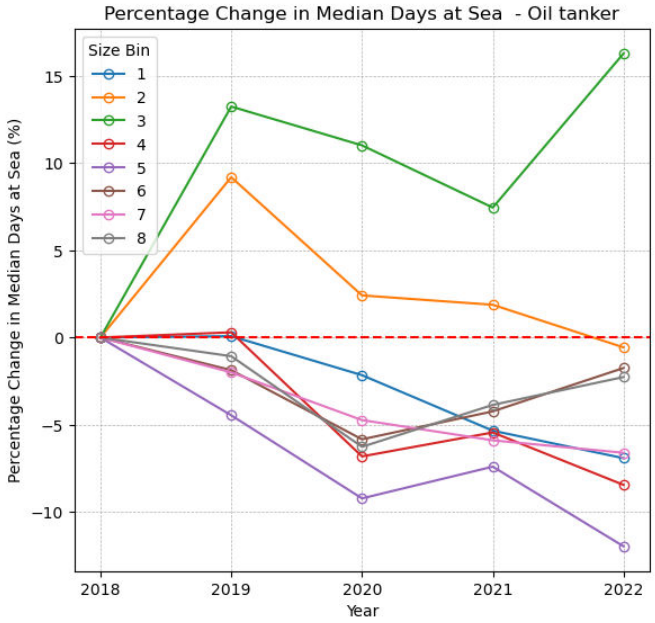

Percentage Change in Median Transport Work - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median Transport Work (%)
15
10
5
0
−5
−10
−15
−20
−25
2018
2019
2020
2021
2022
Year

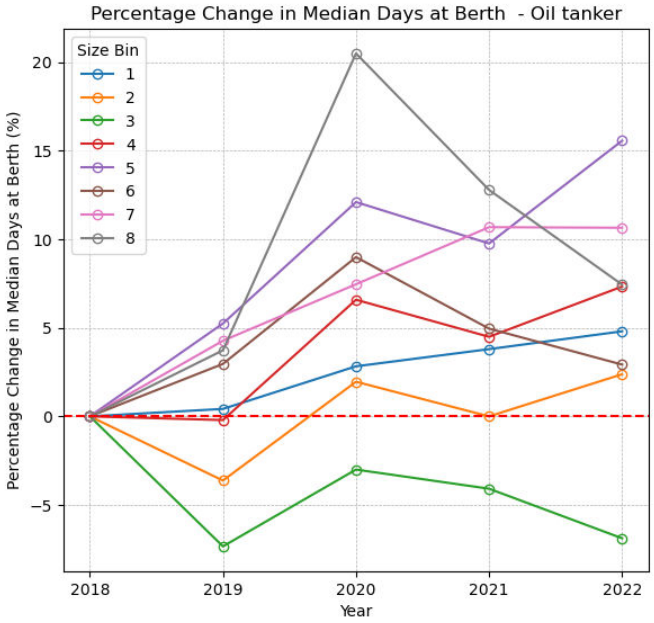

Percentage Change in Median Distance Sailed - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median Distance Sailed (%)
Year
2018
2019
2020
2021
2022


Percentage Change in Median Distance Sailed - Laden - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median Distance Sailed - Laden (%)
Year
2018
2019
2020
2021
2022

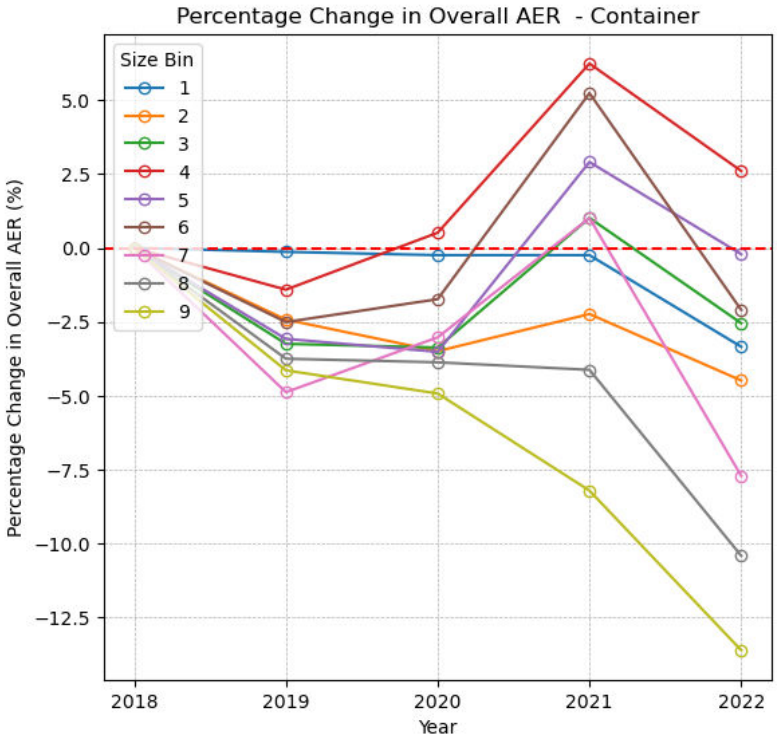

Percentage Change in Median Distance Sailed - Ballast - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median Distance Sailed - Ballast (%)
Year
2018
2019
2020
2021
2022


Percentage Change in Median Cargo Transported - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median Cargo Transported (%)
Year
2018
2019
2020
2021
2022

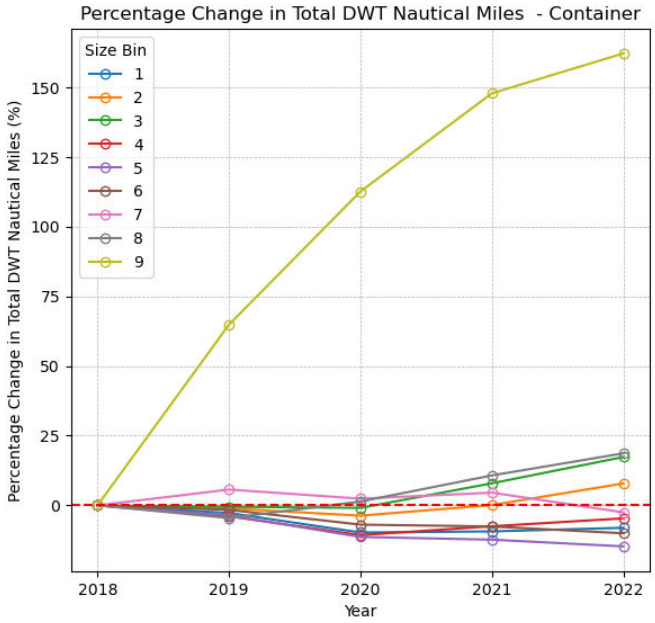

Percentage Change in Median Days at Sea - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median Days at Sea (%)
Year
2018
2019
2020
2021
2022

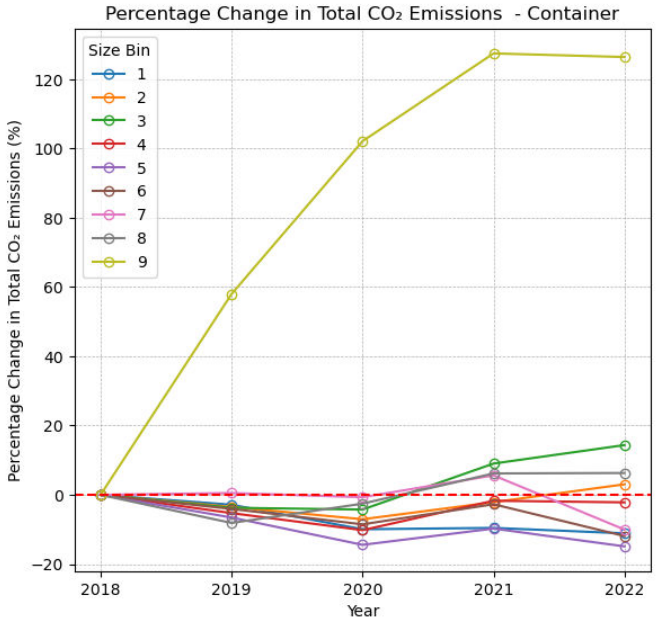

Percentage Change in Median Days at Berth - Oil tanker
Size Bin
1
2
3
4
5
6
7
8
Percentage Change in Median Days at Berth (%)
Year
2018
2019
2020
2021
2022

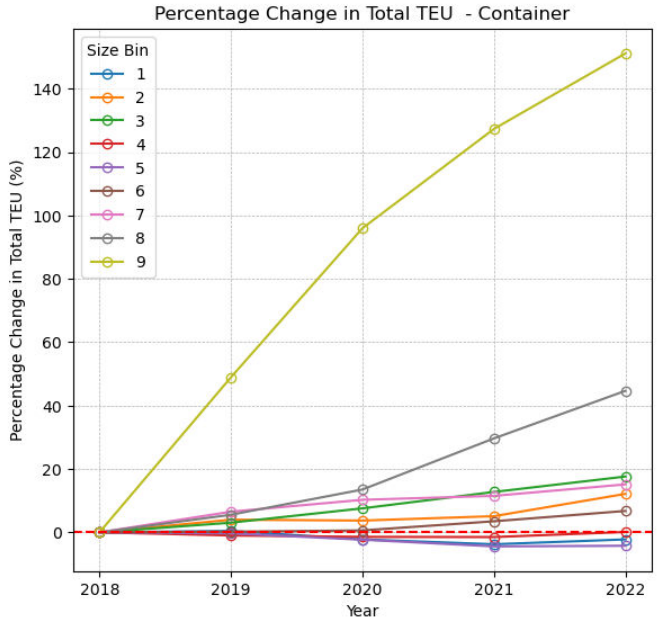
2.3.3. Container

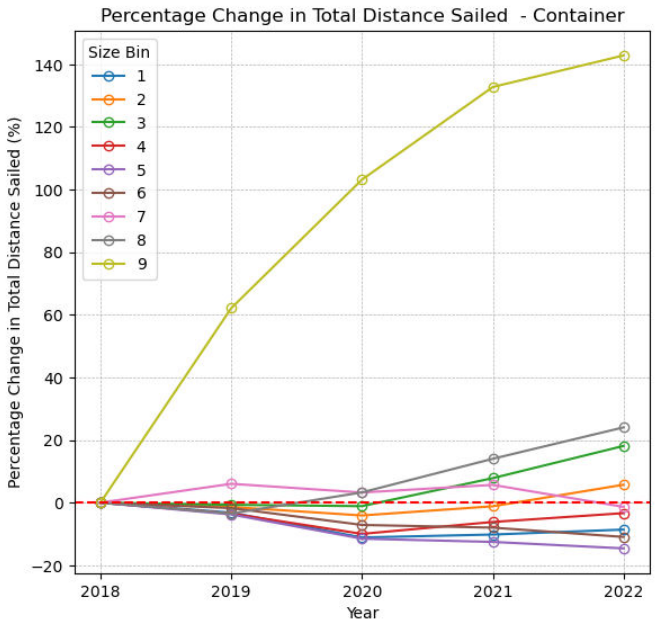


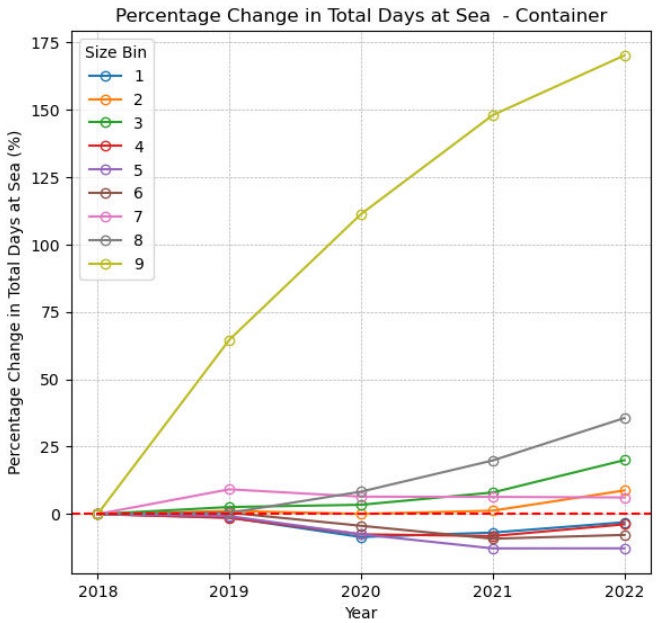
Total

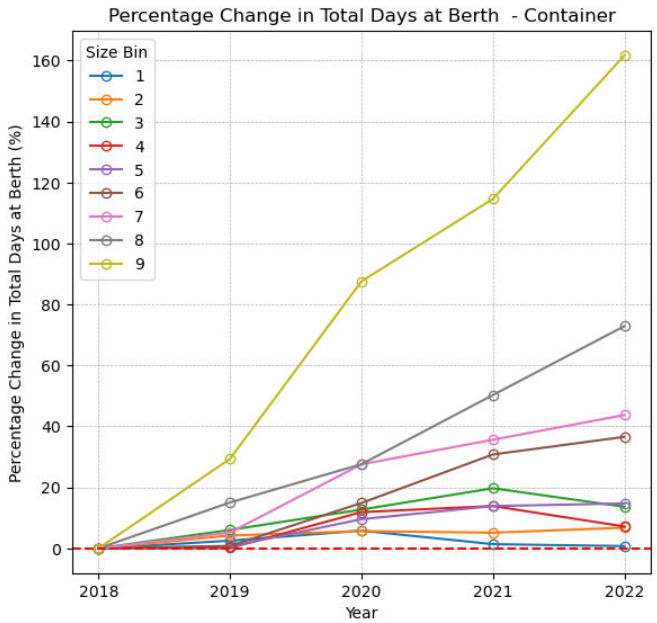

Percentage Change in Total DWT Nautical Miles - Container
Percentage Change in Total DWT Nautical Miles (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9


Percentage Change in Total CO_2 Emissions - Container
Percentage Change in Total CO_2 Emissions (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9

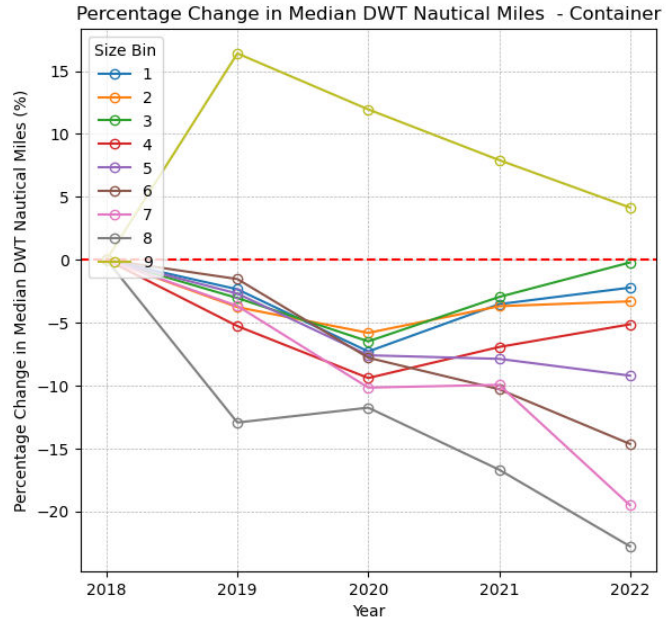

Percentage Change in Total TEU - Container
Percentage Change in Total TEU (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9

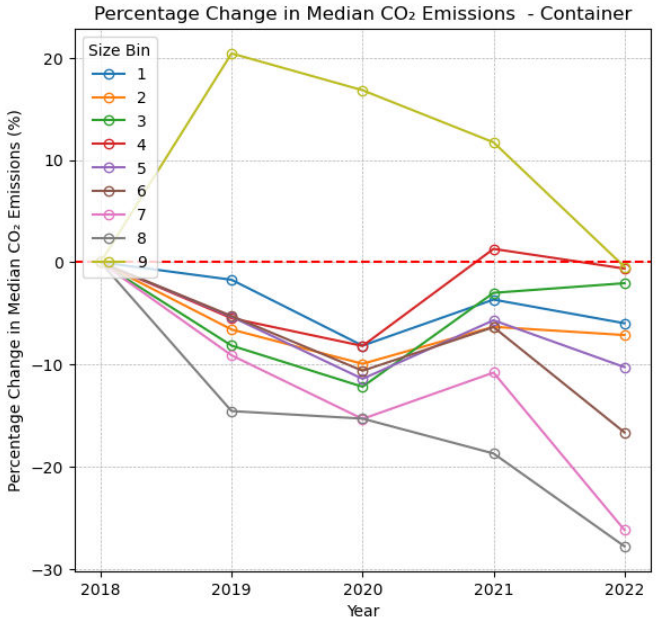

Percentage Change in Total Distance Sailed - Container
Percentage Change in Total Distance Sailed (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9

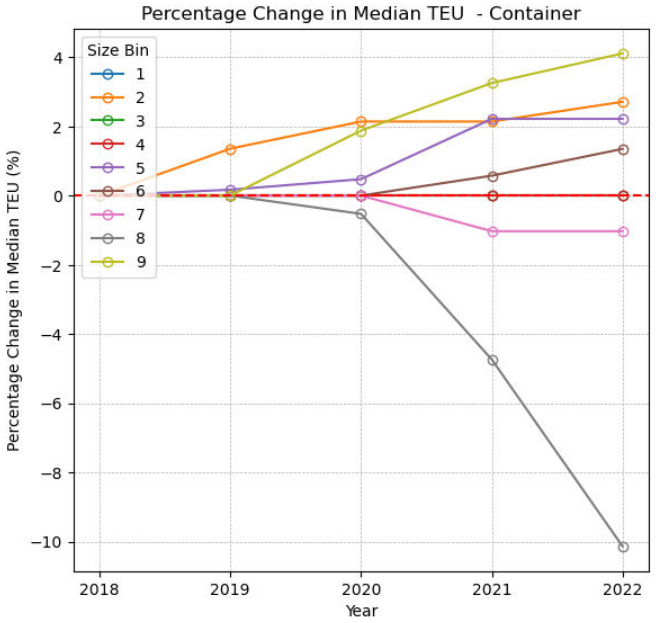

Percentage Change in Total Days at Sea - Container
Percentage Change in Total Days at Sea (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9

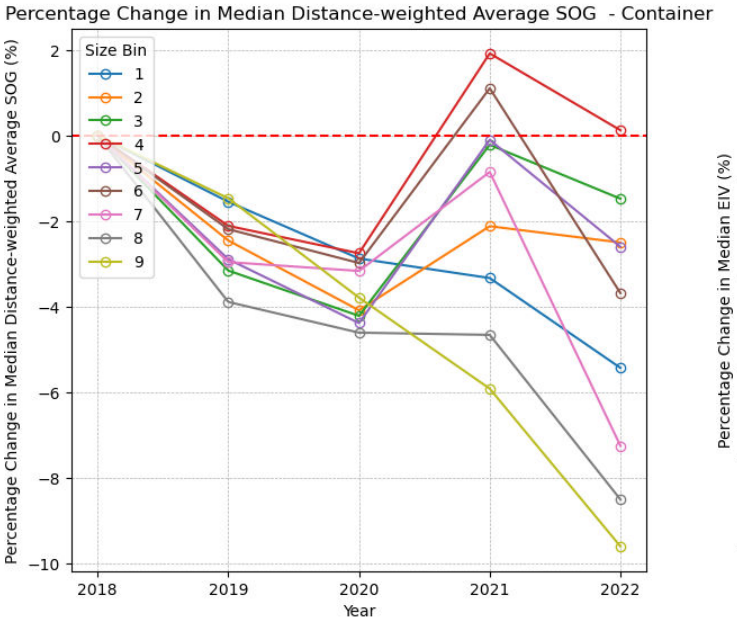

Percentage Change in Total Days at Berth - Container
Percentage Change in Total Days at Berth (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9

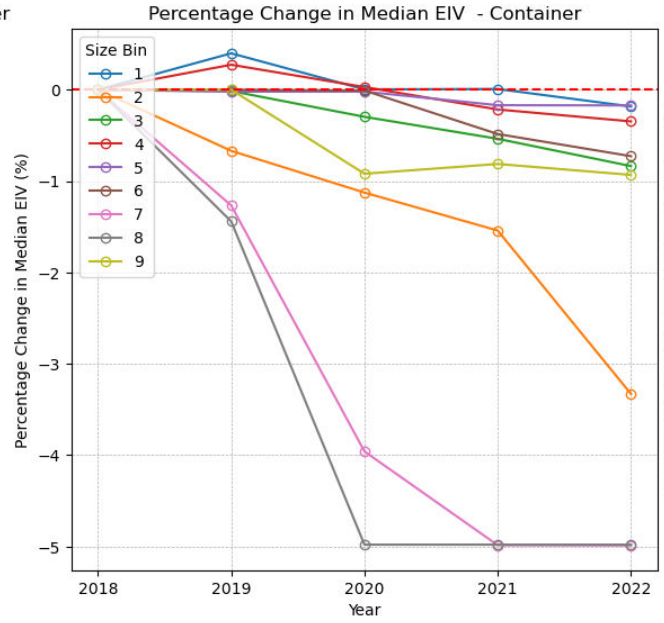
Median

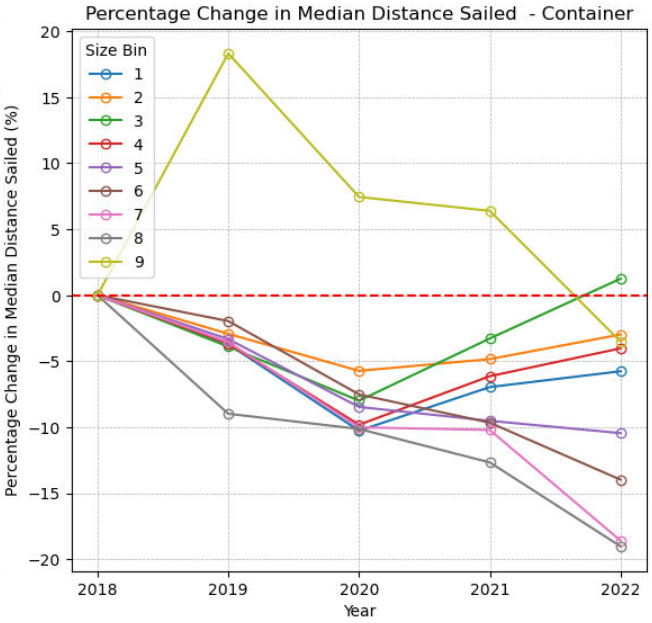

Percentage Change in Median DWT Nautical Miles - Container
Percentage Change in Median DWT Nautical Miles (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9

