
BRS
GROUP
SHIPPING AND SHIPBUILDING MARKETS
Annual Review
2023

Contents

BRS GROUP

Shipping & Shipbuilding Markets

600
Employees worldwide

240
Shipbrokers

100
Assets transactions per year

5,500
Chartering transactions per year

BRS Group is focused on the world, people and technology through its two main affiliate companies, ***BRS Brokers*** (www.brsbrokers.com), a global and international shipbroking company, and ***AXSMarine*** (www.axsmarine.com), a maritime data and software provider delivering decision support services.

Let's make History!

Humankind has a knack for self-inflicting wounds: epidemics, inflation, war, pollution, climate change, pain and suffering from another age... we used to think. Still there is nothing that we cannot fix with science, technology, common sense, goodwill and determination.

One topic on which there should be a clear consensus in the shipping industry is the banishment of heavy fuel oil (HFO). Although HFO replaced coal as a fuel sometime in the 20th century, this 'dirty' fuel has become increasingly vilified in the 21st century as the industry's focus has moved towards reducing its environmental footprint.

HFO is a danger to human health as it releases during its combustion SOx, NOx, heavy metals, particulate matters, black carbon and chemicals (aromatic hydrocarbons, benzenes) known to cause cancer. As such, no national authority allows it to power land-based forms of transport. It is only used in the shipping industry due to its attractive price and the sector's lower environmental standards set out by the international shipping regulator, the International Maritime Organization. These factors combined with wide availability have seen the shipping industry become addicted to HFO. Regardless of the practical and economical convenience of HFO, the industry must escape its toxic grasp. At a time when many shipowners are trying to find cleaner alternatives based on molecules such as LNG (CH4) or methanol (CH3OH) or LPG (C3H8 and C4H10), including some molecules (methanol for instance) that can be manufactured using renewable electricity (solar, wind, hydro) and existing CO2, shipping regulators can no longer pretend that the environmental footprint of HFO is comparable with the alternatives.

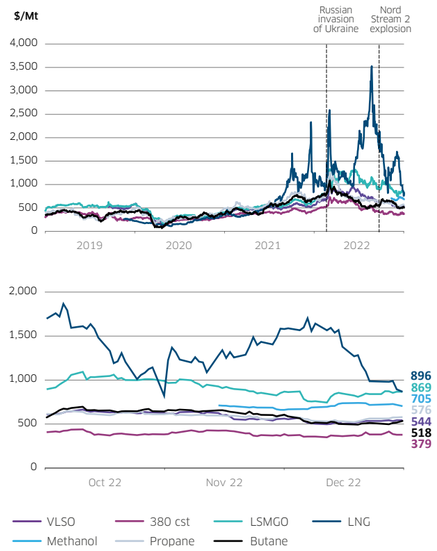
Air polluant	Emissions reduction compared to conventional HFO engine (%)		
	LNG	LPG	Methanol
Nox	Up to 40% for 2S Diesel cycle Up to 90% for 2S Otto cycle	Up to 20% for 2S Diesel cycle	30%-60% (Tier II compliant)
Sox	Over 90%	Over 90%	Over 90%
PM	Over 85%	Over 85%	Over 85%

Source: Bureau Veritas

It must be admitted that the continued use of HFO will slow down the transition to cleaner fuels at precisely the point in time when it should be accelerated. 2030 and 2050 are 'tomorrow'. We cannot simply expect to hit carbon reduction targets right on these dates without a targeted plan and corresponding action. In 2022, we saw too many dual fuel vessels switch back to HFO as extremely strong LNG prices eroded the economics of LNG propulsion. This turn of events was a huge step back as dual fuel main engines are less efficient at using only HFO compared to specialized main engines resulting in higher consumption. In addition, HFO requires heating, not to mention additional fuel consumed to operate scrubbers. These additional demands add up to an extra 3 to 5 tonnes of HFO consumed on the largest vessels, which could otherwise be saved.

Bunker Prices in Rotterdam

(calorific values corrected in VLSFO equivalent)



	All fuel in ton of VLSFO equivalent						
	IFO 380cst (scrubbers)	VLSFO	LSMGO	LNG	Methanol	Propane as CIF cargo	Butane as CIF cargo
2023 Jan 1st Rotterdam	379	544	869	896	705	576	518

"It is not because things are difficult that we do not dare,
it is because we do not dare that they are difficult"
Seneque

Will these gates to heaven disappear?

This race to the bottom needs to be stopped and the playing field levelled to enable cleaner molecules to compete with the economics of HFO. For example, methanol reduces emissions of SOx, NOx, CO2 and fine particles by 90%, 60%, 25% and 85%, respectively, compared with HFO. Under the current regime, HFO will always be cheaper than cleaner, high-grade fuels simply because it is a toxic residue that is left at the end of the refining process. Although the demand for HFO should eventually decline, we could also envisage a future scenario where shipowners will be paid to take a by-product that nobody else wants or can use, something already seen in the recycling industry.

The goal of the 2015 COP 21 meeting was to limit global warming to a level below 2 degrees, preferably 1.5 degrees, compared with pre-industrial levels. According to a forecast made in December 2022 by the UK's Meteorological Office, 2023 could be one of the hottest years on record with the average global temperature forecast to be about 1.2 C higher than before humans started to drive climate change. The IMO's initial greenhouse gas (GHG) strategy envisaged a reduction in the carbon intensity of international shipping of at least 40% by 2030, and 70% by 2050, compared with 2008; and that the total annual GHG emissions from international shipping should be reduced by at least 50% by 2050 compared with 2008. The strategy includes a specific reference to "a pathway of CO2 emissions reduction consistent with the Paris Agreement temperature goals".

At the end of 2022, a bit less than 30% of the worldwide shipbuilding orderbook of 3,600 newbuildings (actually 1,047 ships) and a bit more than 22% of the worldwide shipbuilding orderbook excluding LNG carriers was dual fuel and due for delivery by the end of 2025.

	including LNG		Excluding LNG	
Dual-Fuel Propulsion	**Delivered**	**On Order**	**Delivered**	**On Order**
LNG	903	834	274	509
LNG / biogas		3		3
LNG / electric	6	9	6	9
LNG / hydrogen		2		2
LNG / wind assisted	1		1	
Lpg	50	94	50	94
Methanol	23	53	23	53
Electric	37	35	37	35
Electric and wind assisted		1		1
Wind assisted	19	6	19	6
Ethane	23	10	23	10
Totaol Dual-Fuel	**1,062**	**1,047**