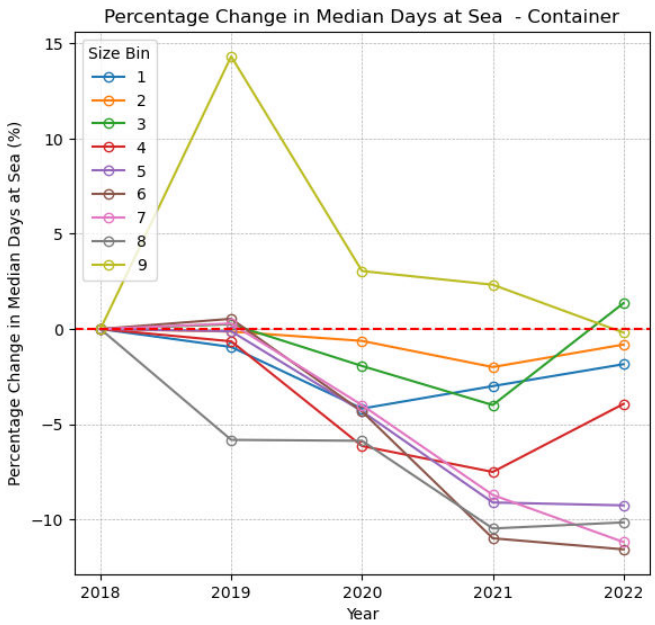

Percentage Change in Median CO_2 Emissions - Container
Percentage Change in Median CO_2 Emissions (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9

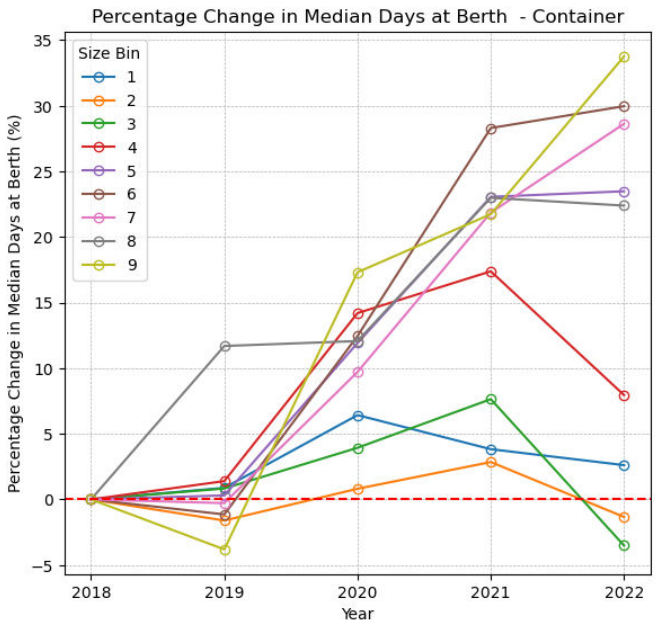

Percentage Change in Median TEU - Container
Percentage Change in Median TEU (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9


Percentage Change in Median Distance-weighted Average SOG - Container
Percentage Change in Median Distance-weighted Average SOG (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9

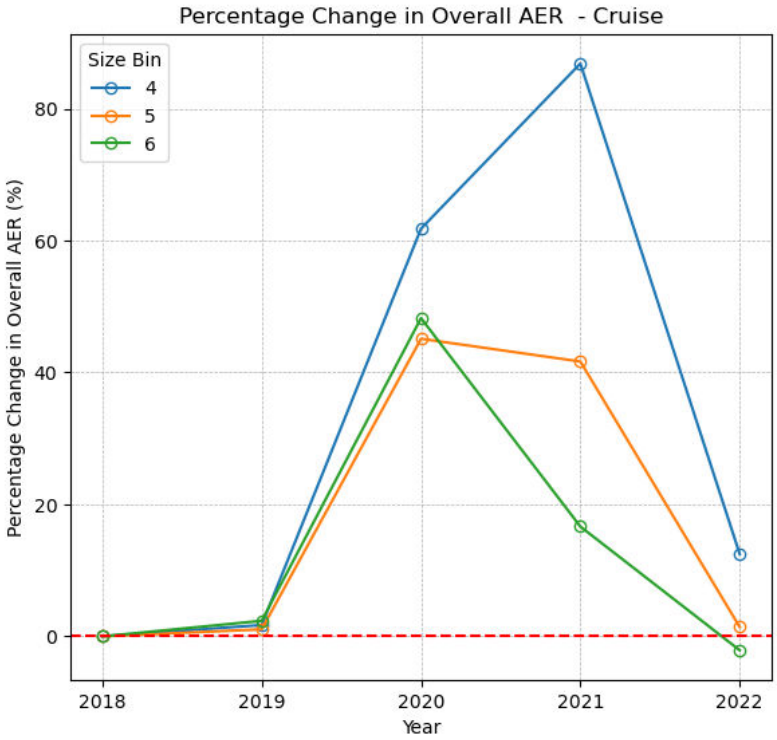

Percentage Change in Median EIV - Container
Percentage Change in Median EIV (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9


Percentage Change in Median Distance Sailed - Container
Percentage Change in Median Distance Sailed (%)
Year
Size Bin
1
2
3
4
5
6
7
8
9

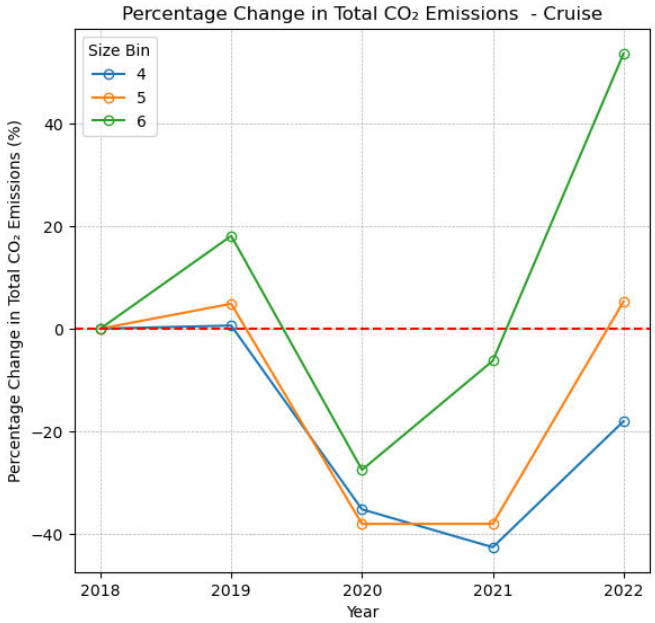

Percentage Change in Median Days at Sea - Container
Size Bin
1
2
3
4
5
6
7
8
9
Percentage Change in Median Days at Sea (%)
15
10
5
0
−5
−10
2018
2019
2020
2021
2022
Year

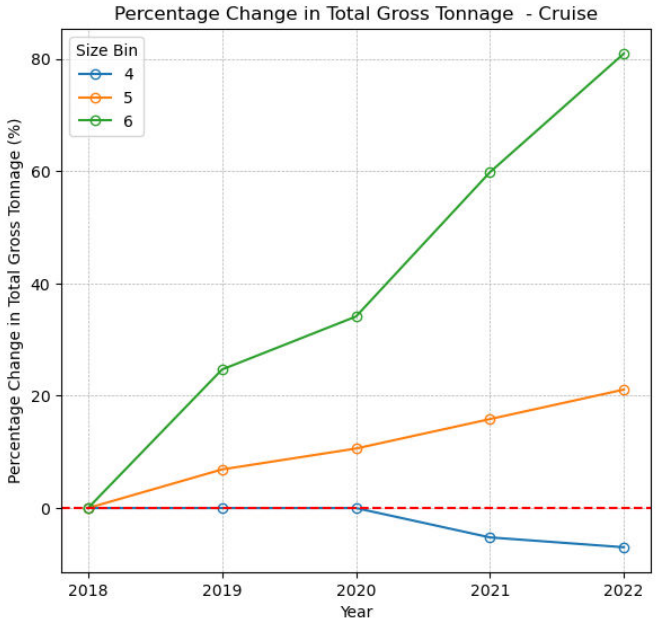

Percentage Change in Median Days at Berth - Container
Size Bin
1
2
3
4
5
6
7
8
9
Percentage Change in Median Days at Berth (%)
35
30
25
20
15
10
5
0
−5
2018
2019
2020
2021
2022
Year

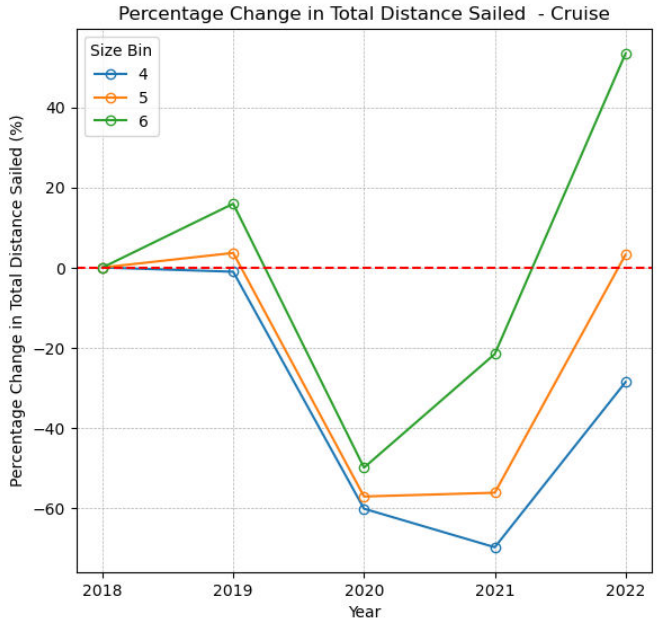
2.3.4. Cruise

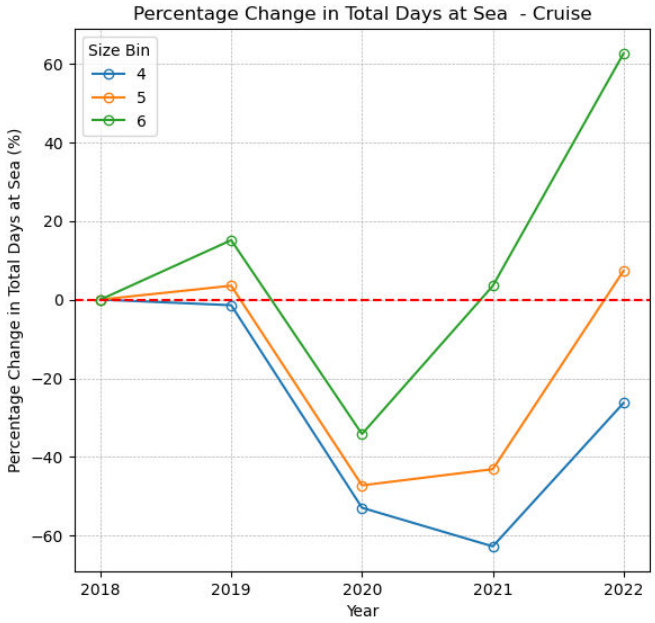

Percentage Change in Overall AER - Cruise
Size Bin
4
5
6
Percentage Change in Overall AER (%)
80
60
40
20
0
2018
2019
2020
2021
2022
Year

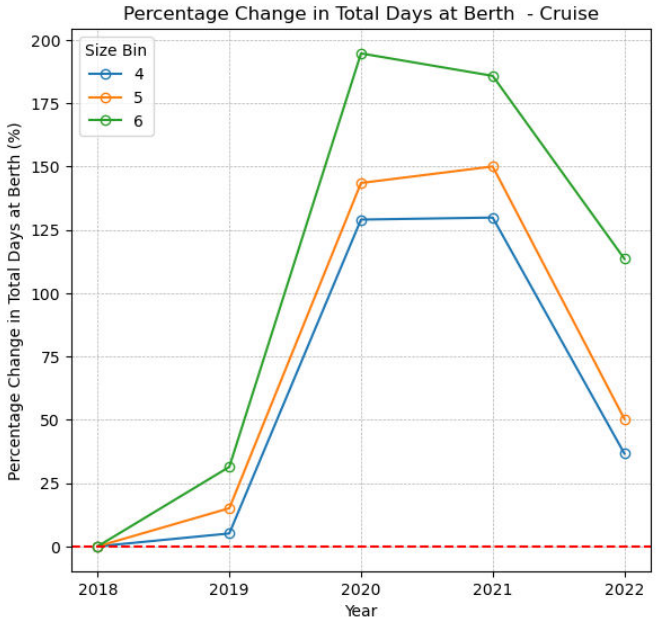
Total

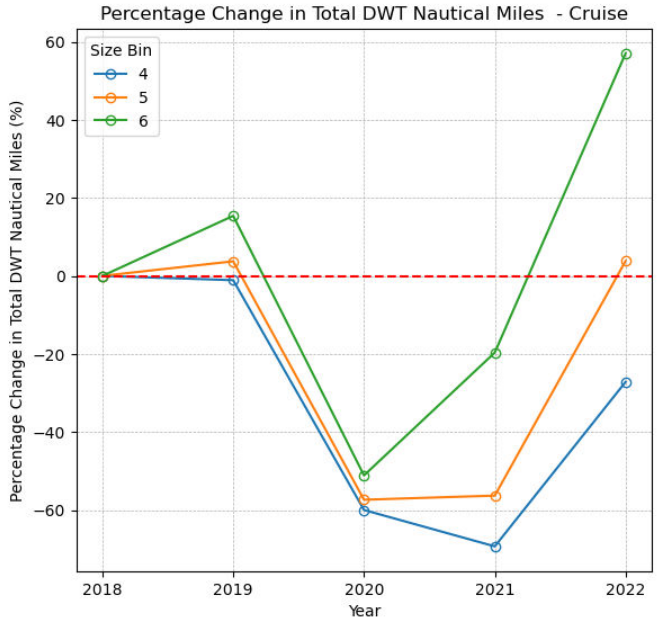

Percentage Change in Total CO_2 Emissions - Cruise
Size Bin
4
5
6
Percentage Change in Total CO_2 Emissions (%)
Year
2018
2019
2020
2021
2022


Percentage Change in Total Gross Tonnage - Cruise
Size Bin
4
5
6
Percentage Change in Total Gross Tonnage (%)
Year
2018
2019
2020
2021
2022

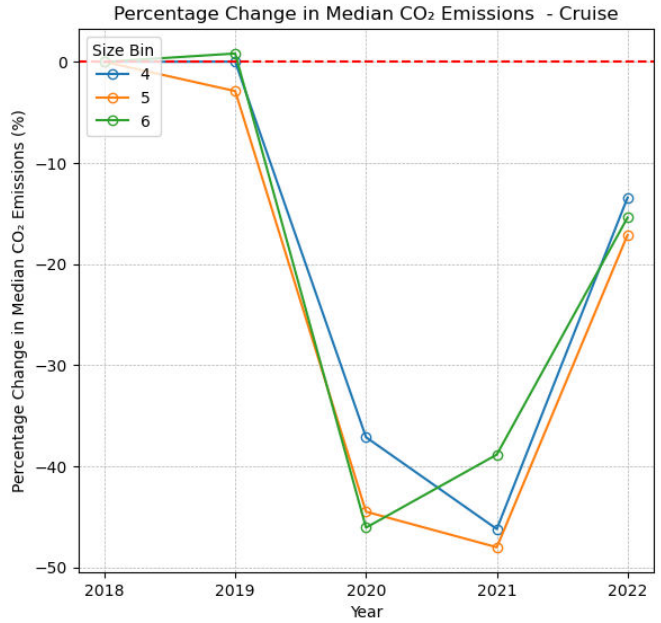

Percentage Change in Total Distance Sailed - Cruise
Size Bin
4
5
6
Percentage Change in Total Distance Sailed (%)
Year
2018
2019
2020
2021
2022

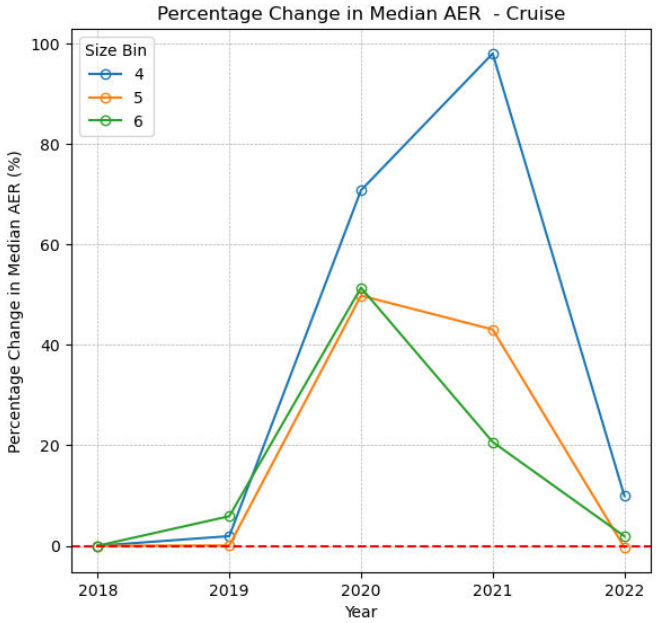

Percentage Change in Total Days at Sea - Cruise
Size Bin
4
5
6
Percentage Change in Total Days at Sea (%)
Year
2018
2019
2020
2021
2022

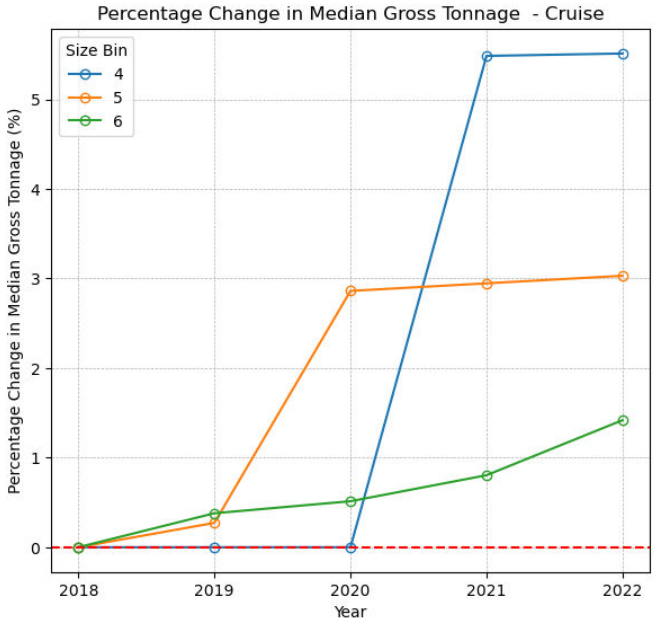

Percentage Change in Total Days at Berth - Cruise
Size Bin
4
5
6
Percentage Change in Total Days at Berth (%)
Year
2018
2019
2020
2021
2022

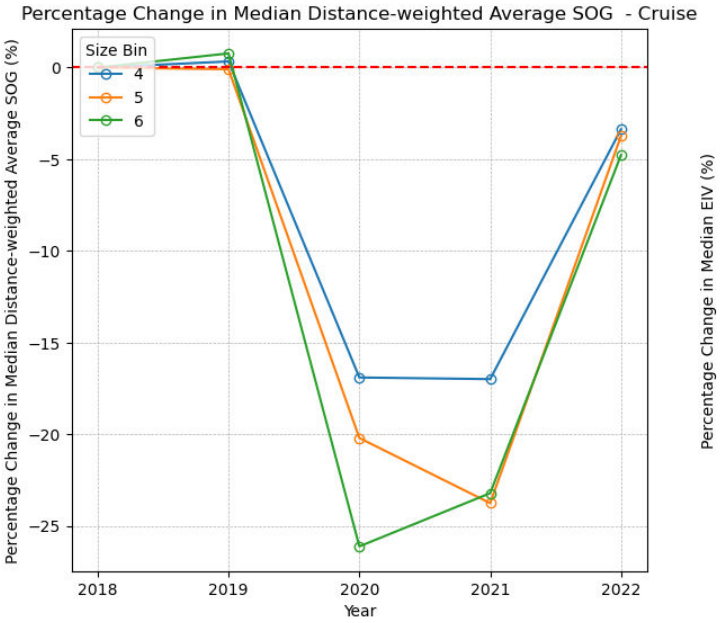

Percentage Change in Total DWT Nautical Miles - Cruise
Size Bin
4
5
6
Percentage Change in Total DWT Nautical Miles (%)
Year
2018
2019
2020
2021
2022

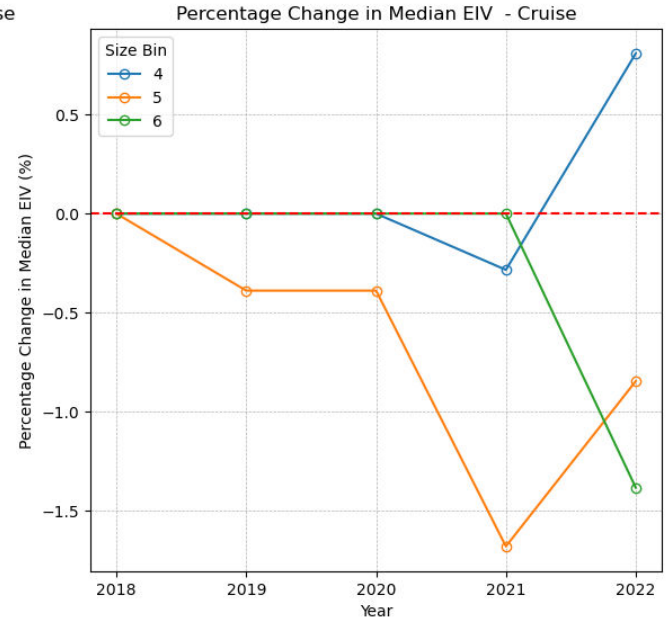
Median

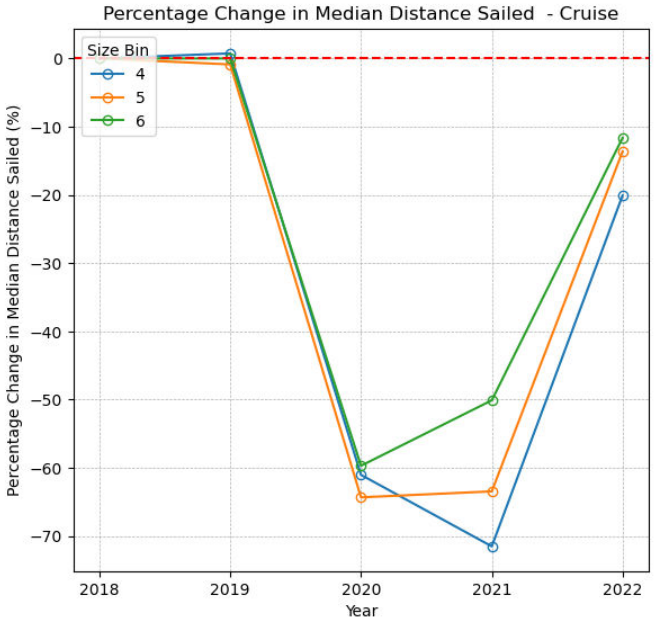

Percentage Change in Median CO_2 Emissions - Cruise
Size Bin
4
5
6
Percentage Change in Median CO_2 Emissions (%)
Year

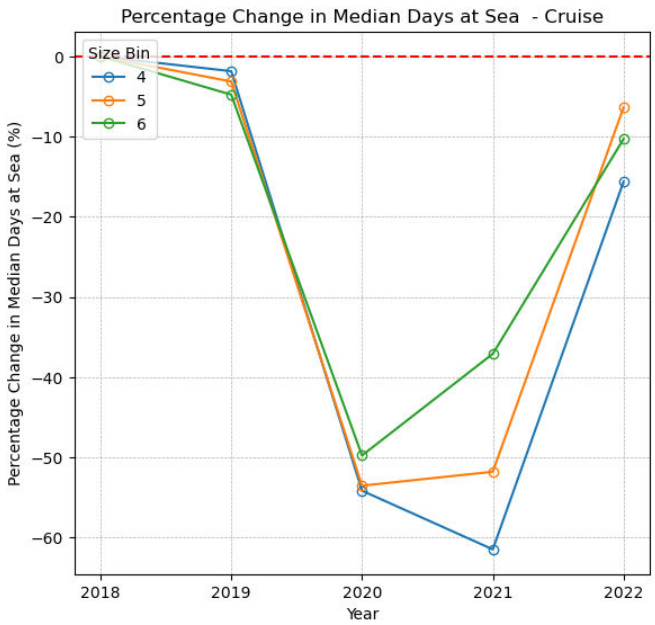

Percentage Change in Median AER - Cruise
Size Bin
4
5
6
Percentage Change in Median AER (%)
Year

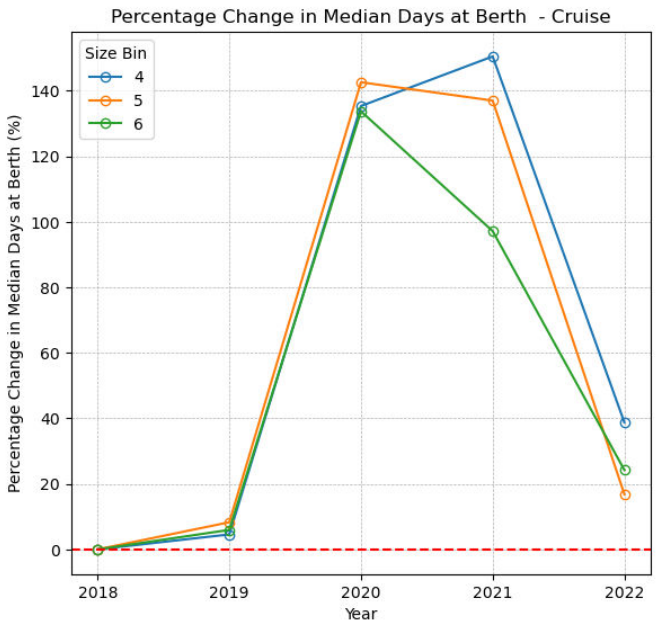

Percentage Change in Median Gross Tonnage - Cruise
Size Bin
4
5
6
Percentage Change in Median Gross Tonnage (%)
Year


Percentage Change in Median Distance-weighted Average SOG - Cruise
Size Bin
4
5
6
Percentage Change in Median Distance-weighted Average SOG (%)
Year


Percentage Change in Median EIV - Cruise
Size Bin
4
5
6
Percentage Change in Median EIV (%)
Year


Percentage Change in Median Distance Sailed - Cruise
Size Bin
4
5
6
Percentage Change in Median Distance Sailed (%)
Year


Percentage Change in Median Days at Sea - Cruise
Size Bin
4
5
6
Percentage Change in Median Days at Sea (%)
0
−10
−20
−30
−40
−50
−60
2018
2019
2020
2021
2022
Year


Percentage Change in Median Days at Berth - Cruise
Size Bin
4
5
6
Percentage Change in Median Days at Berth (%)
140
120
100
80
60
40
20
0
2018
2019
2020
2021
2022
Year

3. Discussion

Total CO_2 emissions remained at approximately the 2008 level during the 2018-2022 period. The composite picture taking into account the results of the 3rd and 4th IMO GHG indicated a reduction in absolute emissions from international shipping in the period 2008-2014, rebounding back to 2008 levels by/around 2018, with emissions then holding at that level over the period to 2022.

Relative to 2008-2018, the changes of the key drivers (transport demand/work, and fleet carbon intensity) of emissions in the period 2018-2022 have stagnated. The 2018-2022 period shows only a very small increase in transport work and DWT nautical miles (1.4% p.a.) which is significantly lower than the ~3% p.a. growth observed from 2008-2018. Similarly, the trend in carbon intensity has slowed with an estimated 1.1% p.a. reduction from 2018 to 2022, contrasting with the average of improvement of ~3% p.a. over the period 2008-2018 (higher p.a. improvements earlier in this period).

These observations are consistent with the broader narrative of events and drivers of change: the 2018-2022 period saw the Covid-19 era disruption to trade and shipping, followed by the slow recovery as supply chain disruption unwound and the global economy gradually returned to normal. This limited the total growth in demand/transport work over the period.

Similarly, the rapid efficiency improvements achieved in 2008-2014, including both operational improvements induced through slow steaming and technology improvements such as 'eco ships' contributing to technical efficiency gains, appear to have plateaued. The absence of any driver beyond market forces, EEDI regulation and existence of market failures limited the incentive to go beyond the 'lowest hanging fruit' in efficiency. Once broad uptake of the lowest hanging fruit had been reached, carbon intensity improvement appears to have slowed.

In combination, low rates of total transport work increase and lower rates of GHG intensity improvement have cancelled each other out and resulted in negligible overall change in absolute emissions (2018-2022).

The overall finding is that the light regulation (EEDI, SEEMP) that existed during the period 2018-2022, in combination with market forces for that period (varying fuel prices and freight rates/prices), did not produce efficiency improvement or carbon intensity reduction that is in line with the IMO's revised strategy. This implies that the CII regulation that entered into force in 2023 needs to have both stringency and enforcement set to drive strong efficiency improvements in line with the IMO's revised strategy, otherwise the efficiency opportunity will be left behind.

3.1 Aggregated trends

The story of operational trends in the three CO_2-dominating sectors (oil tanker, container shipping and bulk) varies. Compared to 2008, total CO_2 emissions in 2022 have increased for container shipping by ~5%, stayed approximately constant for bulk shipping, and fallen by ~15% in oil tankers. The CO_2 trends over this timeframe are partly explained by changes in total transport work – while bulk carriers saw close to 70% growth in transport work, oil tankers saw much lower growth (~13%). More recently (2018-2022), changes in transport work have been more modest across all three sectors compared to 2008-2018 – a trend that is reflected across the international fleet as a whole.

All three ship types have seen significant increase in median deadweight over the period since 2008, which can be a significant contributor to CO_2 intensity improvement – larger ships have lower CO_2 intensity if all else is equal. Oil tanker shipping saw the largest increase in average deadweight. Although bulk carrier and container fleets have seen rapid growth in average ship size, there are signs that by 2022, the average ship size in these fleets is stabilising (e.g. may not increase further).

Average operating speeds have declined across all three ship types over the period 2018-2022 – albeit with a small increase in container and bulk ship speeds in 2021 potentially explained by the unwinding of the Covid-19 supply chain disruption. Relative to 2008, speeds in 2022 are between 9% (oil tanker) and 16% (container sector) lower. Through the period 2018-2022, deadweight of container shipping increased faster, than growth in deadweight of bulk carriers and oil tankers (which grew the slowest).

In combination, specific consequences on carbon intensity are variable:

1. Relative to 2008, EEOI indicated carbon intensity improvements at the fleet level in 2022 are worst in the oil tanker sector (~14% reduction) and highest in the bulk carrier sector (~34% reduction).

2. However, relative to 2018, EEOI trends are significantly more mixed by 2022. Oil tanker EEOI's have worsened (5% higher EEOI), and while bulk carrier EEOI trends showed improvement (3% lower EEOI) [2.2.2].

3. The aggregate EEOI trends are not mirrored in the AER trend over this period. Oil tanker, bulk carriers and container ships all show AER improvements (~4% improvement by 2022) [2.2.2].

3.2 Sector specific trends

3.2.1 Cruise shipping and Covid-19

Unlike freight shipping (oil, bulk and container shipping) which sustained only small changes in demand and transport work during 2020 and 2021, the cruise sector saw major disruption. Demand more than halved in those two years. The consequence of the demand reduction was a significant reduction in CO_2 emissions (~33% reduction), but in combination with the larger reduction in transport work, the result was a large increase/deterioration in carbon intensity in 2020 and 2021, relative to 2018 and 2019.

By 2022, the levels of all indicators for cruise shipping had returned much closer to long-run trends: a small increase in carbon intensity and a small reduction in total transport work relative to 2018.

During the period, growth rates in the largest category of cruise ships (size 6, 150,000+ GT) were the highest with the total gross tonnage increasing by 80% and contributing the greatest overall driver to the total capacity/fleet of cruise shipping. This should result in an opportunity for improved carbon intensity, on the assumption that larger ships offer greater economies of scale and efficiency, but this is not yet observable in the estimated trend of carbon intensity for the fleet.

One explanation for why the cruise sector's carbon intensity isn't showing improvement by 2022 is that it was still in a recovery from the disruption during covid – several of the indicators such as days at sea and distance sailed were still below the 2018 levels in 2022.

Detailed trends in bulk carrier segment 2018-2022

The bulk carrier segment saw a notable increase in transport work and total deadweight for size 6 (200,000+ dwt, 25% increase 2022 on 2018) and size 4 (60,000-99,999 DWT, 16% increase 2022 on 20218) – much of the total growth in transport supply comes from larger ship sizes. Smaller ship types saw declines in transport work and only small (<5%) increases in total deadweight over the period.

Over the same period, median deadweight nautical miles and transport work declined across all ship size categories – consistent with reductions in speed (between 1.5% and 6% lower speeds in 2022 than 2018). The speed reductions were largest in the largest ship size category.

Technical efficiency, as measured by EIV, did not significantly change over the time period, with the most change observed for size 6 (200,000+ deadweight tonnes, 4.5% reduction), and size 4 (60,000-99,999 deadweight tonnes, 1% reduction), consistent with these being the segments of the dry bulk fleet that saw greatest increase over the period.

These detailed trends help to explain the carbon intensity of bulk carriers over the period – deterioration in carbon intensity in the smallest bulk carrier sizes was offset by improvements in the largest bulk carrier sizes (200,000+) and an increase in average ship size (greater share of total transport work done by larger, lower carbon intensity ships). Overall, these two effects balance each other out over the period (aggregate AER improvement from 2018-2022 is only ~4% [2.2.2]).

3.2.2 Detailed trends in oil tanker segment 2018-2022

Much like the bulk carrier fleet, total capacity in the oil tanker fleet has grown between 2018 and 2022. This seems to be primarily driven by fleet growth amongst the larger oil tanker sizes (60,000 dwt+). However, in contrast to the bulk carrier segment, this growth in total capacity has occurred alongside a decline in total transport work across these larger ship size segments, leading to a significant decrease in the median ship's transport work.

The total transport work only increased for size 3 and size 6 with all other ship sizes displaying reductions in transport work. Median transport work either stayed constant or declined significantly (reduction in median transport work of 15-20% over the period 2018-2022 for size 1,4,5,7,8).

Technical efficiency changes, as measured by EIV, were negligible over the period, and are not a significant explanation for any of the trends in carbon intensity or emissions. Average speeds reduced for all ship sizes, with average speed reductions of around 4% (the greatest reductions were seen in sizes 1,4 and 8). For many ship sizes, lower speeds are combined with fewer days at sea and therefore shorter distances sailing laden, and an increase in days at berth/anchor.

The combinations of these trends create significant differences overall depending on the ship size. Some ship sizes (size 3 and 6) have sustained higher productivity/utilisation (as indicated by reduction in median transport work and cargo), whilst simultaneously seeing modest improvements in technical and operational efficiency. For these size categories both AER and EEOI improved over the period 2018-2022. Other ship size categories have experienced improvements in AER, but a significant reduction in transport work which more than cancels

out the AER improvements. A good example here is the largest oil tanker size which shows approximately 6% improvement in AER, but 10% deterioration in EEOI (consistent with approximately 10% reduction in transport work, growth in total deadweight of 15% and decline in median transport work exceeding 20%).

In the aggregate (across all ship sizes) the different trends for different ship sizes combine to result in deteriorating EEOI over the period (~5%) [2.2.2] and modestly improving AER over the period (~4%) [2.2.2].

3.2.3 Detailed trends in container shipping segment 2018-2022

Container shipping's major trend is in rapid growth of the largest size category (size 9, 20,000+ TEU), which sees a 150% growth in total TEU capacity over the period. Size 8 is also rapidly growing with approximately 145% increase in total TEU capacity between 2018 and 2022.

Another major driver and explanatory factor in this ship type's carbon intensity trend is ship speed. Although reductions were seen in the period 2018-2022, most ship sizes saw significant increases in ship speed in 2021, with speeds remaining higher in 2022. This is unlike bulk carriers and oil tankers that had seen speeds return to long run trends of reduction by 2022.

The rapid expansion in the fleet size of the largest container ships, contributes to significant progress in AER reductions in these segments (~10% reduction, ~13% reduction). Whereas for other ship sizes AER deteriorated in 2021 (higher speeds), and in some instances e.g. size 3, remained worse (higher carbon intensity) in 2022 than they were in 2018.

However, there is no estimate of transport work for this period (unlike for oil tankers and bulk carriers, it is not possible to accurately estimate TEU's carried for container ships), and it is therefore not possible to see whether the expansion of the fleet keeps pace with an increase in demand and transport work – and therefore what the consequence is to the EEOI trend for this ship type.

Several of the larger ship sizes (size 5,6,7,8), all see significant reductions in distance sailed (10-20% reduction) over the period, which is not explained fully by reductions in operating speed (4-8% reduction). The difference corresponds to an increase in days at berth (20-30%) and reduction in days at sea (around 10%). This suggests poorer utilisation/productivity of the median ship in these larger size segments, during the period.

In the aggregate (across all ship sizes) the container fleet AER only sees a modest improvement (~4%, [2.2.2]), because the gains in carbon intensity due to the increase in average ship size, are offset by some of the increases in ship speed and deteriorations in carbon intensity in smaller ship sizes.

4. Appendix

Table 3. Fleet operational data by ship type and size in the year 2019 (1)

Ship Type	Size Category	Units	Size Bin	No. Vessels	Deadweight			Gas Capacity			TEU			Cargo Transported			Transport Work		
					Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
Bulk carrier	0-9999	DWT	1	1.01	0.99	0.98	0.98	-	-	-	-	-	-	1.10	0.96	1.09	0.92	0.88	0.91
	10000-34999	DWT	2	0.99	1.00	1.00	1.00	-	-	-	-	-	-	1.00	1.05	1.00	0.98	0.98	0.99
	35000-59999	DWT	3	1.01	1.01	1.00	1.00	-	-	-	-	-	-	1.02	0.99	1.01	1.00	0.99	0.99
	60000-99999	DWT	4	1.08	1.07	1.00	1.00	-	-	-	-	-	-	1.07	0.99	0.99	1.05	0.97	0.98
	100000-199999	DWT	5	1.00	1.01	1.00	1.00	-	-	-	-	-	-	1.01	1.01	1.01	0.98	0.98	0.98
	200000+	DWT	6	1.12	1.13	1.00	1.00	-	-	-	-	-	-	1.05	0.95	0.93	0.96	0.92	0.86
Chemical tanker	0-4999	DWT	1	1.03	1.03	0.99	0.99	-	-	-	-	-	-	1.09	1.16	1.06	1.01	0.98	0.98
	5000-9999	DWT	2	1.02	1.02	1.00	1.00	-	-	-	-	-	-	1.06	1.06	1.04	0.99	1.01	0.98
	10000-19999	DWT	3	1.03	1.03	1.00	1.00	-	-	-	-	-	-	1.03	1.00	1.00	1.00	0.96	0.97
	20000-39999	DWT	4	1.02	1.02	1.00	1.00	-	-	-	-	-	-	1.03	1.00	1.01	0.99	0.97	0.97
	40000+	DWT	5	1.07	1.07	1.00	1.00	-	-	-	-	-	-	1.07	1.01	1.00	1.03	0.98	0.96
Container	0-999	TEU	1	1.01	1.00	1.00	1.00	-	-	-	1.00	1.00	1.00	-	-	-	-	-	-
	1000-1999	TEU	2	1.03	1.04	1.04	1.00	-	-	-	1.04	1.01	1.01	-	-	-	-	-	-
	2000-2999	TEU	3	1.03	1.03	1.00	1.00	-	-	-	1.03	1.00	1.00	-	-	-	-	-	-
	3000-4999	TEU	4	0.99	0.99	1.00	1.00	-	-	-	0.99	1.00	1.00	-	-	-	-	-	-
	5000-7999	TEU	5	1.00	1.00	1.00	1.00	-	-	-	1.00	1.00	1.00	-	-	-	-	-	-
	8000-11999	TEU	6	1.00	1.00	1.00	1.00	-	-	-	1.00	1.00	1.00	-	-	-	-	-	-
	12000-14499	TEU	7	1.06	1.06	1.00	1.00	-	-	-	1.07	1.00	1.00	-	-	-	-	-	-
	14500-19999	TEU	8	1.06	1.06	0.99	0.99	-	-	-	1.06	1.00	0.99	-	-	-	-	-	-
	20000+	TEU	9	1.45	1.49	1.01	1.03	-	-	-	1.49	1.00	1.02	-	-	-	-	-	-
Cruise	6000-99999	GT	4	1.00	1.00	1.00	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	100000-149999	GT	5	1.07	1.07	1.00	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	150000+	GT	6	1.24	1.22	1.06	0.99	-	-	-	-	-	-	-	-	-	-	-	-
Ferry-RoPax	0-1999	GT	1	1.05	1.04	1.00	0.99	-	-	-	-	-	-	-	-	-	-	-	-
	2000-4999	GT	2	1.04	1.03	0.97	0.99	-	-	-	-	-	-	-	-	-	-	-	-
	5000-9999	GT	3	1.04	1.05	1.00	1.01	-	-	-	-	-	-	-	-	-	-	-	-
	10000-19999	GT	4	1.02	1.02	1.01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	20000+	GT	5	1.02	1.03	1.00	1.00	-	-	-	-	-	-	-	-	-	-	-	-

Ship Type	Size Category	Units	Size Bin	No. Vessels	Deadweight			Gas Capacity			TEU			Cargo Transported			Transport Work		
					Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
Ferry-pax only	0-299	GT	1	1.04	1.03	1.00	0.99	-	-	-	-	-	-	-	-	-	-	-	-
	300-999	GT	2	1.07	1.07	1.01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	1000-1999	GT	3	0.98	1.01	1.01	1.03	-	-	-	-	-	-	-	-	-	-	-	-
	2000+	GT	4	1.02	1.01	1.00	0.99	-	-	-	-	-	-	-	-	-	-	-	-
General cargo	0-4999	DWT	1	1.04	1.03	0.97	0.99	-	-	-	-	-	-	1.02	0.86	0.98	0.97	0.90	0.94
	5000-9999	DWT	2	1.00	1.00	1.00	1.00	-	-	-	-	-	-	1.00	1.00	1.00	0.95	0.97	0.95
	10000-19999	DWT	3	1.00	1.00	1.00	1.00	-	-	-	-	-	-	1.01	0.99	1.01	0.98	0.94	0.98
	20000+	DWT	4	1.01	1.02	1.00	1.01	-	-	-	-	-	-	1.00	0.97	0.99	1.01	0.99	1.00
Liquefied gas tanker	0-4999	CBM	1	1.00	1.00	1.00	1.01	1.01	1.00	1.01	-	-	-	1.05	1.07	1.05	1.01	0.97	1.02
	5000-9999	CBM	2	1.05	1.05	1.00	1.00	1.05	1.00	1.00	-	-	-	1.05	0.99	1.00	1.01	0.97	0.97
	10000-19999	CBM	3	1.08	1.09	1.01	1.01	1.09	1.00	1.01	-	-	-	1.16	0.99	1.07	1.05	0.97	0.97
	20000+	CBM	4	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	-	-	1.13	1.18	1.13	1.05	1.04	1.05
Oil tanker	0-4999	DWT	1	1.01	1.01	1.00	0.99	-	-	-	-	-	-	1.09	0.87	1.07	0.99	0.93	0.98
	5000-9999	DWT	2	1.00	1.01	1.01	1.01	-	-	-	-	-	-	1.09	1.08	1.09	1.07	1.14	1.07
	10000-19999	DWT	3	1.05	1.04	0.99	0.99	-	-	-	-	-	-	1.10	1.11	1.05	1.15	1.00	1.10
	20000-59999	DWT	4	0.95	0.96	1.00	1.00	-	-	-	-	-	-	0.98	1.05	1.03	1.01	1.06	1.06
	60000-79999	DWT	5	0.99	0.99	1.00	1.00	-	-	-	-	-	-	0.98	0.96	0.99	0.97	0.96	0.98
	80000-119999	DWT	6	1.00	1.01	1.00	1.00	-	-	-	-	-	-	1.07	1.06	1.07	1.04	1.03	1.03
	120000-199999	DWT	7	1.00	1.00	1.00	1.00	-	-	-	-	-	-	0.93	0.90	0.93	0.92	0.94	0.92
	200000+	DWT	8	1.03	1.04	1.00	1.00	-	-	-	-	-	-	0.99	0.94	0.95	0.98	0.90	0.94
Other liquids tankers	0-999	DWT	1	1.03	1.03	1.00	0.99	-	-	-	-	-	-	1.16	-	1.12	0.85	-	0.83
	1000+	DWT	2	1.07	1.01	0.74	0.94	-	-	-	-	-	-	1.01	1.32	0.95	0.93	0.72	0.87
Refrigerated bulk	0-1999	DWT	1	0.96	0.98	1.02	1.02	-	-	-	-	-	-	0.97	8.60	1.01	1.00	5.73	1.04
	2000-5999	DWT	2	0.99	1.00	1.00	1.01	-	-	-	-	-	-	1.01	1.02	1.02	0.93	0.92	0.94
	6000-9999	DWT	3	0.96	0.95	1.00	1.00	-	-	-	-	-	-	0.93	0.87	0.98	0.89	0.91	0.93
	10000+	DWT	4	0.92	0.94	1.03	1.01	-	-	-	-	-	-	0.96	1.08	1.04	0.90	1.00	0.97
Ro-Ro	0-4999	GT	1	1.02	1.00	1.01	0.98	-	-	-	-	-	-	-	-	-	-	-	-
	5000-9999	GT	2	1.06	1.02	0.99	0.96	-	-	-	-	-	-	-	-	-	-	-	-
	10000-14999	GT	3	1.02	1.01	0.99	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	15000+	GT	4	1.07	1.04	0.99	0.97	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle	0-29999	GT	1	0.96	0.93	1.00	0.97	-	-	-	-	-	-	1.05	0.98	1.10	0.96	0.87	1.00
	30000-49999	GT	2	0.98	0.98	1.01	1.00	-	-	-	-	-	-	0.98	0.99	1.00	0.96	0.98	0.98
	50000+	GT	3	1.01	1.00	1.00	1.00	-	-	-	-	-	-	1.01	0.98	1.01	0.98	0.97	0.98

Table 4. Fleet operational data by ship type and size in the year 2019 (2)

Ship Type	Size Category	Units	Size Bin	DWT Nautical Miles			CO_2 Emissions			Days at Sea			Days at Berth			Distance Sailed – Ballast			Distance Sailed – Laden		
				Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
Bulk carrier	0-9999	DWT	1	0.94	0.91	0.94	0.99	1.01	0.98	0.95	0.95	0.94	1.06	1.05	1.05	0.98	0.95	0.97	0.90	0.93	0.90
	10000-34999	DWT	2	1.01	1.02	1.02	0.99	0.99	1.00	1.01	1.01	1.02	0.97	0.99	0.98	1.03	1.03	1.04	0.98	0.98	0.99
	35000-59999	DWT	3	1.03	1.03	1.02	1.01	0.99	1.00	1.04	1.02	1.03	0.98	0.97	0.97	1.07	1.04	1.06	1.01	0.99	1.00
	60000-99999	DWT	4	1.05	0.97	0.98	1.04	0.97	0.96	1.06	0.99	0.99	1.07	1.01	0.99	1.05	0.99	0.98	1.05	0.98	0.98
	100000-199999	DWT	5	0.98	0.97	0.97	0.97	0.97	0.97	0.98	0.98	0.98	1.03	1.03	1.03	0.97	0.96	0.97	0.98	0.97	0.97
	200000+	DWT	6	1.01	0.94	0.89	0.96	0.92	0.86	1.02	0.94	0.91	1.32	1.16	1.18	1.03	0.90	0.92	0.96	0.94	0.85
Chemical tanker	0-4999	DWT	1	1.02	1.00	0.99	1.03	1.00	1.00	1.03	1.00	1.00	1.03	1.00	1.00	1.02	0.98	0.99	1.02	1.08	0.99
	5000-9999	DWT	2	1.00	1.02	0.99	1.01	1.01	0.99	1.01	1.02	0.99	1.03	0.99	1.01	1.02	1.01	1.01	0.99	1.00	0.98
	10000-19999	DWT	3	1.02	0.97	0.99	1.02	0.98	0.99	1.03	0.99	1.00	1.05	1.02	1.02	1.11	1.09	1.07	1.00	0.96	0.97
	20000-39999	DWT	4	1.00	0.97	0.98	1.00	0.98	0.97	1.01	0.99	0.99	1.02	1.01	1.00	1.08	1.13	1.06	0.99	0.97	0.97
	40000+	DWT	5	1.03	0.98	0.96	1.03	0.97	0.96	1.03	0.98	0.96	1.09	1.02	1.02	1.00	0.73	0.94	1.03	0.98	0.96
Container	0-999	TEU	1	0.97	0.98	0.97	0.97	0.98	0.96	0.99	0.99	0.98	1.03	1.01	1.02	-	-	-	-	-	-
	1000-1999	TEU	2	0.99	0.96	0.96	0.96	0.93	0.93	1.01	1.00	0.98	1.04	0.98	1.01	-	-	-	-	-	-
	2000-2999	TEU	3	0.99	0.97	0.97	0.96	0.92	0.94	1.03	1.00	1.00	1.06	1.01	1.03	-	-	-	-	-	-
	3000-4999	TEU	4	0.96	0.95	0.97	0.95	0.95	0.96	0.99	0.99	1.00	1.00	1.01	1.01	-	-	-	-	-	-
	5000-7999	TEU	5	0.96	0.97	0.97	0.93	0.95	0.94	0.99	1.00	1.00	1.01	1.00	1.01	-	-	-	-	-	-
	8000-11999	TEU	6	0.98	0.98	0.98	0.96	0.95	0.96	1.01	1.01	1.00	1.01	0.99	1.01	-	-	-	-	-	-
	12000-14499	TEU	7	1.06	0.96	0.99	1.01	0.91	0.94	1.09	1.00	1.03	1.05	1.00	0.99	-	-	-	-	-	-
	14500-19999	TEU	8	0.95	0.87	0.90	0.92	0.85	0.86	1.00	0.94	0.94	1.15	1.12	1.08	-	-	-	-	-	-
	20000+	TEU	9	1.65	1.16	1.13	1.58	1.20	1.09	1.65	1.14	1.13	1.29	0.96	0.89	-	-	-	-	-	-
Cruise	6000-99999	GT	4	0.99	0.99	0.99	1.01	1.00	1.01	0.99	0.98	0.99	1.05	1.05	1.05	-	-	-	-	-	-
	100000-149999	GT	5	1.04	1.00	0.97	1.05	0.97	0.98	1.04	0.97	0.97	1.15	1.08	1.08	-	-	-	-	-	-
	150000+	GT	6	1.15	1.04	0.93	1.18	1.01	0.95	1.15	0.95	0.93	1.31	1.06	1.06	-	-	-	-	-	-
Ferry-RoPax	0-1999	GT	1	0.96	0.90	0.92	1.04	0.99	0.99	0.99	0.92	0.95	1.08	1.05	1.04	-	-	-	-	-	-
	2000-4999	GT	2	0.99	1.04	0.95	1.00	1.01	0.96	1.02	0.96	0.98	1.06	1.02	1.02	-	-	-	-	-	-
	5000-9999	GT	3	0.99	0.97	0.96	1.01	0.96	0.97	1.01	0.92	0.97	1.08	1.08	1.04	-	-	-	-	-	-
	10000-19999	GT	4	1.00	0.97	0.98	1.00	0.99	0.98	0.98	0.96	0.96	1.06	1.04	1.04	-	-	-	-	-	-
	20000+	GT	5	1.00	0.98	0.98	0.99	0.97	0.97	0.99	0.97	0.97	1.06	1.05	1.04	-	-	-	-	-	-
Ferry-pax only	0-299	GT	1	0.93	0.87	0.89	0.99	0.99	0.95	1.00	0.92	0.96	1.07	1.05	1.03	-	-	-	-	-	-
	300-999	GT	2	0.98	0.89	0.91	1.00	1.06	0.94	0.98	0.90	0.92	1.12	1.07	1.05	-	-	-	-	-	-
	1000-1999	GT	3	0.94	0.91	0.96	0.95	0.98	0.96	0.93	1.05	0.95	0.99	0.95	1.01	-	-	-	-	-	-
	2000+	GT	4	0.96	0.96	0.94	0.95	0.94	0.94	1.05	1.05	1.04	0.98	0.93	0.96	-	-	-	-	-	-

Ship Type	Size Category	Units	Size Bin	DWT Nautical Miles			CO_2 Emissions			Days at Sea			Days at Berth			Distance Sailed – Ballast			Distance Sailed – Laden		
				Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
General cargo	0-4999	DWT	1	1.00	0.97	0.96	1.04	1.02	1.00	1.03	0.98	0.99	1.05	1.03	1.01	1.05	1.03	1.01	0.97	0.91	0.93
	5000-9999	DWT	2	0.96	0.95	0.96	0.96	0.96	0.96	0.98	0.98	0.98	1.01	1.01	1.01	0.98	1.01	0.98	0.95	0.97	0.94
	10000-19999	DWT	3	0.99	0.97	0.99	0.98	0.98	0.99	0.98	0.99	0.99	1.01	1.01	1.01	1.00	1.03	1.00	0.98	0.94	0.98
	20000+	DWT	4	1.02	1.01	1.01	0.99	0.99	0.98	1.03	1.01	1.02	0.99	0.98	0.98	1.03	1.02	1.02	1.01	1.01	1.00
Liquefied gas tanker	0-4999	CBM	1	1.00	1.00	1.01	0.99	0.99	0.99	0.99	0.97	0.99	1.00	1.03	1.01	0.96	0.93	0.97	0.98	0.97	0.98
	5000-9999	CBM	2	1.07	1.03	1.02	1.07	1.04	1.02	1.06	1.02	1.01	0.99	0.90	0.94	1.16	1.06	1.11	1.01	0.96	0.96
	10000-19999	CBM	3	1.09	0.99	1.00	1.06	0.98	0.98	1.08	0.98	1.00	1.13	1.11	1.05	1.24	1.36	1.14	1.04	0.96	0.96
	20000+	CBM	4	1.04	1.03	1.04	1.05	1.03	1.05	1.02	1.03	1.02	0.94	0.93	0.94	1.04	-	1.04	1.04	1.06	1.04
Oil tanker	0-4999	DWT	1	1.00	1.01	0.98	1.02	1.01	1.00	1.02	1.00	1.01	1.01	1.00	1.00	0.99	0.98	0.98	0.99	0.92	0.97
	5000-9999	DWT	2	1.06	1.05	1.06	1.01	1.01	1.01	1.05	1.09	1.05	0.98	0.96	0.98	1.01	0.96	1.01	1.06	1.12	1.06
	10000-19999	DWT	3	1.11	1.06	1.06	1.04	1.03	0.99	1.11	1.13	1.06	1.02	0.93	0.97	1.13	0.88	1.07	1.13	1.15	1.07
	20000-59999	DWT	4	0.96	0.99	1.01	0.95	1.00	1.00	0.97	1.00	1.02	0.94	1.00	0.99	0.95	1.00	1.00	0.99	1.03	1.04
	60000-79999	DWT	5	0.97	0.96	0.98	0.98	0.98	0.99	0.97	0.96	0.98	1.02	1.05	1.03	0.96	1.00	0.97	0.97	0.93	0.98
	80000-119999	DWT	6	1.00	0.99	0.99	1.01	1.01	1.00	0.99	0.98	0.99	1.03	1.03	1.03	0.96	0.95	0.96	1.03	1.01	1.02
	120000-199999	DWT	7	0.99	0.97	0.99	1.01	1.00	1.01	0.99	0.98	0.99	1.03	1.04	1.03	1.05	1.03	1.05	0.92	0.93	0.92
	200000+	DWT	8	1.05	1.01	1.01	1.05	1.03	1.01	1.03	0.99	0.99	1.03	1.04	1.00	1.10	1.05	1.06	0.99	0.91	0.95
Other liquids tankers	0-999	DWT	1	0.85	0.87	0.82	1.08	0.98	1.04	0.90	0.96	0.87	1.13	1.02	1.09	0.89	0.05	0.86	0.78	-	0.76
	1000+	DWT	2	0.95	0.71	0.88	1.01	1.04	0.94	0.91	0.82	0.85	1.28	1.29	1.20	1.01	2.22	0.95	0.89	0.72	0.84
Refrigerated bulk	0-1999	DWT	1	0.90	0.87	0.94	0.96	0.99	1.00	0.95	1.05	0.99	0.98	0.97	1.02	0.99	1.15	1.03	1.01	9.37	1.05
	2000-5999	DWT	2	0.92	0.95	0.93	0.97	0.97	0.98	0.94	0.95	0.95	1.02	1.03	1.03	0.89	0.85	0.89	0.94	0.93	0.95
	6000-9999	DWT	3	0.91	0.87	0.95	0.93	0.97	0.97	0.91	0.94	0.95	1.00	1.05	1.05	1.10	0.56	1.15	0.88	0.91	0.92
	10000+	DWT	4	0.91	1.04	0.99	0.91	0.99	0.99	0.89	0.97	0.96	0.98	1.04	1.06	0.85	0.73	0.92	0.89	1.02	0.96
Ro-Ro	0-4999	GT	1	0.96	0.94	0.94	1.00	0.98	0.98	0.98	0.94	0.96	1.03	1.01	1.01	-	-	-	-	-	-
	5000-9999	GT	2	0.99	0.87	0.93	1.02	0.97	0.96	1.04	0.96	0.97	1.08	1.05	1.01	-	-	-	-	-	-
	10000-14999	GT	3	0.96	0.97	0.94	0.96	0.96	0.94	0.98	1.00	0.96	1.08	1.01	1.06	-	-	-	-	-	-
	15000+	GT	4	1.01	0.92	0.95	1.05	0.94	0.98	1.04	0.96	0.98	1.08	1.05	1.02	-	-	-	-	-	-
Vehicle	0-29999	GT	1	0.90	0.93	0.94	0.94	0.98	0.98	0.94	1.00	0.98	0.98	1.01	1.02	-	-	-	-	-	-
	30000-49999	GT	2	0.95	0.99	0.97	0.93	0.96	0.95	0.97	0.99	1.00	0.99	1.02	1.01	-	-	-	-	-	-
	50000+	GT	3	0.98	0.97	0.98	0.97	0.95	0.96	1.00	0.99	1.00	1.05	1.03	1.05	-	-	-	-	-	-

Table 5. Fleet operational data by ship type and size in the year 2019 (3)

Ship Type	Size Category	Units	Size Bin	Distance Sailed			Average SOG		Distance-Weighted Average SOG		EIV		Overall AER	Overall EEOI
				Total	Median	Mean	Median	Mean	Median	Mean	Median	Mean		
Bulk carrier	0-9999	DWT	1	0.94	0.95	0.93	0.99	0.99	0.99	0.99	1.01	1.02	1.05	1.08
	10000-34999	DWT	2	1.00	1.00	1.01	0.99	0.99	0.99	0.99	1.00	0.99	0.98	1.00
	35000-59999	DWT	3	1.03	1.01	1.02	0.99	0.99	0.99	0.99	1.00	1.00	0.98	1.00
	60000-99999	DWT	4	1.05	0.98	0.98	0.99	0.99	0.99	0.99	1.00	1.00	0.99	0.99
	100000-199999	DWT	5	0.97	0.97	0.97	0.99	0.99	0.99	0.99	1.00	1.00	0.99	0.99
	200000+	DWT	6	0.99	0.92	0.88	0.98	0.98	0.98	0.98	0.99	0.99	0.96	1.00
Chemical tanker	0-4999	DWT	1	1.02	1.02	0.99	0.99	1.00	0.99	0.99	1.01	1.01	1.01	1.02
	5000-9999	DWT	2	1.00	1.02	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.01	1.02
	10000-19999	DWT	3	1.02	0.98	0.99	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.02
	20000-39999	DWT	4	1.00	0.99	0.98	0.99	0.99	0.99	0.99	1.00	1.00	1.00	1.00
	40000+	DWT	5	1.03	0.97	0.96	0.99	1.00	0.99	0.99	0.99	0.99	1.00	1.00
Container	0-999	TEU	1	0.97	0.96	0.96	0.98	0.98	0.98	0.98	1.00	1.04	1.00	-
	1000-1999	TEU	2	0.99	0.97	0.95	0.98	0.98	0.98	0.98	0.99	0.99	0.98	-
	2000-2999	TEU	3	0.99	0.96	0.96	0.97	0.97	0.97	0.97	1.00	0.99	0.97	-
	3000-4999	TEU	4	0.97	0.96	0.97	0.97	0.98	0.98	0.98	1.00	1.00	0.99	-
	5000-7999	TEU	5	0.96	0.97	0.97	0.98	0.97	0.97	0.97	1.00	1.00	0.97	-
	8000-11999	TEU	6	0.98	0.98	0.98	0.98	0.98	0.98	0.98	1.00	1.00	0.97	-
	12000-14499	TEU	7	1.06	0.96	1.00	0.97	0.98	0.97	0.97	0.99	0.99	0.95	-
	14500-19999	TEU	8	0.97	0.91	0.91	0.96	0.96	0.96	0.96	0.99	0.99	0.96	-
	20000+	TEU	9	1.62	1.18	1.11	0.97	0.99	0.99	0.99	1.00	1.01	0.96	-
Cruise	6000-99999	GT	4	0.99	1.01	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.02	-
	100000-149999	GT	5	1.04	0.99	0.97	1.00	1.00	1.00	1.00	1.00	0.99	1.01	-
	150000+	GT	6	1.16	1.00	0.94	1.02	0.99	1.01	1.01	1.00	0.99	1.02	-
Ferry-RoPax	0-1999	GT	1	0.98	0.93	0.94	0.99	0.99	0.99	0.99	0.99	0.99	1.08	-
	2000-4999	GT	2	1.00	0.97	0.96	1.00	1.00	0.96	0.96	0.99	0.99	1.01	-
	5000-9999	GT	3	0.98	0.92	0.95	0.98	0.99	0.97	0.97	0.98	0.96	1.01	-
	10000-19999	GT	4	0.98	0.95	0.97	0.98	1.00	1.01	1.01	0.99	1.01	1.00	-
	20000+	GT	5	0.99	0.96	0.97	1.01	1.00	1.00	1.00	0.99	1.00	0.99	-
Ferry-pax only	0-299	GT	1	0.96	0.94	0.92	0.94	0.97	0.96	0.96	1.01	1.01	1.06	-
	300-999	GT	2	0.95	0.90	0.89	0.92	0.99	0.98	0.98	0.99	0.99	1.03	-
	1000-1999	GT	3	0.93	0.97	0.95	0.95	0.97	1.00	1.00	0.98	0.85	1.00	-
	2000+	GT	4	1.01	1.00	1.00	0.99	0.98	0.98	0.98	0.97	0.98	0.99	-

Ship Type	Size Category	Units	Size Bin	Distance Sailed			Average SOG		Distance-Weighted Average SOG		EIV		Overall AER	Overall EEOI
				Total	Median	Mean	Median	Mean	Median	Mean	Median	Mean		
General cargo	0-4999	DWT	1	1.01	0.97	0.97	0.98	0.99	0.98	0.98	1.01	1.03	1.04	1.07
	5000-9999	DWT	2	0.96	0.96	0.96	0.99	0.99	0.98	0.98	1.00	1.01	1.00	1.01
	10000-19999	DWT	3	0.98	0.99	0.99	1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.01
	20000+	DWT	4	1.01	0.99	1.01	0.99	0.99	0.99	0.99	1.00	0.99	0.97	0.98
Liquefied gas tanker	0-4999	CBM	1	0.98	0.97	0.98	0.99	1.00	0.99	0.99	1.00	1.01	0.98	0.98
	5000-9999	CBM	2	1.07	1.02	1.02	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.06
	10000-19999	CBM	3	1.07	0.98	0.99	1.00	1.00	1.00	1.00	0.99	1.00	0.98	1.01
	20000+	CBM	4	1.04	1.05	1.04	1.02	1.02	1.02	1.02	1.00	1.00	1.01	1.00
Oil tanker	0-4999	DWT	1	1.00	1.01	0.99	0.99	0.99	0.98	0.98	1.00	1.01	1.02	1.03
	5000-9999	DWT	2	1.05	1.09	1.05	1.00	1.00	1.00	1.00	0.99	0.99	0.95	0.94
	10000-19999	DWT	3	1.11	1.04	1.05	0.99	0.99	0.99	0.99	1.00	1.00	0.94	0.91
	20000-59999	DWT	4	0.96	1.00	1.01	1.00	1.00	0.99	0.99	1.00	1.05	0.99	0.94
	60000-79999	DWT	5	0.97	0.96	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01
	80000-119999	DWT	6	0.99	0.98	0.99	1.00	1.00	1.00	1.00	0.99	1.00	1.01	0.97
	120000-199999	DWT	7	0.99	0.98	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.10
	200000+	DWT	8	1.04	1.01	1.01	1.02	1.02	1.01	1.01	1.00	1.00	1.00	1.07
Other liquids tankers	0-999	DWT	1	0.90	0.94	0.87	0.96	0.94	0.96	0.96	1.00	1.00	1.27	1.26
	1000+	DWT	2	0.92	0.73	0.86	0.88	0.96	0.98	0.98	1.11	1.06	1.06	1.08
Refrigerated bulk	0-1999	DWT	1	0.95	1.05	0.99	0.97	0.98	1.01	1.01	0.99	1.00	1.06	0.95
	2000-5999	DWT	2	0.93	0.95	0.94	1.00	0.99	0.99	0.99	0.99	0.99	1.05	1.04
	6000-9999	DWT	3	0.90	0.93	0.94	0.99	1.00	0.99	0.99	1.00	0.99	1.03	1.05
	10000+	DWT	4	0.89	1.02	0.96	0.99	0.99	0.99	0.99	1.01	1.00	1.00	1.01
Ro-Ro	0-4999	GT	1	0.98	0.90	0.96	0.99	0.99	0.99	0.99	0.98	1.03	1.03	-
	5000-9999	GT	2	1.01	0.91	0.95	0.95	0.98	0.99	0.99	1.03	1.02	1.03	-
	10000-14999	GT	3	0.96	0.95	0.94	0.98	0.98	0.98	0.98	1.03	1.00	1.00	-
	15000+	GT	4	1.04	0.95	0.98	1.00	1.01	1.00	1.00	1.00	1.02	1.03	-
Vehicle	0-29999	GT	1	0.93	0.99	0.98	0.99	0.99	0.99	0.99	1.03	1.02	1.04	0.98
	30000-49999	GT	2	0.95	0.97	0.97	0.98	0.98	0.98	0.98	1.00	1.00	0.98	0.98
	50000+	GT	3	0.98	0.98	0.98	0.98	0.98	0.98	0.98	1.00	1.00	0.98	0.98

Table 6. Fleet operational data by ship type and size in the year 2020 (1)

Ship Type	Size Category	Units	Size Bin	No. Vessels	Deadweight			Gas Capacity			TEU			Cargo Transported			Transport Work		
					Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
Bulk carrier	0-9999	DWT	1	0.99	0.96	0.92	0.97	-	-	-	-	-	-	1.13	0.91	1.14	0.84	0.80	0.85
	10000-34999	DWT	2	0.98	0.99	1.00	1.00	-	-	-	-	-	-	0.99	1.04	1.00	0.96	0.94	0.97
	35000-59999	DWT	3	1.02	1.01	1.00	0.99	-	-	-	-	-	-	0.99	0.96	0.97	0.97	0.95	0.95
	60000-99999	DWT	4	1.15	1.14	1.00	1.00	-	-	-	-	-	-	1.07	0.93	0.94	1.08	0.94	0.94
	100000-199999	DWT	5	1.02	1.02	1.00	1.00	-	-	-	-	-	-	0.95	0.94	0.93	0.90	0.87	0.89
	200000+	DWT	6	1.24	1.24	1.00	1.00	-	-	-	-	-	-	1.08	0.88	0.87	1.02	0.87	0.82
Chemical tanker	0-4999	DWT	1	1.04	1.03	0.99	0.99	-	-	-	-	-	-	1.06	1.13	1.02	0.97	0.92	0.93
	5000-9999	DWT	2	1.03	1.03	1.00	1.00	-	-	-	-	-	-	1.04	1.02	1.01	0.97	0.94	0.94
	10000-19999	DWT	3	1.05	1.04	1.00	1.00	-	-	-	-	-	-	1.02	0.99	0.97	1.00	0.95	0.95
	20000-39999	DWT	4	1.06	1.06	1.00	1.00	-	-	-	-	-	-	1.01	0.93	0.95	0.99	0.93	0.93
	40000+	DWT	5	1.12	1.12	1.00	1.01	-	-	-	-	-	-	1.08	0.97	0.96	1.08	0.98	0.97
Container	0-999	TEU	1	0.97	0.98	1.00	1.00	-	-	-	0.98	1.00	1.01	-	-	-	-	-	-
	1000-1999	TEU	2	1.03	1.03	1.05	1.01	-	-	-	1.04	1.02	1.01	-	-	-	-	-	-
	2000-2999	TEU	3	1.07	1.07	1.00	1.00	-	-	-	1.08	1.00	1.01	-	-	-	-	-	-
	3000-4999	TEU	4	0.99	0.98	1.00	1.00	-	-	-	0.99	1.00	1.00	-	-	-	-	-	-
	5000-7999	TEU	5	0.97	0.98	1.00	1.00	-	-	-	0.98	1.00	1.00	-	-	-	-	-	-
	8000-11999	TEU	6	1.00	1.01	1.00	1.00	-	-	-	1.01	1.00	1.00	-	-	-	-	-	-
	12000-14499	TEU	7	1.11	1.10	1.00	0.99	-	-	-	1.10	1.00	1.00	-	-	-	-	-	-
	14500-19999	TEU	8	1.16	1.13	0.99	0.98	-	-	-	1.14	0.99	0.98	-	-	-	-	-	-
	20000+	TEU	9	1.86	1.97	1.01	1.06	-	-	-	1.96	1.02	1.05	-	-	-	-	-	-
Cruise	6000-99999	GT	4	1.00	1.00	1.00	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	100000-149999	GT	5	1.10	1.10	1.00	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	150000+	GT	6	1.33	1.35	1.10	1.01	-	-	-	-	-	-	-	-	-	-	-	-
Ferry-RoPax	0-1999	GT	1	1.05	1.06	1.01	1.01	-	-	-	-	-	-	-	-	-	-	-	-
	2000-4999	GT	2	1.04	1.03	0.97	0.99	-	-	-	-	-	-	-	-	-	-	-	-
	5000-9999	GT	3	1.01	1.03	1.03	1.02	-	-	-	-	-	-	-	-	-	-	-	-
	10000-19999	GT	4	1.02	1.03	1.01	1.02	-	-	-	-	-	-	-	-	-	-	-	-
	20000+	GT	5	1.05	1.06	1.01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
Ferry-pax only	0-299	GT	1	0.98	0.96	1.00	0.98	-	-	-	-	-	-	-	-	-	-	-	-
	300-999	GT	2	1.01	0.96	0.95	0.95	-	-	-	-	-	-	-	-	-	-	-	-
	1000-1999	GT	3	0.96	0.98	1.01	1.02	-	-	-	-	-	-	-	-	-	-	-	-
	2000+	GT	4	1.07	0.99	0.95	0.92	-	-	-	-	-	-	-	-	-	-	-	-

Ship Type	Size Category	Units	Size Bin	No. Vessels	Deadweight			Gas Capacity			TEU			Cargo Transported			Transport Work		
					Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
General cargo	0-4999	DWT	1	1.04	1.02	0.96	0.98	-	-	-	-	-	-	1.01	0.83	0.97	0.95	0.85	0.92
	5000-9999	DWT	2	1.01	1.01	1.00	1.00	-	-	-	-	-	-	1.01	1.01	1.00	0.93	0.93	0.91
	10000-19999	DWT	3	1.01	1.01	1.00	1.00	-	-	-	-	-	-	1.00	0.99	0.99	0.95	0.92	0.94
	20000+	DWT	4	1.00	1.01	1.00	1.02	-	-	-	-	-	-	0.94	0.95	0.95	0.96	0.94	0.97
Liquefied gas tanker	0-4999	CBM	1	1.00	1.01	1.00	1.00	1.02	1.00	1.01	-	-	-	1.06	1.07	1.05	1.06	0.92	1.06
	5000-9999	CBM	2	1.11	1.12	1.00	1.00	1.12	1.00	1.01	-	-	-	1.10	0.95	0.99	1.04	0.96	0.93
	10000-19999	CBM	3	1.17	1.19	1.02	1.02	1.20	1.02	1.02	-	-	-	1.19	0.97	1.01	1.15	0.99	0.98
	20000+	CBM	4	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	-	-	1.15	1.20	1.15	0.99	1.01	0.99
Oil tanker	0-4999	DWT	1	1.00	0.98	0.97	0.98	-	-	-	-	-	-	1.06	0.82	1.06	0.95	0.87	0.95
	5000-9999	DWT	2	0.99	1.00	1.01	1.00	-	-	-	-	-	-	1.09	1.13	1.09	1.03	1.06	1.04
	10000-19999	DWT	3	1.05	1.04	0.99	0.99	-	-	-	-	-	-	1.04	1.06	1.00	1.11	1.07	1.06
	20000-59999	DWT	4	0.95	0.94	1.00	1.00	-	-	-	-	-	-	0.87	0.94	0.92	0.91	0.91	0.96
	60000-79999	DWT	5	0.99	0.99	1.00	1.00	-	-	-	-	-	-	0.93	0.92	0.94	0.89	0.85	0.90
	80000-119999	DWT	6	1.02	1.02	1.00	1.00	-	-	-	-	-	-	1.04	1.03	1.03	1.01	0.96	0.99
	120000-199999	DWT	7	1.03	1.03	1.00	1.00	-	-	-	-	-	-	0.89	0.84	0.86	0.89	0.83	0.86
	200000+	DWT	8	1.05	1.06	1.00	1.00	-	-	-	-	-	-	0.99	0.92	0.94	0.94	0.87	0.90
Other liquids tankers	0-999	DWT	1	1.03	0.99	0.96	0.96	-	-	-	-	-	-	1.44	-	1.39	0.52	-	0.50
	1000+	DWT	2	0.97	0.99	1.21	1.03	-	-	-	-	-	-	0.87	1.68	0.90	0.93	1.87	0.96
Refrigerated bulk	0-1999	DWT	1	0.90	0.90	1.00	1.00	-	-	-	-	-	-	0.81	0.00	0.90	0.83	0.00	0.92
	2000-5999	DWT	2	0.93	0.94	1.03	1.02	-	-	-	-	-	-	0.88	0.94	0.94	0.89	0.90	0.96
	6000-9999	DWT	3	0.92	0.92	1.00	1.00	-	-	-	-	-	-	0.84	0.79	0.91	0.84	0.88	0.91
	10000+	DWT	4	0.86	0.88	1.04	1.02	-	-	-	-	-	-	0.97	1.10	1.13	0.89	0.98	1.03
Ro-Ro	0-4999	GT	1	1.02	0.98	0.96	0.96	-	-	-	-	-	-	-	-	-	-	-	-
	5000-9999	GT	2	1.08	1.03	0.98	0.95	-	-	-	-	-	-	-	-	-	-	-	-
	10000-14999	GT	3	0.99	0.99	0.99	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	15000+	GT	4	1.07	1.03	0.99	0.97	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle	0-29999	GT	1	0.91	0.85	0.99	0.94	-	-	-	-	-	-	0.92	0.90	1.01	0.80	0.74	0.88
	30000-49999	GT	2	0.94	0.94	1.01	1.00	-	-	-	-	-	-	0.76	0.80	0.81	0.70	0.73	0.75
	50000+	GT	3	1.01	1.01	1.00	1.00	-	-	-	-	-	-	0.89	0.83	0.88	0.83	0.81	0.83

Table 7. Fleet operational data by ship type and size in the year 2020 (2)

Ship Type	Size Category	Units	Size Bin	DWT Nautical Miles			CO_2 Emissions			Days at Sea			Days at Berth			Distance Sailed – Ballast			Distance Sailed – Laden		
				Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
Bulk carrier	0-9999	DWT	1	0.88	0.87	0.88	0.94	0.97	0.95	0.90	0.90	0.91	1.10	1.10	1.11	0.96	0.99	0.97	0.81	0.81	0.82
	10000-34999	DWT	2	0.97	0.97	0.98	0.93	0.93	0.95	0.98	0.99	1.00	1.00	1.02	1.01	0.97	0.98	0.99	0.96	0.96	0.97
	35000-59999	DWT	3	1.01	0.99	0.99	0.98	0.96	0.96	1.04	1.03	1.02	1.00	0.98	0.98	1.07	1.04	1.05	0.99	0.97	0.97
	60000-99999	DWT	4	1.12	0.96	0.98	1.10	0.96	0.96	1.14	1.00	1.00	1.14	1.00	0.99	1.17	1.04	1.03	1.09	0.95	0.96
	100000-199999	DWT	5	0.96	0.95	0.94	0.94	0.93	0.93	0.97	0.98	0.96	1.09	1.06	1.08	1.03	1.00	1.01	0.90	0.87	0.89
	200000+	DWT	6	1.09	0.91	0.88	1.04	0.88	0.83	1.11	0.91	0.89	1.53	1.20	1.23	1.16	0.90	0.93	1.02	0.90	0.82
Chemical tanker	0-4999	DWT	1	0.98	0.94	0.94	1.04	1.01	1.00	1.00	0.96	0.96	1.08	1.04	1.04	1.01	0.97	0.97	0.98	1.02	0.94
	5000-9999	DWT	2	0.98	0.95	0.95	1.01	0.98	0.98	1.00	0.99	0.96	1.08	1.03	1.05	1.00	1.01	0.97	0.98	0.97	0.95
	10000-19999	DWT	3	1.00	0.94	0.96	1.01	0.96	0.96	1.02	0.97	0.97	1.11	1.06	1.06	1.01	0.90	0.97	1.00	0.94	0.95
	20000-39999	DWT	4	1.00	0.94	0.94	1.00	0.96	0.94	1.02	0.98	0.96	1.11	1.03	1.05	1.07	1.06	1.01	1.00	0.94	0.94
	40000+	DWT	5	1.07	0.97	0.96	1.07	0.96	0.96	1.07	0.97	0.96	1.18	1.04	1.05	0.87	0.60	0.77	1.08	0.97	0.96
Container	0-999	TEU	1	0.90	0.93	0.93	0.90	0.92	0.93	0.91	0.96	0.94	1.06	1.06	1.09	-	-	-	-	-	-
	1000-1999	TEU	2	0.96	0.94	0.94	0.93	0.90	0.91	1.00	0.99	0.98	1.06	1.01	1.03	-	-	-	-	-	-
	2000-2999	TEU	3	0.99	0.94	0.93	0.96	0.88	0.89	1.03	0.98	0.97	1.13	1.04	1.05	-	-	-	-	-	-
	3000-4999	TEU	4	0.89	0.91	0.91	0.90	0.92	0.91	0.93	0.94	0.94	1.12	1.14	1.13	-	-	-	-	-	-
	5000-7999	TEU	5	0.89	0.92	0.91	0.86	0.89	0.88	0.93	0.96	0.95	1.10	1.12	1.13	-	-	-	-	-	-
	8000-11999	TEU	6	0.93	0.92	0.93	0.91	0.89	0.91	0.96	0.96	0.95	1.15	1.12	1.14	-	-	-	-	-	-
	12000-14499	TEU	7	1.02	0.90	0.93	0.99	0.85	0.90	1.06	0.96	0.96	1.28	1.10	1.15	-	-	-	-	-	-
	14500-19999	TEU	8	1.01	0.88	0.88	0.97	0.85	0.84	1.08	0.94	0.94	1.28	1.12	1.10	-	-	-	-	-	-
	20000+	TEU	9	2.13	1.12	1.14	2.02	1.17	1.08	2.11	1.03	1.13	1.88	1.17	1.01	-	-	-	-	-	-
Cruise	6000-99999	GT	4	0.40	0.36	0.40	0.65	0.63	0.65	0.47	0.46	0.47	2.29	2.35	2.29	-	-	-	-	-	-
	100000-149999	GT	5	0.43	0.39	0.39	0.62	0.56	0.56	0.53	0.46	0.48	2.43	2.43	2.22	-	-	-	-	-	-
	150000+	GT	6	0.49	0.42	0.37	0.72	0.54	0.54	0.66	0.50	0.49	2.95	2.34	2.21	-	-	-	-	-	-
Ferry-RoPax	0-1999	GT	1	0.91	0.89	0.87	1.01	0.98	0.96	0.94	0.85	0.90	1.14	1.11	1.09	-	-	-	-	-	-
	2000-4999	GT	2	0.87	0.84	0.84	0.90	0.94	0.87	0.91	0.85	0.88	1.14	1.10	1.10	-	-	-	-	-	-
	5000-9999	GT	3	0.86	0.84	0.85	0.88	0.86	0.87	0.88	0.74	0.87	1.12	1.18	1.10	-	-	-	-	-	-
	10000-19999	GT	4	0.91	0.80	0.90	0.91	0.85	0.89	0.83	0.81	0.82	1.20	1.21	1.18	-	-	-	-	-	-
	20000+	GT	5	0.88	0.86	0.84	0.89	0.85	0.85	0.85	0.80	0.81	1.33	1.27	1.26	-	-	-	-	-	-
Ferry-pax only	0-300	GT	1	0.73	0.62	0.75	0.86	0.87	0.88	0.81	0.65	0.83	1.12	1.21	1.14	-	-	-	-	-	-
	300-999	GT	2	0.68	0.50	0.67	0.75	0.83	0.74	0.72	0.56	0.72	1.22	1.29	1.21	-	-	-	-	-	-
	1000-1999	GT	3	0.80	0.70	0.83	0.87	0.88	0.91	0.79	0.77	0.82	1.06	1.08	1.10	-	-	-	-	-	-
	2000+	GT	4	0.63	0.47	0.59	0.73	0.68	0.68	0.70	0.59	0.65	1.44	1.53	1.34	-	-	-	-	-	-

Ship Type	Size Category	Units	Size Bin	DWT Nautical Miles			CO_2 Emissions			Days at Sea			Days at Berth			Distance Sailed – Ballast			Distance Sailed – Laden		
				Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
General cargo	0-4999	DWT	1	0.96	0.92	0.92	0.98	0.95	0.94	1.00	0.94	0.96	1.10	1.07	1.05	1.00	1.01	0.96	0.95	0.89	0.91
	5000-9999	DWT	2	0.94	0.93	0.93	0.93	0.93	0.92	0.97	0.97	0.96	1.05	1.03	1.03	0.96	0.95	0.94	0.93	0.93	0.92
	10000-19999	DWT	3	0.97	0.93	0.95	0.96	0.93	0.95	0.97	0.97	0.96	1.06	1.05	1.05	0.98	0.99	0.97	0.96	0.90	0.95
	20000+	DWT	4	1.00	0.98	1.01	0.96	0.95	0.96	1.00	1.00	1.00	1.00	1.01	1.00	1.05	1.06	1.05	0.95	0.94	0.95
Liquefied gas tanker	0-4999	CBM	1	1.03	1.00	1.03	0.99	0.99	0.99	0.99	0.97	0.98	1.03	1.03	1.02	0.92	0.90	0.92	0.98	0.92	0.97
	5000-9999	CBM	2	1.12	0.99	1.01	1.13	1.01	1.02	1.11	0.98	0.99	1.11	1.03	1.00	1.22	1.08	1.10	1.04	0.97	0.93
	10000-19999	CBM	3	1.20	1.04	1.02	1.11	0.95	0.95	1.19	1.02	1.01	1.19	0.97	1.01	1.34	1.16	1.14	1.14	0.96	0.97
	20000+	CBM	4	1.02	1.01	1.02	1.04	1.04	1.04	0.99	1.01	0.99	1.03	0.98	1.03	1.49	-	1.49	1.00	1.00	1.00
Oil tanker	0-4999	DWT	1	0.94	0.95	0.94	1.01	1.02	1.00	0.98	0.98	0.98	1.03	1.03	1.03	0.91	0.90	0.91	0.94	0.83	0.94
	5000-9999	DWT	2	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.02	1.01	1.01	1.02	1.02	0.88	0.80	0.89	1.03	1.03	1.03
	10000-19999	DWT	3	1.08	1.10	1.03	1.05	1.00	1.00	1.10	1.11	1.05	1.06	0.97	1.01	1.13	0.87	1.08	1.09	1.15	1.04
	20000-59999	DWT	4	0.87	0.88	0.92	0.88	0.94	0.93	0.90	0.93	0.95	0.98	1.07	1.04	0.84	0.90	0.89	0.90	0.90	0.95
	60000-79999	DWT	5	0.92	0.90	0.93	0.94	0.93	0.95	0.93	0.91	0.93	1.08	1.12	1.09	0.98	1.03	0.99	0.88	0.81	0.89
	80000-119999	DWT	6	0.98	0.95	0.96	0.98	0.98	0.97	0.97	0.94	0.96	1.09	1.09	1.08	0.96	0.94	0.95	0.98	0.95	0.96
	120000-199999	DWT	7	0.99	0.93	0.96	1.01	0.97	0.98	0.99	0.95	0.96	1.08	1.07	1.05	1.08	1.03	1.04	0.88	0.84	0.86
	200000+	DWT	8	1.01	0.96	0.95	1.01	0.97	0.96	0.99	0.94	0.94	1.22	1.20	1.16	1.04	1.00	0.99	0.95	0.90	0.90
Other liquids tankers	0-999	DWT	1	0.84	0.71	0.81	1.10	0.99	1.06	0.90	0.96	0.87	1.14	1.02	1.10	1.03	1.13	0.99	0.54	-	0.52
	1000+	DWT	2	0.93	1.44	0.96	0.95	1.15	0.99	0.84	0.87	0.87	1.14	1.21	1.18	0.74	2.24	0.77	0.89	0.94	0.92
Refrigerated bulk	0-1999	DWT	1	0.81	0.84	0.90	0.88	0.98	0.98	0.86	0.92	0.96	0.94	1.06	1.04	0.85	1.12	0.95	0.80	0.00	0.89
	2000-5999	DWT	2	0.86	0.97	0.93	0.90	0.96	0.97	0.86	0.93	0.93	0.98	1.05	1.05	0.70	0.38	0.76	0.90	0.94	0.97
	6000-9999	DWT	3	0.86	0.88	0.93	0.88	0.95	0.96	0.87	0.91	0.94	0.98	1.07	1.06	1.18	1.35	1.28	0.84	0.90	0.91
	10000+	DWT	4	0.88	1.02	1.02	0.87	0.99	1.01	0.85	0.99	0.99	0.87	1.02	1.01	1.04	0.00	1.21	0.85	1.00	0.99
Ro-Ro	0-4999	GT	1	0.93	0.93	0.91	0.98	1.01	0.96	1.00	0.90	0.98	1.04	1.05	1.02	-	-	-	-	-	-
	5000-9999	GT	2	0.94	0.60	0.87	1.00	0.92	0.92	1.00	0.85	0.92	1.18	1.18	1.09	-	-	-	-	-	-
	10000-14999	GT	3	0.85	0.89	0.86	0.86	0.85	0.87	0.89	0.91	0.89	1.15	1.18	1.16	-	-	-	-	-	-
	15000+	GT	4	1.02	0.88	0.96	1.06	0.94	1.00	1.05	0.95	0.99	1.11	1.09	1.04	-	-	-	-	-	-
Vehicle	0-29999	GT	1	0.75	0.77	0.82	0.82	0.87	0.90	0.78	0.90	0.86	1.11	1.16	1.21	0.69	0.25	0.76	0.79	0.81	0.86
	30000-49999	GT	2	0.72	0.74	0.76	0.73	0.75	0.77	0.75	0.81	0.80	1.38	1.47	1.47	0.65	0.06	0.69	0.72	0.76	0.76
	50000+	GT	3	0.83	0.83	0.82	0.80	0.79	0.80	0.89	0.90	0.88	1.46	1.39	1.45	0.70	0.00	0.70	0.83	0.84	0.82

Table 8. Fleet operational data by ship type and size in the year 2020 (3)

Ship Type	Size Category	Units	Size Bin	Distance Sailed			Average SOG		Distance-Weighted Average SOG		EIV		Overall AER	Overall EEOI
				Total	Median	Mean	Median	Mean	Median	Mean	Median	Mean		
Bulk carrier	0-9999	DWT	1	0.89	0.89	0.90	0.98	0.99	0.98	0.98	1.03	1.04	1.07	1.12
	10000-34999	DWT	2	0.96	0.97	0.98	0.98	0.98	0.98	0.98	1.00	0.99	0.96	0.97
	35000-59999	DWT	3	1.02	1.00	1.00	0.98	0.98	0.98	0.98	1.00	1.00	0.97	1.01
	60000-99999	DWT	4	1.13	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.98	1.02
	100000-199999	DWT	5	0.96	0.95	0.94	0.98	0.98	0.98	0.98	1.00	1.00	0.98	1.05
	200000+	DWT	6	1.08	0.90	0.87	0.98	0.97	0.98	0.98	0.98	0.99	0.95	1.02
Chemical tanker	0-4999	DWT	1	0.98	1.00	0.95	0.99	0.99	0.98	0.98	1.01	1.01	1.06	1.07
	5000-9999	DWT	2	0.98	0.96	0.95	0.98	0.98	0.98	0.98	1.00	1.00	1.03	1.04
	10000-19999	DWT	3	1.00	0.94	0.95	0.98	0.98	0.98	0.98	0.99	1.00	1.01	1.01
	20000-39999	DWT	4	1.01	0.97	0.95	0.98	0.98	0.98	0.98	1.00	0.99	1.00	1.01
	40000+	DWT	5	1.07	0.97	0.95	0.99	0.99	0.99	0.99	0.98	0.98	1.00	0.99
Container	0-999	TEU	1	0.89	0.90	0.91	0.97	0.97	0.97	0.97	1.00	1.03	1.00	-
	1000-1999	TEU	2	0.96	0.94	0.93	0.96	0.96	0.96	0.96	0.99	0.99	0.97	-
	2000-2999	TEU	3	0.99	0.92	0.92	0.96	0.95	0.96	0.96	1.00	0.98	0.97	-
	3000-4999	TEU	4	0.90	0.90	0.91	0.97	0.97	0.97	0.97	1.00	1.00	1.01	-
	5000-7999	TEU	5	0.88	0.92	0.91	0.96	0.96	0.96	0.96	1.00	1.00	0.96	-
	8000-11999	TEU	6	0.93	0.92	0.92	0.97	0.97	0.97	0.97	1.00	1.00	0.98	-
	12000-14499	TEU	7	1.03	0.90	0.93	0.96	0.98	0.97	0.97	0.96	0.98	0.97	-
	14500-19999	TEU	8	1.03	0.90	0.89	0.96	0.95	0.95	0.95	0.95	0.98	0.96	-
	20000+	TEU	9	2.03	1.07	1.09	0.94	0.97	0.96	0.96	0.99	0.99	0.95	-
Cruise	6000-99999	GT	4	0.40	0.39	0.40	0.82	0.83	0.83	0.83	1.00	1.00	1.62	-
	100000-149999	GT	5	0.43	0.36	0.39	0.80	0.81	0.80	0.80	1.00	0.99	1.45	-
	150000+	GT	6	0.50	0.40	0.38	0.75	0.76	0.74	0.74	1.00	0.97	1.48	-
Ferry-RoPax	0-1999	GT	1	0.92	0.84	0.87	0.99	0.98	0.96	0.96	0.98	0.98	1.11	-
	2000-4999	GT	2	0.86	0.81	0.83	0.96	0.95	0.90	0.90	0.98	0.93	1.04	-
	5000-9999	GT	3	0.82	0.71	0.81	0.96	0.97	0.92	0.92	0.97	0.95	1.03	-
	10000-19999	GT	4	0.84	0.77	0.83	0.98	0.99	1.02	1.02	0.96	0.97	0.99	-
	20000+	GT	5	0.85	0.80	0.81	0.99	0.99	1.00	1.00	0.95	0.99	1.01	-
Ferry-pax only	0-299	GT	1	0.76	0.65	0.77	0.87	0.92	0.95	0.95	1.03	1.01	1.18	-
	300-999	GT	2	0.64	0.54	0.64	0.87	0.96	0.91	0.91	1.08	1.02	1.10	-
	1000-1999	GT	3	0.78	0.68	0.81	0.97	0.96	0.97	0.97	0.98	1.00	1.09	-
	2000+	GT	4	0.67	0.53	0.63	0.92	0.96	0.96	0.96	1.01	1.24	1.16	-

Ship Type	Size Category	Units	Size Bin	Distance Sailed			Average SOG		Distance-Weighted Average SOG		EIV		Overall AER	Overall EEOI
				Total	Median	Mean	Median	Mean	Median	Mean	Median	Mean		
General cargo	0-4999	DWT	1	0.97	0.91	0.93	0.97	0.98	0.98	0.98	1.01	1.03	1.02	1.03
	5000-9999	DWT	2	0.94	0.93	0.93	0.97	0.97	0.97	0.97	1.00	1.00	0.99	1.01
	10000-19999	DWT	3	0.96	0.95	0.95	0.98	0.99	0.99	0.99	0.99	0.99	1.00	1.01
	20000+	DWT	4	0.98	0.97	0.99	0.99	0.98	0.98	0.98	0.99	0.98	0.95	0.99
Liquefied gas tanker	0-4999	CBM	1	0.97	0.95	0.97	0.98	0.98	0.98	0.98	1.00	1.01	0.96	0.94
	5000-9999	CBM	2	1.12	0.98	1.01	1.02	1.02	1.01	1.01	1.01	1.01	1.01	1.09
	10000-19999	CBM	3	1.17	1.03	1.00	0.99	0.99	0.99	0.99	0.98	0.97	0.93	0.97
	20000+	CBM	4	1.01	1.03	1.01	1.02	1.03	1.02	1.02	1.00	1.00	1.02	1.04
Oil tanker	0-4999	DWT	1	0.95	0.97	0.95	0.98	0.97	0.97	0.97	1.01	1.04	1.07	1.05
	5000-9999	DWT	2	1.00	1.00	1.00	0.98	0.99	0.99	0.99	0.99	0.99	1.00	0.97
	10000-19999	DWT	3	1.09	1.07	1.04	0.99	0.99	0.99	0.99	0.99	0.99	0.97	0.95
	20000-59999	DWT	4	0.88	0.91	0.93	0.98	0.98	0.98	0.98	1.00	1.33	1.01	0.97
	60000-79999	DWT	5	0.92	0.91	0.93	0.99	0.99	0.99	0.99	1.00	1.00	1.02	1.06
	80000-119999	DWT	6	0.97	0.95	0.96	1.00	1.00	0.99	0.99	0.99	1.00	1.01	0.97
	120000-199999	DWT	7	0.99	0.94	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.13
	200000+	DWT	8	1.00	0.96	0.95	1.02	1.01	1.01	1.01	1.00	1.00	1.00	1.07
Other liquids tankers	0-999	DWT	1	0.89	0.91	0.86	0.90	0.92	0.98	0.98	1.00	1.02	1.31	2.13
	1000+	DWT	2	0.86	0.89	0.89	0.97	1.01	1.01	1.01	0.96	0.99	1.03	1.03
Refrigerated bulk	0-1999	DWT	1	0.85	1.01	0.94	0.96	0.96	0.97	0.97	1.00	0.98	1.08	1.07
	2000-5999	DWT	2	0.86	0.91	0.93	0.97	0.99	0.98	0.98	0.98	0.99	1.05	1.02
	6000-9999	DWT	3	0.86	0.90	0.93	0.98	0.98	0.97	0.97	0.99	0.99	1.03	1.05
	10000+	DWT	4	0.85	1.03	0.99	0.99	0.99	0.99	0.99	1.01	1.01	0.99	0.98
Ro-Ro	0-4999	GT	1	0.96	0.91	0.94	0.97	0.96	0.96	0.96	1.02	1.00	1.06	-
	5000-9999	GT	2	0.97	0.82	0.89	0.93	0.96	0.98	0.98	1.03	1.08	1.06	-
	10000-14999	GT	3	0.85	0.87	0.86	0.95	0.96	0.96	0.96	1.01	1.00	1.01	-
	15000+	GT	4	1.06	0.97	0.99	1.00	1.03	1.01	1.01	1.00	1.06	1.04	-
Vehicle	0-29999	GT	1	0.77	0.91	0.84	0.98	0.96	0.98	0.98	1.04	1.03	1.10	1.03
	30000-49999	GT	2	0.71	0.73	0.76	0.95	0.94	0.94	0.94	1.00	1.01	1.01	1.03
	50000+	GT	3	0.83	0.84	0.83	0.94	0.94	0.94	0.94	1.00	1.00	0.96	0.96

Table 9. Fleet operational data by ship type and size in the year 2021 (1)

Ship Type	Size Category	Units	Size Bin	No. Vessels	Deadweight			Gas Capacity			TEU			Cargo Transported			Transport Work		
					Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
Bulk carrier	0-9999	DWT	1	1.04	1.00	0.94	0.97	-	-	-	-	-	-	1.21	1.02	1.17	0.88	0.83	0.85
	10000-34999	DWT	2	1.00	1.00	1.00	0.99	-	-	-	-	-	-	1.01	1.02	1.01	0.96	0.95	0.96
	35000-59999	DWT	3	1.02	1.02	1.00	0.99	-	-	-	-	-	-	0.97	0.96	0.95	1.00	0.99	0.97
	60000-99999	DWT	4	1.20	1.19	1.00	0.99	-	-	-	-	-	-	1.17	0.98	0.97	1.16	0.96	0.97
	100000-199999	DWT	5	1.02	1.02	1.01	1.00	-	-	-	-	-	-	0.96	0.95	0.94	0.92	0.89	0.90
	200000+	DWT	6	1.30	1.29	1.00	0.99	-	-	-	-	-	-	1.11	0.89	0.86	1.10	0.89	0.85
Chemical tanker	0-4999	DWT	1	1.09	1.07	0.98	0.98	-	-	-	-	-	-	1.12	1.17	1.03	0.97	0.88	0.89
	5000-9999	DWT	2	1.05	1.05	1.00	1.00	-	-	-	-	-	-	1.09	1.05	1.04	0.94	0.91	0.90
	10000-19999	DWT	3	1.07	1.07	1.00	1.00	-	-	-	-	-	-	1.06	1.00	0.99	0.99	0.93	0.92
	20000-39999	DWT	4	1.08	1.07	0.99	0.99	-	-	-	-	-	-	1.08	0.92	1.01	1.00	0.94	0.93
	40000+	DWT	5	1.17	1.18	1.00	1.01	-	-	-	-	-	-	1.14	0.98	0.97	1.12	0.98	0.96
Container	0-999	TEU	1	0.97	0.96	1.00	0.99	-	-	-	0.96	1.00	1.00	-	-	-	-	-	-
	1000-1999	TEU	2	1.04	1.04	1.05	1.01	-	-	-	1.05	1.02	1.01	-	-	-	-	-	-
	2000-2999	TEU	3	1.12	1.12	1.00	1.00	-	-	-	1.13	1.00	1.00	-	-	-	-	-	-
	3000-4999	TEU	4	0.99	0.98	1.00	1.00	-	-	-	0.99	1.00	1.00	-	-	-	-	-	-
	5000-7999	TEU	5	0.95	0.96	1.00	1.00	-	-	-	0.96	1.02	1.00	-	-	-	-	-	-
	8000-11999	TEU	6	1.03	1.03	1.00	1.01	-	-	-	1.03	1.01	1.01	-	-	-	-	-	-
	12000-14499	TEU	7	1.12	1.11	1.00	0.99	-	-	-	1.12	0.99	1.00	-	-	-	-	-	-
	14500-19999	TEU	8	1.34	1.29	0.96	0.96	-	-	-	1.30	0.95	0.97	-	-	-	-	-	-
	20000+	TEU	9	2.14	2.29	1.03	1.07	-	-	-	2.27	1.03	1.06	-	-	-	-	-	-
Cruise	6000-99999	GT	4	0.94	0.95	1.01	1.01	-	-	-	-	-	-	-	-	-	-	-	-
	100000-149999	GT	5	1.15	1.15	1.00	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	150000+	GT	6	1.57	1.60	1.12	1.02	-	-	-	-	-	-	-	-	-	-	-	-
Ferry-RoPax	0-1999	GT	1	1.10	1.10	1.01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	2000-4999	GT	2	1.05	1.05	0.97	0.99	-	-	-	-	-	-	-	-	-	-	-	-
	5000-9999	GT	3	1.02	1.01	1.00	0.99	-	-	-	-	-	-	-	-	-	-	-	-
	10000-19999	GT	4	1.03	1.04	1.02	1.01	-	-	-	-	-	-	-	-	-	-	-	-
	20000+	GT	5	1.07	1.10	1.04	1.03	-	-	-	-	-	-	-	-	-	-	-	-
Ferry-pax only	0-299	GT	1	1.01	1.00	1.00	0.99	-	-	-	-	-	-	-	-	-	-	-	-
	300-999	GT	2	1.03	1.01	0.97	0.98	-	-	-	-	-	-	-	-	-	-	-	-
	1000-1999	GT	3	0.94	1.09	1.01	1.15	-	-	-	-	-	-	-	-	-	-	-	-
	2000+	GT	4	0.98	0.96	1.04	0.97	-	-	-	-	-	-	-	-	-	-	-	-

Ship Type	Size Category	Units	Size Bin	No. Vessels	Deadweight			Gas Capacity			TEU			Cargo Transported			Transport Work		
					Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
General cargo	0-4999	DWT	1	1.08	1.03	0.92	0.96	-	-	-	-	-	-	1.06	0.75	0.98	0.95	0.75	0.88
	5000-9999	DWT	2	1.02	1.02	1.00	1.00	-	-	-	-	-	-	1.02	0.99	1.00	0.91	0.88	0.89
	10000-19999	DWT	3	1.04	1.04	1.00	1.00	-	-	-	-	-	-	1.01	0.96	0.97	1.00	0.92	0.96
	20000+	DWT	4	0.99	1.01	1.00	1.02	-	-	-	-	-	-	0.91	0.91	0.92	0.96	0.95	0.97
Liquefied gas tanker	0-4999	CBM	1	1.02	1.03	1.00	1.00	1.04	1.00	1.02	-	-	-	1.08	1.07	1.06	1.06	0.89	1.03
	5000-9999	CBM	2	1.19	1.20	1.00	1.01	1.21	1.01	1.02	-	-	-	1.11	0.92	0.93	1.15	0.96	0.97
	10000-19999	CBM	3	1.26	1.30	1.04	1.03	1.30	1.04	1.03	-	-	-	1.27	0.92	1.01	1.29	1.00	1.02
	20000+	CBM	4	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	-	-	1.13	1.17	1.13	0.98	0.96	0.98
Oil tanker	0-4999	DWT	1	1.01	0.97	0.95	0.96	-	-	-	-	-	-	1.06	0.82	1.06	0.92	0.85	0.91
	5000-9999	DWT	2	1.01	1.02	1.01	1.01	-	-	-	-	-	-	1.18	1.20	1.17	1.00	1.02	0.99
	10000-19999	DWT	3	1.08	1.06	0.97	0.98	-	-	-	-	-	-	1.12	1.08	1.04	1.10	0.93	1.02
	20000-59999	DWT	4	0.95	0.94	1.00	0.98	-	-	-	-	-	-	0.86	0.94	0.91	0.87	0.84	0.92
	60000-79999	DWT	5	1.00	1.00	1.00	1.00	-	-	-	-	-	-	0.88	0.87	0.88	0.84	0.77	0.84
	80000-119999	DWT	6	1.07	1.07	1.00	1.01	-	-	-	-	-	-	1.06	0.98	1.00	1.02	0.94	0.96
	120000-199999	DWT	7	1.06	1.06	1.00	1.00	-	-	-	-	-	-	0.91	0.84	0.86	0.86	0.80	0.81
	200000+	DWT	8	1.09	1.10	1.00	1.00	-	-	-	-	-	-	0.88	0.75	0.80	0.84	0.75	0.77
Other liquids tankers	0-999	DWT	1	1.07	1.05	0.96	0.98	-	-	-	-	-	-	1.41	-	1.32	0.42	-	0.39
	1000+	DWT	2	1.00	1.00	1.00	1.00	-	-	-	-	-	-	0.90	1.91	0.90	0.97	0.75	0.97
Refrigerated bulk	0-1999	DWT	1	0.85	0.85	0.97	1.00	-	-	-	-	-	-	0.93	9.65	1.09	0.77	8.13	0.90
	2000-5999	DWT	2	0.99	0.99	1.01	1.01	-	-	-	-	-	-	0.84	0.88	0.85	0.88	0.81	0.89
	6000-9999	DWT	3	0.93	0.92	0.99	0.99	-	-	-	-	-	-	0.81	0.77	0.87	0.82	0.86	0.88
	10000+	DWT	4	0.98	1.01	1.06	1.03	-	-	-	-	-	-	1.18	1.12	1.21	1.06	0.99	1.08
Ro-Ro	0-4999	GT	1	1.07	1.01	0.96	0.94	-	-	-	-	-	-	-	-	-	-	-	-
	5000-9999	GT	2	1.14	1.02	0.93	0.90	-	-	-	-	-	-	-	-	-	-	-	-
	10000-14999	GT	3	1.00	1.00	0.99	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	15000+	GT	4	1.15	1.08	0.96	0.94	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle	0-29999	GT	1	0.87	0.83	1.02	0.95	-	-	-	-	-	-	0.90	1.02	1.03	0.78	0.91	0.90
	30000-49999	GT	2	0.86	0.85	0.99	0.99	-	-	-	-	-	-	0.82	0.96	0.95	0.84	0.95	0.97
	50000+	GT	3	1.01	1.01	1.00	1.00	-	-	-	-	-	-	1.00	0.98	0.99	0.96	0.94	0.95

Table 10. Fleet operational data by ship type and size in the year 2021 (2)

Ship Type	Size Category	Units	Size Bin	DWT Nautical Miles			CO_2 Emissions			Days at Sea			Days at Berth			Distance Sailed – Ballast			Distance Sailed – Laden		
				Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
Bulk carrier	0-9999	DWT	1	0.90	0.81	0.87	0.97	0.94	0.93	0.94	0.91	0.91	1.13	1.09	1.09	0.98	1.00	0.95	0.85	0.87	0.82
	10000-34999	DWT	2	0.97	0.96	0.97	0.97	0.94	0.97	0.98	0.98	0.98	1.02	1.01	1.02	1.00	1.00	1.00	0.96	0.98	0.96
	35000-59999	DWT	3	1.00	0.97	0.97	1.01	0.98	0.98	1.00	0.97	0.98	1.04	1.03	1.01	0.99	0.93	0.97	1.02	1.01	0.99
	60000-99999	DWT	4	1.15	0.93	0.96	1.17	0.98	0.98	1.14	0.94	0.95	1.28	1.09	1.06	1.14	0.96	0.95	1.18	0.98	0.98
	100000-199999	DWT	5	0.97	0.94	0.95	0.99	0.97	0.97	0.96	0.93	0.94	1.15	1.15	1.12	1.01	0.98	0.99	0.93	0.90	0.91
	200000+	DWT	6	1.18	0.90	0.91	1.11	0.90	0.85	1.20	0.91	0.92	1.53	1.23	1.18	1.21	0.90	0.93	1.12	0.92	0.86
Chemical tanker	0-4999	DWT	1	0.98	0.90	0.90	1.08	1.01	0.99	1.01	0.92	0.93	1.14	1.05	1.04	1.03	0.94	0.94	0.98	0.96	0.90
	5000-9999	DWT	2	0.94	0.91	0.90	1.00	0.97	0.95	0.96	0.94	0.92	1.13	1.07	1.07	0.96	0.88	0.91	0.95	0.90	0.90
	10000-19999	DWT	3	0.98	0.89	0.91	1.01	0.94	0.94	1.01	0.93	0.94	1.17	1.10	1.09	0.91	0.83	0.85	0.99	0.92	0.92
	20000-39999	DWT	4	1.00	0.93	0.93	1.00	0.95	0.93	1.03	0.98	0.96	1.13	1.04	1.06	0.89	0.54	0.82	1.02	0.96	0.95
	40000+	DWT	5	1.11	0.98	0.95	1.09	0.94	0.93	1.13	0.99	0.97	1.21	1.01	1.03	0.90	0.63	0.77	1.12	0.97	0.96
Container	0-999	TEU	1	0.91	0.96	0.94	0.90	0.96	0.94	0.93	0.97	0.96	1.01	1.04	1.05	-	-	-	-	-	-
	1000-1999	TEU	2	1.00	0.96	0.97	0.98	0.94	0.94	1.01	0.98	0.98	1.05	1.03	1.02	-	-	-	-	-	-
	2000-2999	TEU	3	1.08	0.97	0.96	1.09	0.97	0.97	1.08	0.96	0.96	1.20	1.08	1.07	-	-	-	-	-	-
	3000-4999	TEU	4	0.93	0.93	0.94	0.98	1.01	1.00	0.92	0.92	0.93	1.14	1.17	1.15	-	-	-	-	-	-
	5000-7999	TEU	5	0.88	0.92	0.92	0.90	0.94	0.95	0.87	0.91	0.92	1.14	1.23	1.20	-	-	-	-	-	-
	8000-11999	TEU	6	0.92	0.90	0.90	0.97	0.94	0.95	0.91	0.89	0.88	1.31	1.28	1.27	-	-	-	-	-	-
	12000-14499	TEU	7	1.05	0.90	0.93	1.06	0.89	0.94	1.06	0.91	0.95	1.36	1.22	1.21	-	-	-	-	-	-
	14500-19999	TEU	8	1.11	0.83	0.83	1.06	0.81	0.79	1.20	0.90	0.89	1.50	1.23	1.12	-	-	-	-	-	-
	20000+	TEU	9	2.48	1.08	1.16	2.27	1.12	1.06	2.48	1.02	1.16	2.15	1.22	1.00	-	-	-	-	-	-
Cruise	6000-99999	GT	4	0.31	0.29	0.33	0.57	0.54	0.61	0.37	0.39	0.40	2.30	2.50	2.45	-	-	-	-	-	-
	100000-149999	GT	5	0.44	0.37	0.38	0.62	0.52	0.54	0.57	0.48	0.50	2.50	2.37	2.18	-	-	-	-	-	-
	150000+	GT	6	0.80	0.51	0.51	0.94	0.61	0.60	1.03	0.63	0.66	2.86	1.97	1.82	-	-	-	-	-	-
Ferry-RoPax	0-1999	GT	1	0.94	0.89	0.86	1.05	0.97	0.95	0.98	0.85	0.89	1.19	1.11	1.09	-	-	-	-	-	-
	2000-4999	GT	2	0.89	0.89	0.85	0.91	0.94	0.86	0.97	0.92	0.92	1.13	1.05	1.07	-	-	-	-	-	-
	5000-9999	GT	3	0.90	0.92	0.89	0.92	0.90	0.91	0.91	0.79	0.89	1.10	1.14	1.08	-	-	-	-	-	-
	10000-19999	GT	4	0.95	0.83	0.92	0.93	0.90	0.90	0.91	0.88	0.89	1.14	1.11	1.11	-	-	-	-	-	-
	20000+	GT	5	0.97	0.93	0.91	0.96	0.92	0.89	0.92	0.87	0.86	1.26	1.17	1.18	-	-	-	-	-	-
Ferry-pax only	0-299	GT	1	0.68	0.61	0.68	0.84	0.85	0.83	0.81	0.70	0.80	1.16	1.19	1.15	-	-	-	-	-	-
	300-999	GT	2	0.73	0.58	0.71	0.76	0.85	0.74	0.76	0.60	0.74	1.23	1.26	1.19	-	-	-	-	-	-
	1000-1999	GT	3	0.85	0.87	0.90	0.83	0.84	0.88	0.70	0.78	0.74	1.04	1.06	1.10	-	-	-	-	-	-
	2000+	GT	4	0.86	0.80	0.88	0.86	0.89	0.88	0.87	0.94	0.89	1.09	1.07	1.11	-	-	-	-	-	-

Ship Type	Size Category	Units	Size Bin	DWT Nautical Miles			CO_2 Emissions			Days at Sea			Days at Berth			Distance Sailed – Ballast			Distance Sailed – Laden		
				Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
General cargo	0-4999	DWT	1	0.97	0.89	0.90	1.01	0.94	0.94	1.03	0.94	0.95	1.13	1.07	1.05	1.07	1.03	0.99	0.94	0.83	0.88
	5000-9999	DWT	2	0.94	0.92	0.92	0.94	0.93	0.92	0.97	0.96	0.95	1.06	1.03	1.03	0.99	0.96	0.97	0.90	0.88	0.88
	10000-19999	DWT	3	0.98	0.93	0.94	0.98	0.94	0.95	0.99	0.96	0.95	1.08	1.05	1.04	1.00	0.97	0.96	0.97	0.90	0.93
	20000+	DWT	4	0.97	0.98	0.98	0.96	0.97	0.97	0.95	0.95	0.96	1.04	1.07	1.05	1.01	1.03	1.02	0.92	0.92	0.93
Liquefied gas tanker	0-4999	CBM	1	1.03	0.94	1.01	1.00	0.98	0.98	0.97	0.93	0.94	1.09	1.07	1.06	0.91	1.00	0.89	0.96	0.90	0.94
	5000-9999	CBM	2	1.24	1.04	1.04	1.23	1.03	1.04	1.22	1.00	1.03	1.10	0.97	0.93	1.35	1.10	1.13	1.14	0.96	0.96
	10000-19999	CBM	3	1.35	1.07	1.07	1.21	0.95	0.96	1.30	1.01	1.02	1.19	0.97	0.94	1.56	2.00	1.24	1.26	0.98	1.00
	20000+	CBM	4	1.02	1.03	1.02	1.02	1.00	1.02	1.01	1.04	1.01	0.98	0.92	0.98	1.48	-	1.48	1.00	1.01	1.00
Oil tanker	0-4999	DWT	1	0.89	0.88	0.89	0.99	0.99	0.99	0.96	0.95	0.95	1.05	1.04	1.04	0.87	0.82	0.86	0.92	0.83	0.91
	5000-9999	DWT	2	1.00	0.95	0.99	1.00	0.98	0.99	1.01	1.02	1.00	1.02	1.00	1.01	0.97	0.95	0.96	0.99	0.99	0.98
	10000-19999	DWT	3	1.10	1.09	1.02	1.05	0.99	0.98	1.10	1.07	1.02	1.06	0.96	0.99	1.14	0.87	1.06	1.08	1.00	1.01
	20000-59999	DWT	4	0.86	0.87	0.90	0.88	0.93	0.92	0.92	0.95	0.96	0.98	1.04	1.03	0.89	0.92	0.93	0.86	0.84	0.90
	60000-79999	DWT	5	0.88	0.90	0.89	0.92	0.92	0.92	0.91	0.93	0.91	1.12	1.10	1.12	0.95	0.94	0.95	0.84	0.76	0.84
	80000-119999	DWT	6	1.02	0.94	0.95	1.00	0.94	0.94	1.03	0.96	0.97	1.11	1.05	1.04	1.02	0.95	0.96	1.00	0.92	0.94
	120000-199999	DWT	7	0.97	0.90	0.91	0.98	0.91	0.92	1.00	0.94	0.94	1.17	1.11	1.10	1.05	0.98	0.99	0.87	0.81	0.82
	200000+	DWT	8	1.00	0.92	0.91	0.95	0.88	0.87	1.03	0.96	0.94	1.26	1.13	1.15	1.09	1.00	1.00	0.87	0.78	0.79
Other liquids tankers	0-999	DWT	1	0.81	0.87	0.76	1.12	0.94	1.05	0.90	1.02	0.84	1.18	1.00	1.10	0.80	0.24	0.75	0.43	-	0.41
	1000+	DWT	2	1.00	0.79	1.00	0.98	1.13	0.98	0.91	0.95	0.91	1.13	1.08	1.13	0.98	0.59	0.98	0.92	0.94	0.92
Refrigerated bulk	0-1999	DWT	1	0.68	0.69	0.80	0.84	0.99	0.98	0.73	0.82	0.86	0.94	1.12	1.11	0.76	1.01	0.89	0.74	11.86	0.87
	2000-5999	DWT	2	0.88	0.90	0.89	0.95	0.96	0.96	0.91	0.90	0.92	1.03	1.06	1.05	0.75	0.43	0.76	0.89	0.84	0.90
	6000-9999	DWT	3	0.83	0.85	0.89	0.88	0.95	0.95	0.85	0.90	0.91	1.00	1.08	1.08	1.30	1.73	1.40	0.81	0.82	0.87
	10000+	DWT	4	1.01	1.04	1.04	0.99	0.98	1.02	0.97	0.96	0.99	1.00	1.06	1.02	1.41	0.58	1.44	0.96	0.98	0.98
Ro-Ro	0-4999	GT	1	0.95	0.97	0.88	1.00	0.99	0.93	1.10	0.99	1.02	1.05	0.99	0.98	1.09	-	-	-	-	-
	5000-9999	GT	2	1.00	0.45	0.88	1.06	0.94	0.93	1.15	0.99	1.01	1.13	1.03	0.99	1.06	-	-	-	-	-
	10000-14999	GT	3	0.93	0.94	0.93	0.94	0.94	0.94	0.95	0.95	0.95	1.10	1.11	1.10	0.64	-	-	-	-	-
	15000+	GT	4	1.10	0.92	0.95	1.20	1.02	1.04	1.14	0.93	0.99	1.16	1.09	1.00	1.13	-	-	-	-	-
Vehicle	0-29999	GT	1	0.75	0.97	0.86	0.80	0.95	0.91	0.80	0.96	0.92	0.97	1.06	1.11	0.77	-	-	-	-	-
	30000-49999	GT	2	0.83	0.99	0.96	0.83	0.95	0.97	0.85	1.00	0.99	0.86	0.99	1.00	0.68	0.01	0.79	0.84	0.95	0.97
	50000+	GT	3	0.93	0.93	0.92	0.94	0.93	0.93	0.95	0.94	0.94	1.24	1.23	1.23	0.81	0.00	0.80	0.94	0.93	0.93

Table 11. Fleet operational data by ship type and size in the year 2021 (3)

Ship Type	Size Category	Units	Size Bin	Distance Sailed			Average SOG		Distance-Weighted Average SOG		EIV		Overall AER	Overall EEOI
				Total	Median	Mean	Median	Mean	Median	Mean	Median	Mean		
Bulk carrier	0-9999	DWT	1	0.92	0.89	0.89	0.98	0.98	0.98	0.98	1.03	1.04	1.07	1.09
	10000-34999	DWT	2	0.98	0.97	0.97	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.01
	35000-59999	DWT	3	1.01	0.97	0.98	1.01	1.01	1.00	1.00	1.00	0.99	1.01	1.01
	60000-99999	DWT	4	1.16	0.96	0.96	1.02	1.01	1.01	1.01	0.99	0.99	1.02	1.01
	100000-199999	DWT	5	0.97	0.95	0.95	1.01	1.01	1.01	1.01	1.00	1.00	1.03	1.08
	200000+	DWT	6	1.17	0.91	0.90	0.99	0.98	0.98	0.98	0.97	0.98	0.94	1.01
Chemical tanker	0-4999	DWT	1	1.00	0.96	0.91	0.98	0.98	0.97	0.97	1.01	1.03	1.10	1.11
	5000-9999	DWT	2	0.94	0.91	0.90	0.97	0.97	0.98	0.98	1.00	0.99	1.06	1.06
	10000-19999	DWT	3	0.98	0.88	0.91	0.97	0.96	0.97	0.97	0.99	1.00	1.03	1.01
	20000-39999	DWT	4	1.00	0.96	0.93	0.97	0.97	0.97	0.97	1.00	1.00	1.00	1.00
	40000+	DWT	5	1.11	0.97	0.95	0.98	0.98	0.98	0.98	0.97	0.98	0.98	0.97
Container	0-999	TEU	1	0.90	0.93	0.93	0.97	0.96	0.97	0.97	1.00	1.14	1.00	-
	1000-1999	TEU	2	0.99	0.95	0.95	0.98	0.98	0.98	0.98	0.98	0.98	0.98	-
	2000-2999	TEU	3	1.08	0.97	0.96	1.01	1.00	1.00	1.00	0.99	0.97	1.01	-
	3000-4999	TEU	4	0.94	0.94	0.95	1.02	1.02	1.02	1.02	1.00	1.00	1.06	-
	5000-7999	TEU	5	0.87	0.90	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.03	-
	8000-11999	TEU	6	0.92	0.90	0.90	1.02	1.01	1.01	1.01	1.00	0.99	1.05	-
	12000-14499	TEU	7	1.06	0.90	0.94	0.99	1.00	0.99	0.99	0.95	0.98	1.01	-
	14500-19999	TEU	8	1.14	0.87	0.85	0.96	0.94	0.95	0.95	0.95	0.98	0.96	-
	20000+	TEU	9	2.33	1.06	1.09	0.94	0.95	0.94	0.94	0.99	0.99	0.92	-
Cruise	6000-99999	GT	4	0.30	0.28	0.32	0.71	0.74	0.83	0.83	1.00	1.01	1.87	-
	100000-149999	GT	5	0.44	0.37	0.38	0.73	0.75	0.76	0.76	0.98	0.98	1.42	-
	150000+	GT	6	0.78	0.50	0.50	0.77	0.77	0.77	0.77	1.00	0.96	1.17	-
Ferry-RoPax	0-1999	GT	1	0.95	0.85	0.86	0.98	0.96	0.96	0.96	0.99	0.99	1.11	-
	2000-4999	GT	2	0.89	0.87	0.84	0.95	0.93	0.88	0.88	0.98	0.91	1.02	-
	5000-9999	GT	3	0.87	0.83	0.85	0.97	1.02	0.95	0.95	1.00	1.03	1.02	-
	10000-19999	GT	4	0.91	0.83	0.88	0.97	0.99	1.01	1.01	0.98	1.00	0.98	-
	20000+	GT	5	0.93	0.88	0.87	1.01	1.00	1.01	1.01	0.91	0.97	0.99	-
Ferry-pax only	0-299	GT	1	0.72	0.68	0.72	0.80	0.88	0.92	0.92	1.00	0.99	1.22	-
	300-999	GT	2	0.67	0.60	0.65	0.82	0.93	0.91	0.91	1.02	0.99	1.04	-
	1000-1999	GT	3	0.71	0.70	0.76	0.95	0.96	1.00	1.00	0.98	0.77	0.98	-
	2000+	GT	4	0.85	0.90	0.87	0.98	0.99	0.98	0.98	1.00	1.23	1.00	-

Ship Type	Size Category	Units	Size Bin	Distance Sailed			Average SOG		Distance-Weighted Average SOG		EIV		Overall AER	Overall EEOI
				Total	Median	Mean	Median	Mean	Median	Mean	Median	Mean		
General cargo	0-4999	DWT	1	1.00	0.91	0.93	0.97	0.97	0.97	0.97	1.02	1.05	1.04	1.07
	5000-9999	DWT	2	0.95	0.92	0.93	0.97	0.98	0.97	0.97	0.99	1.01	1.01	1.03
	10000-19999	DWT	3	0.98	0.94	0.94	0.99	0.99	0.99	0.99	0.98	0.99	1.00	0.99
	20000+	DWT	4	0.95	0.95	0.96	1.01	1.00	1.00	1.00	0.98	0.98	0.99	1.00
Liquefied gas tanker	0-4999	CBM	1	0.95	0.89	0.93	0.98	0.98	0.99	0.99	1.00	1.00	0.98	0.95
	5000-9999	CBM	2	1.23	1.01	1.04	1.02	1.01	1.01	1.01	1.01	0.97	1.00	1.07
	10000-19999	CBM	3	1.31	1.05	1.04	1.02	1.01	1.01	1.01	0.94	0.95	0.90	0.94
	20000+	CBM	4	1.01	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.03
Oil tanker	0-4999	DWT	1	0.92	0.95	0.91	0.97	0.97	0.96	0.96	1.02	1.09	1.11	1.08
	5000-9999	DWT	2	0.99	1.00	0.98	1.00	0.99	0.99	0.99	0.99	0.98	1.00	0.99
	10000-19999	DWT	3	1.11	1.09	1.03	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.96
	20000-59999	DWT	4	0.87	0.89	0.91	0.97	0.96	0.96	0.96	1.00	1.77	1.02	1.01
	60000-79999	DWT	5	0.88	0.89	0.88	0.97	0.97	0.97	0.97	1.00	1.00	1.03	1.09
	80000-119999	DWT	6	1.01	0.94	0.95	0.98	0.98	0.98	0.98	0.99	0.99	0.98	0.98
	120000-199999	DWT	7	0.97	0.91	0.91	0.96	0.97	0.97	0.97	0.99	0.99	1.01	1.14
	200000+	DWT	8	1.00	0.93	0.91	0.96	0.96	0.96	0.96	0.99	0.99	0.95	1.13
Other liquids tankers	0-999	DWT	1	0.88	1.07	0.82	0.96	0.95	0.95	0.95	1.00	1.02	1.37	2.69
	1000+	DWT	2	0.91	1.01	0.91	0.88	0.97	1.00	1.00	1.00	1.02	0.97	1.01
Refrigerated bulk	0-1999	DWT	1	0.70	0.89	0.83	0.93	0.95	0.96	0.96	1.00	0.97	1.24	1.09
	2000-5999	DWT	2	0.88	0.88	0.89	0.95	0.96	0.96	0.96	0.99	0.98	1.08	1.08
	6000-9999	DWT	3	0.83	0.89	0.90	0.98	0.97	0.97	0.97	0.99	0.99	1.06	1.07
	10000+	DWT	4	0.97	0.99	0.99	0.99	0.99	0.99	0.99	0.98	1.00	0.98	0.94
Ro-Ro	0-4999	GT	1	1.02	1.00	0.95	0.96	0.96	0.92	0.92	1.05	1.07	1.05	-
	5000-9999	GT	2	1.07	0.85	0.94	0.89	0.94	0.96	0.96	1.09	1.23	1.06	-
	10000-14999	GT	3	0.93	0.95	0.93	0.97	0.96	0.98	0.98	0.99	0.99	1.01	-
	15000+	GT	4	1.17	0.98	1.02	1.02	1.02	1.02	1.02	1.02	1.09	1.09	-
Vehicle	0-29999	GT	1	0.78	0.94	0.89	0.98	0.96	0.97	0.97	1.02	1.02	1.06	1.01
	30000-49999	GT	2	0.84	0.99	0.97	0.98	0.99	0.99	0.99	1.00	1.02	1.00	0.99
	50000+	GT	3	0.94	0.92	0.93	0.99	0.99	0.99	0.99	1.00	1.00	1.01	0.98

Table 12. Fleet operational data by ship type and size in the year 2022 (1)

Ship Type	Size Category	Units	Size Bin	No. Vessels	Deadweight			Gas Capacity			TEU			Cargo Transported			Transport Work		
					Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
Bulk carrier	0-9999	DWT	1	1.06	1.06	1.00	1.00	-	-	-	-	-	-	1.30	1.12	1.22	0.92	0.89	0.86
	10000-34999	DWT	2	1.02	1.01	1.00	0.99	-	-	-	-	-	-	0.96	0.96	0.94	0.90	0.86	0.88
	35000-59999	DWT	3	1.05	1.04	1.00	0.99	-	-	-	-	-	-	0.94	0.93	0.90	0.98	0.95	0.94
	60000-99999	DWT	4	1.25	1.25	1.00	0.99	-	-	-	-	-	-	1.17	0.95	0.93	1.17	0.93	0.93
	100000-199999	DWT	5	1.03	1.03	1.01	1.00	-	-	-	-	-	-	0.97	0.96	0.94	0.92	0.89	0.89
	200000+	DWT	6	1.34	1.32	1.00	0.98	-	-	-	-	-	-	1.13	0.84	0.85	1.18	0.91	0.88
Chemical tanker	0-4999	DWT	1	1.09	1.07	0.99	0.98	-	-	-	-	-	-	1.10	1.15	1.01	0.93	0.81	0.85
	5000-9999	DWT	2	1.06	1.06	1.00	1.00	-	-	-	-	-	-	1.08	0.97	1.01	0.90	0.83	0.84
	10000-19999	DWT	3	1.08	1.08	1.00	1.00	-	-	-	-	-	-	1.08	1.00	1.00	0.96	0.88	0.89
	20000-39999	DWT	4	1.08	1.07	0.98	0.99	-	-	-	-	-	-	1.06	0.96	0.98	0.95	0.89	0.88
	40000+	DWT	5	1.21	1.22	1.00	1.01	-	-	-	-	-	-	1.20	0.99	0.99	1.16	0.98	0.96
Container	0-999	TEU	1	0.98	0.98	1.00	1.00	-	-	-	0.98	1.00	1.00	-	-	-	-	-	-
	1000-1999	TEU	2	1.10	1.11	1.07	1.02	-	-	-	1.12	1.03	1.02	-	-	-	-	-	-
	2000-2999	TEU	3	1.18	1.17	1.00	1.00	-	-	-	1.18	1.00	1.00	-	-	-	-	-	-
	3000-4999	TEU	4	1.01	1.00	1.00	1.00	-	-	-	1.00	1.00	1.00	-	-	-	-	-	-
	5000-7999	TEU	5	0.95	0.96	1.00	1.00	-	-	-	0.96	1.02	1.00	-	-	-	-	-	-
	8000-11999	TEU	6	1.05	1.06	1.00	1.01	-	-	-	1.07	1.01	1.01	-	-	-	-	-	-
	12000-14499	TEU	7	1.16	1.14	1.00	0.99	-	-	-	1.15	0.99	1.00	-	-	-	-	-	-
	14500-19999	TEU	8	1.51	1.44	0.95	0.95	-	-	-	1.45	0.90	0.96	-	-	-	-	-	-
	20000+	TEU	9	2.34	2.54	1.03	1.09	-	-	-	2.51	1.04	1.07	-	-	-	-	-	-
Cruise	6000-99999	GT	4	0.92	0.93	1.01	1.01	-	-	-	-	-	-	-	-	-	-	-	-
	100000-149999	GT	5	1.20	1.20	1.00	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	150000+	GT	6	1.76	1.81	1.14	1.03	-	-	-	-	-	-	-	-	-	-	-	-
Ferry-RoPax	0-1999	GT	1	1.12	1.13	1.02	1.01	-	-	-	-	-	-	-	-	-	-	-	-
	2000-4999	GT	2	1.08	1.06	0.97	0.98	-	-	-	-	-	-	-	-	-	-	-	-
	5000-9999	GT	3	1.03	1.03	1.01	1.01	-	-	-	-	-	-	-	-	-	-	-	-
	10000-19999	GT	4	1.02	1.04	1.02	1.02	-	-	-	-	-	-	-	-	-	-	-	-
	20000+	GT	5	1.12	1.15	1.04	1.03	-	-	-	-	-	-	-	-	-	-	-	-
Ferry-pax only	0-299	GT	1	1.16	1.17	1.00	1.01	-	-	-	-	-	-	-	-	-	-	-	-
	300-999	GT	2	1.10	1.06	0.97	0.96	-	-	-	-	-	-	-	-	-	-	-	-
	1000-1999	GT	3	0.94	1.08	1.01	1.15	-	-	-	-	-	-	-	-	-	-	-	-
	2000+	GT	4	1.04	1.01	0.99	0.97	-	-	-	-	-	-	-	-	-	-	-	-

Ship Type	Size Category	Units	Size Bin	No. Vessels	Deadweight			Gas Capacity			TEU			Cargo Transported			Transport Work		
					Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
General cargo	0-4999	DWT	1	1.08	1.04	0.92	0.96	-	-	-	-	-	-	1.01	0.66	0.93	0.88	0.67	0.81
	5000-9999	DWT	2	1.07	1.06	1.00	1.00	-	-	-	-	-	-	1.04	0.91	0.97	0.91	0.81	0.85
	10000-19999	DWT	3	1.09	1.09	1.00	1.00	-	-	-	-	-	-	0.99	0.87	0.91	1.00	0.89	0.92
	20000+	DWT	4	1.00	1.03	1.00	1.03	-	-	-	-	-	-	0.86	0.86	0.86	0.92	0.91	0.92
Liquefied gas tanker	0-4999	CBM	1	1.03	1.06	1.00	1.03	1.09	1.00	1.06	-	-	-	1.07	1.11	1.04	1.07	0.88	1.04
	5000-9999	CBM	2	1.29	1.30	1.00	1.01	1.32	1.01	1.02	-	-	-	1.21	0.97	0.94	1.23	0.98	0.96
	10000-19999	CBM	3	1.32	1.36	1.05	1.03	1.37	1.04	1.04	-	-	-	1.46	1.07	1.11	1.29	0.98	0.98
	20000+	CBM	4	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	-	-	1.11	1.12	1.11	1.03	1.01	1.03
Oil tanker	0-4999	DWT	1	0.99	0.94	0.94	0.95	-	-	-	-	-	-	1.01	0.94	1.02	0.90	0.80	0.91
	5000-9999	DWT	2	1.00	1.02	1.03	1.01	-	-	-	-	-	-	1.19	1.16	1.18	0.98	0.98	0.98
	10000-19999	DWT	3	1.06	1.03	0.96	0.97	-	-	-	-	-	-	1.15	1.22	1.09	1.13	1.03	1.07
	20000-59999	DWT	4	0.91	0.89	1.00	0.98	-	-	-	-	-	-	0.87	1.04	0.96	0.84	0.86	0.93
	60000-79999	DWT	5	0.96	0.96	1.00	1.00	-	-	-	-	-	-	0.93	0.95	0.96	0.83	0.81	0.87
	80000-119999	DWT	6	1.07	1.08	1.00	1.01	-	-	-	-	-	-	1.08	1.02	1.01	1.09	1.00	1.02
	120000-199999	DWT	7	1.11	1.11	1.00	1.00	-	-	-	-	-	-	1.01	0.91	0.91	0.94	0.84	0.85
	200000+	DWT	8	1.15	1.15	1.00	1.00	-	-	-	-	-	-	0.95	0.80	0.83	0.91	0.79	0.79
Other liquids tankers	0-999	DWT	1	1.10	1.06	0.96	0.96	-	-	-	-	-	-	1.39	-	1.26	0.42	-	0.38
	1000+	DWT	2	1.00	1.00	1.00	1.00	-	-	-	-	-	-	0.96	1.56	0.96	1.05	0.84	1.05
Refrigerated bulk	0-1999	DWT	1	0.85	0.88	1.00	1.03	-	-	-	-	-	-	1.03	4.62	1.21	0.71	5.36	0.84
	2000-5999	DWT	2	0.90	0.91	1.01	1.01	-	-	-	-	-	-	0.85	0.93	0.94	0.81	0.84	0.89
	6000-9999	DWT	3	0.91	0.91	1.00	0.99	-	-	-	-	-	-	0.86	0.85	0.94	0.83	0.82	0.92
	10000+	DWT	4	0.97	1.00	1.04	1.03	-	-	-	-	-	-	1.14	1.02	1.18	1.07	1.09	1.10
Ro-Ro	0-4999	GT	1	1.06	1.02	0.96	0.96	-	-	-	-	-	-	-	-	-	-	-	-
	5000-9999	GT	2	1.16	1.04	0.93	0.89	-	-	-	-	-	-	-	-	-	-	-	-
	10000-14999	GT	3	1.02	1.01	0.97	1.00	-	-	-	-	-	-	-	-	-	-	-	-
	15000+	GT	4	1.23	1.15	0.96	0.93	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle	0-29999	GT	1	0.85	0.82	1.03	0.96	-	-	-	-	-	-	0.90	0.98	1.06	0.77	0.93	0.91
	30000-49999	GT	2	0.86	0.85	0.98	0.99	-	-	-	-	-	-	0.74	0.85	0.86	0.89	1.01	1.03
	50000+	GT	3	1.01	1.01	1.00	1.00	-	-	-	-	-	-	0.97	0.96	0.96	0.99	0.97	0.97

Table 13. Fleet operational data by ship type and size in the year 2022 (2)

Ship Type	Size Category	Units	Size Bin	DWT Nautical Miles			CO_2 Emissions			Days at Sea			Days at Berth			Distance Sailed – Ballast			Distance Sailed – Laden		
				Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
Bulk carrier	0-9999	DWT	1	0.92	0.85	0.86	0.98	0.93	0.92	0.94	0.85	0.88	1.19	1.14	1.11	0.95	0.91	0.90	0.87	0.85	0.82
	10000-34999	DWT	2	0.93	0.90	0.90	0.91	0.88	0.89	0.95	0.93	0.93	1.08	1.06	1.06	0.96	0.91	0.94	0.91	0.87	0.89
	35000-59999	DWT	3	0.97	0.94	0.93	0.97	0.92	0.93	1.00	0.95	0.96	1.08	1.05	1.03	0.94	0.86	0.90	1.02	0.98	0.97
	60000-99999	DWT	4	1.16	0.90	0.93	1.15	0.92	0.92	1.19	0.93	0.95	1.34	1.10	1.07	1.15	0.92	0.92	1.19	0.94	0.95
	100000-199999	DWT	5	0.93	0.90	0.90	0.89	0.86	0.86	0.97	0.95	0.94	1.16	1.11	1.13	0.96	0.90	0.93	0.92	0.87	0.89
	200000+	DWT	6	1.25	0.92	0.94	1.10	0.84	0.82	1.33	0.98	1.00	1.42	1.09	1.06	1.31	0.94	0.98	1.20	0.94	0.90
Chemical tanker	0-4999	DWT	1	0.96	0.87	0.88	1.09	1.02	1.00	0.99	0.89	0.91	1.17	1.09	1.07	1.02	0.99	0.93	0.94	0.91	0.86
	5000-9999	DWT	2	0.90	0.84	0.85	1.00	0.96	0.94	0.93	0.87	0.88	1.18	1.14	1.11	1.00	0.99	0.94	0.89	0.82	0.84
	10000-19999	DWT	3	0.97	0.86	0.90	1.00	0.93	0.93	1.00	0.92	0.93	1.18	1.13	1.10	1.01	1.01	0.94	0.95	0.86	0.89
	20000-39999	DWT	4	0.94	0.87	0.87	0.97	0.91	0.89	1.00	0.94	0.92	1.18	1.09	1.09	0.88	0.61	0.81	0.97	0.88	0.89
	40000+	DWT	5	1.13	0.96	0.94	1.12	0.94	0.93	1.15	0.97	0.95	1.27	1.04	1.05	0.81	0.49	0.67	1.15	0.96	0.95
Container	0-999	TEU	1	0.92	0.98	0.94	0.89	0.94	0.91	0.97	0.98	0.99	1.01	1.03	1.03	-	-	-	-	-	-
	1000-1999	TEU	2	1.08	0.97	0.98	1.03	0.93	0.94	1.09	0.99	0.99	1.07	0.99	0.97	-	-	-	-	-	-
	2000-2999	TEU	3	1.17	1.00	1.00	1.14	0.98	0.97	1.20	1.01	1.02	1.14	0.96	0.97	-	-	-	-	-	-
	3000-4999	TEU	4	0.95	0.95	0.95	0.98	0.99	0.97	0.96	0.96	0.96	1.07	1.08	1.07	-	-	-	-	-	-
	5000-7999	TEU	5	0.85	0.91	0.89	0.85	0.90	0.89	0.87	0.91	0.92	1.15	1.23	1.20	-	-	-	-	-	-
	8000-11999	TEU	6	0.90	0.85	0.85	0.88	0.83	0.84	0.92	0.88	0.88	1.37	1.30	1.30	-	-	-	-	-	-
	12000-14499	TEU	7	0.97	0.80	0.84	0.90	0.74	0.78	1.06	0.89	0.92	1.44	1.29	1.24	-	-	-	-	-	-
	14500-19999	TEU	8	1.19	0.77	0.78	1.06	0.72	0.70	1.36	0.90	0.90	1.73	1.22	1.14	-	-	-	-	-	-
	20000+	TEU	9	2.62	1.04	1.12	2.26	1.00	0.97	2.70	1.00	1.15	2.62	1.34	1.12	-	-	-	-	-	-
Cruise	6000-99999	GT	4	0.73	0.80	0.79	0.82	0.87	0.89	0.74	0.84	0.80	1.37	1.39	1.49	-	-	-	-	-	-
	100000-149999	GT	5	1.04	0.91	0.87	1.05	0.83	0.88	1.07	0.94	0.90	1.50	1.17	1.26	-	-	-	-	-	-
	150000+	GT	6	1.57	0.95	0.89	1.54	0.85	0.87	1.63	0.90	0.92	2.14	1.24	1.21	-	-	-	-	-	-
Ferry-RoPax	0-1999	GT	1	0.98	0.90	0.88	1.06	0.97	0.95	1.02	0.88	0.91	1.20	1.09	1.07	-	-	-	-	-	-
	2000-4999	GT	2	0.90	0.85	0.83	0.93	0.92	0.86	0.97	0.91	0.89	1.19	1.07	1.10	-	-	-	-	-	-
	5000-9999	GT	3	0.96	0.95	0.93	0.96	0.94	0.94	0.97	0.87	0.95	1.09	1.11	1.06	-	-	-	-	-	-
	10000-19999	GT	4	0.97	0.88	0.95	0.93	0.92	0.92	0.96	0.91	0.94	1.08	1.10	1.07	-	-	-	-	-	-
	20000+	GT	5	1.03	0.96	0.92	1.01	0.92	0.91	1.00	0.92	0.89	1.28	1.11	1.14	-	-	-	-	-	-
Ferry-pax only	0-299	GT	1	0.81	0.64	0.70	0.95	0.87	0.82	0.94	0.68	0.81	1.31	1.19	1.14	-	-	-	-	-	-
	300-999	GT	2	0.76	0.61	0.69	0.80	0.84	0.72	0.80	0.64	0.73	1.32	1.24	1.20	-	-	-	-	-	-
	1000-1999	GT	3	0.97	0.88	1.03	1.06	0.96	1.13	0.79	0.85	0.84	1.01	1.03	1.07	-	-	-	-	-	-
	2000+	GT	4	0.91	0.81	0.88	0.89	0.91	0.86	0.95	0.96	0.92	1.10	1.02	1.06	-	-	-	-	-	-

Ship Type	Size Category	Units	Size Bin	DWT Nautical Miles			CO_2 Emissions			Days at Sea			Days at Berth			Distance Sailed – Ballast			Distance Sailed – Laden		
				Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean	Total	Median	Mean
General cargo	0-4999	DWT	1	0.92	0.84	0.84	0.97	0.89	0.90	1.00	0.89	0.92	1.17	1.11	1.08	1.02	0.97	0.94	0.89	0.71	0.82
	5000-9999	DWT	2	0.92	0.86	0.86	0.93	0.88	0.88	0.97	0.90	0.91	1.15	1.09	1.08	0.96	0.89	0.90	0.89	0.83	0.84
	10000-19999	DWT	3	0.99	0.90	0.90	0.99	0.90	0.91	1.00	0.94	0.92	1.17	1.07	1.07	0.98	0.87	0.90	0.99	0.87	0.91
	20000+	DWT	4	0.98	0.95	0.98	0.94	0.94	0.94	0.97	0.95	0.97	1.03	1.06	1.03	1.04	1.01	1.04	0.91	0.86	0.91
Liquefied gas tanker	0-4999	CBM	1	1.02	0.92	0.99	1.00	0.98	0.97	0.93	0.89	0.91	1.12	1.12	1.09	0.86	0.90	0.84	0.93	0.83	0.91
	5000-9999	CBM	2	1.31	1.03	1.02	1.31	1.01	1.02	1.30	1.02	1.01	1.22	0.94	0.95	1.40	1.02	1.09	1.21	0.94	0.94
	10000-19999	CBM	3	1.33	0.99	1.01	1.14	0.83	0.86	1.31	0.99	1.00	1.39	1.09	1.06	1.40	1.40	1.06	1.25	0.94	0.95
	20000+	CBM	4	1.06	1.03	1.06	1.05	1.02	1.05	1.06	1.09	1.06	0.86	0.80	0.86	1.09	-	1.09	1.06	1.05	1.06
Oil tanker	0-4999	DWT	1	0.87	0.83	0.88	0.98	1.00	0.99	0.94	0.93	0.95	1.02	1.05	1.03	0.87	0.82	0.88	0.88	0.80	0.89
	5000-9999	DWT	2	1.00	0.97	0.99	1.00	1.00	0.99	0.99	0.99	0.98	1.02	1.02	1.02	1.04	0.95	1.03	0.96	0.95	0.96
	10000-19999	DWT	3	1.17	1.17	1.10	1.05	0.99	0.99	1.20	1.16	1.13	1.00	0.93	0.94	1.33	1.17	1.25	1.14	1.10	1.08
	20000-59999	DWT	4	0.81	0.88	0.89	0.86	0.94	0.95	0.87	0.92	0.96	0.94	1.07	1.03	0.82	0.94	0.91	0.82	0.85	0.91
	60000-79999	DWT	5	0.85	0.89	0.88	0.90	0.93	0.93	0.87	0.88	0.90	1.08	1.16	1.12	0.88	0.91	0.91	0.82	0.82	0.86
	80000-119999	DWT	6	1.06	0.99	0.99	1.04	0.99	0.97	1.06	0.98	0.99	1.10	1.03	1.02	1.03	0.97	0.96	1.06	0.97	0.99
	120000-199999	DWT	7	1.01	0.89	0.91	1.04	0.93	0.93	1.04	0.93	0.94	1.20	1.11	1.08	1.04	0.91	0.94	0.97	0.88	0.87
	200000+	DWT	8	1.06	0.95	0.92	0.99	0.88	0.86	1.10	0.98	0.96	1.26	1.07	1.10	1.14	1.00	0.99	0.94	0.84	0.82
Other liquids tankers	0-999	DWT	1	0.91	1.01	0.82	1.13	0.95	1.02	1.10	1.16	0.99	1.16	0.98	1.05	0.80	0.21	0.72	0.48	-	0.43
	1000+	DWT	2	1.05	0.79	1.05	1.05	1.11	1.05	0.94	0.96	0.94	1.08	1.07	1.08	0.52	0.01	0.52	1.01	1.01	1.01
Refrigerated bulk	0-1999	DWT	1	0.77	0.90	0.91	0.84	0.98	0.99	0.80	0.92	0.94	0.90	1.05	1.05	0.68	0.87	0.80	0.78	14.92	0.92
	2000-5999	DWT	2	0.80	0.89	0.89	0.87	0.97	0.96	0.81	0.90	0.90	0.95	1.06	1.05	0.76	0.42	0.84	0.81	0.88	0.90
	6000-9999	DWT	3	0.86	0.85	0.94	0.87	0.95	0.96	0.88	0.97	0.97	0.95	1.03	1.04	1.57	1.83	1.72	0.80	0.81	0.88
	10000+	DWT	4	1.01	1.05	1.04	0.99	1.02	1.02	0.97	0.99	1.00	0.98	1.02	1.01	1.37	0.02	1.41	0.95	0.99	0.97
Ro-Ro	0-4999	GT	1	0.93	0.96	0.87	0.99	0.99	0.93	1.08	1.01	1.01	1.05	0.99	0.99	-	-	-	-	-	-
	5000-9999	GT	2	0.96	0.35	0.82	1.06	0.94	0.91	1.14	0.94	0.98	1.18	1.09	1.01	-	-	-	-	-	-
	10000-14999	GT	3	0.90	0.93	0.88	0.89	0.92	0.88	0.93	0.95	0.92	1.12	1.08	1.10	-	-	-	-	-	-
	15000+	GT	4	1.17	0.89	0.95	1.26	0.97	1.02	1.25	0.94	1.02	1.19	1.09	0.97	-	-	-	-	-	-
Vehicle	0-29999	GT	1	0.75	1.00	0.89	0.78	0.92	0.92	0.81	0.95	0.95	0.91	1.09	1.07	0.82	0.75	0.97	0.76	0.87	0.90
	30000-49999	GT	2	0.85	1.02	0.98	0.87	1.04	1.01	0.86	1.02	1.00	0.85	0.94	0.99	0.88	0.15	1.02	0.86	1.02	1.00
	50000+	GT	3	0.94	0.94	0.92	0.96	0.96	0.95	0.95	0.93	0.94	1.26	1.27	1.25	1.00	0.00	0.99	0.94	0.94	0.93

Table 14. Fleet operational data by ship type and size in the year 2022 (3)

Ship Type	Size Category	Units	Size Bin	Distance Sailed			Average SOG		Distance-Weighted Average SOG		EIV		Overall AER	Overall EEOI
				Total	Median	Mean	Median	Mean	Median	Mean	Median	Mean		
Bulk carrier	0-9999	DWT	1	0.92	0.85	0.87	0.98	0.99	0.98	0.98	1.00	1.02	1.07	1.07
	10000-34999	DWT	2	0.93	0.90	0.91	0.98	0.98	0.98	0.98	1.00	0.99	0.99	1.01
	35000-59999	DWT	3	0.99	0.93	0.94	0.99	0.99	0.99	0.99	1.00	1.00	1.00	0.99
	60000-99999	DWT	4	1.17	0.92	0.93	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	100000-199999	DWT	5	0.93	0.91	0.90	0.96	0.96	0.96	0.96	1.00	1.00	0.95	0.97
	200000+	DWT	6	1.25	0.93	0.94	0.95	0.94	0.94	0.94	0.95	0.98	0.88	0.93
Chemical tanker	0-4999	DWT	1	0.96	0.92	0.89	0.99	0.98	0.97	0.97	1.01	1.04	1.15	1.18
	5000-9999	DWT	2	0.91	0.84	0.85	0.97	0.96	0.97	0.97	0.99	0.99	1.11	1.12
	10000-19999	DWT	3	0.96	0.88	0.89	0.96	0.95	0.96	0.96	0.98	0.99	1.03	1.04
	20000-39999	DWT	4	0.96	0.89	0.88	0.95	0.95	0.96	0.96	1.00	1.00	1.02	1.01
	40000+	DWT	5	1.12	0.95	0.93	0.98	0.98	0.98	0.98	0.96	0.97	0.99	0.97
Container	0-999	TEU	1	0.91	0.94	0.93	0.95	0.95	0.95	0.95	1.00	1.14	0.97	-
	1000-1999	TEU	2	1.06	0.97	0.96	0.98	0.98	0.98	0.98	0.97	0.97	0.96	-
	2000-2999	TEU	3	1.18	1.01	1.00	0.99	0.98	0.99	0.99	0.99	0.97	0.97	-
	3000-4999	TEU	4	0.97	0.96	0.96	1.00	1.01	1.00	1.00	1.00	0.99	1.03	-
	5000-7999	TEU	5	0.85	0.90	0.90	0.98	0.98	0.97	0.97	1.00	1.00	1.00	-
	8000-11999	TEU	6	0.89	0.86	0.85	0.97	0.96	0.96	0.96	0.99	0.98	0.98	-
	12000-14499	TEU	7	0.99	0.81	0.85	0.92	0.93	0.93	0.93	0.95	0.98	0.92	-
	14500-19999	TEU	8	1.24	0.81	0.82	0.92	0.90	0.92	0.92	0.95	0.98	0.90	-
	20000+	TEU	9	2.43	0.96	1.04	0.90	0.91	0.90	0.90	0.99	0.98	0.86	-
Cruise	6000-99999	GT	4	0.71	0.80	0.78	0.95	0.93	0.97	0.97	1.01	1.02	1.12	-
	100000-149999	GT	5	1.03	0.86	0.86	0.96	0.96	0.96	0.96	0.99	0.98	1.01	-
	150000+	GT	6	1.53	0.88	0.87	0.93	0.94	0.95	0.95	0.99	0.94	0.98	-
Ferry-RoPax	0-1999	GT	1	0.98	0.87	0.88	0.98	0.96	0.95	0.95	0.98	0.98	1.08	-
	2000-4999	GT	2	0.90	0.85	0.83	0.96	0.95	0.90	0.90	0.99	0.95	1.03	-
	5000-9999	GT	3	0.94	0.87	0.91	0.99	1.02	0.96	0.96	0.98	0.99	1.01	-
	10000-19999	GT	4	0.95	0.91	0.93	0.97	1.00	1.01	1.01	0.93	1.01	0.96	-
	20000+	GT	5	1.00	0.89	0.89	1.00	0.99	1.00	1.00	0.91	0.97	0.98	-
Ferry-pax only	0-299	GT	1	0.84	0.68	0.73	0.83	0.88	0.90	0.90	1.01	0.99	1.17	-
	300-999	GT	2	0.71	0.59	0.65	0.82	0.92	0.89	0.89	1.02	0.99	1.05	-
	1000-1999	GT	3	0.81	0.82	0.86	0.95	0.99	1.08	1.08	0.90	0.89	1.09	-
	2000+	GT	4	0.92	0.92	0.89	0.97	0.99	0.97	0.97	1.01	1.24	0.98	-

Ship Type	Size Category	Units	Size Bin	Distance Sailed			Average SOG		Distance-Weighted Average SOG		EIV		Overall AER	Overall EEOI
				Total	Median	Mean	Median	Mean	Median	Mean	Median	Mean		
General cargo	0-4999	DWT	1	0.96	0.86	0.89	0.96	0.97	0.97	0.97	1.02	1.05	1.06	1.11
	5000-9999	DWT	2	0.93	0.86	0.87	0.95	0.96	0.96	0.96	0.98	0.99	1.01	1.03
	10000-19999	DWT	3	0.98	0.91	0.90	0.97	0.98	0.98	0.98	0.96	0.97	1.01	0.99
	20000+	DWT	4	0.95	0.93	0.95	0.99	0.98	0.98	0.98	0.98	0.98	0.96	1.01
Liquefied gas tanker	0-4999	CBM	1	0.92	0.84	0.89	0.98	0.98	0.99	0.99	0.99	0.98	0.98	0.94
	5000-9999	CBM	2	1.30	1.01	1.01	1.00	1.00	1.00	1.00	1.01	0.95	0.99	1.06
	10000-19999	CBM	3	1.28	0.97	0.97	0.98	0.97	0.97	0.97	0.92	0.94	0.86	0.88
	20000+	CBM	4	1.06	1.07	1.06	1.01	1.00	1.00	1.00	1.00	1.00	0.98	1.01
Oil tanker	0-4999	DWT	1	0.89	0.94	0.91	0.96	0.96	0.96	0.96	1.03	1.10	1.12	1.09
	5000-9999	DWT	2	0.98	0.99	0.98	1.00	0.99	1.00	1.00	0.99	0.98	1.00	1.02
	10000-19999	DWT	3	1.20	1.13	1.13	0.99	1.01	1.00	1.00	1.00	0.98	0.90	0.93
	20000-59999	DWT	4	0.82	0.87	0.91	0.97	0.96	0.96	0.96	1.00	1.90	1.06	1.02
	60000-79999	DWT	5	0.84	0.87	0.88	0.97	0.97	0.97	0.97	1.00	1.00	1.06	1.08
	80000-119999	DWT	6	1.05	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.96
	120000-199999	DWT	7	1.01	0.90	0.91	0.97	0.98	0.97	0.97	0.99	0.99	1.02	1.10
	200000+	DWT	8	1.06	0.95	0.92	0.96	0.96	0.96	0.96	0.99	0.99	0.93	1.09
Other liquids tankers	0-999	DWT	1	0.96	1.10	0.87	0.95	0.94	0.85	0.85	1.01	1.12	1.24	2.68
	1000+	DWT	2	0.97	1.07	0.97	0.90	1.02	1.02	1.02	1.00	1.02	1.00	1.00
Refrigerated bulk	0-1999	DWT	1	0.76	0.90	0.89	0.93	0.95	0.95	0.95	1.00	0.94	1.08	1.18
	2000-5999	DWT	2	0.80	0.87	0.89	1.00	0.99	0.98	0.98	0.98	0.96	1.08	1.08
	6000-9999	DWT	3	0.85	0.91	0.93	0.98	0.96	0.97	0.97	0.99	0.99	1.02	1.05
	10000+	DWT	4	0.97	1.03	0.99	0.99	0.99	0.99	0.99	1.00	1.01	0.98	0.93
Ro-Ro	0-4999	GT	1	1.00	0.96	0.94	0.96	0.95	0.92	0.92	1.03	1.00	1.07	-
	5000-9999	GT	2	1.04	0.80	0.90	0.87	0.93	0.95	0.95	1.10	1.21	1.11	-
	10000-14999	GT	3	0.90	0.92	0.88	0.95	0.94	0.96	0.96	0.98	0.98	1.00	-
	15000+	GT	4	1.27	0.98	1.03	1.01	1.02	1.00	1.00	1.02	1.11	1.08	-
Vehicle	0-29999	GT	1	0.78	0.95	0.92	0.98	0.97	0.97	0.97	1.02	1.01	1.04	1.02
	30000-49999	GT	2	0.86	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.02	0.97
	50000+	GT	3	0.94	0.93	0.93	1.00	0.99	1.00	1.00	1.00	1.00	1.03	0.98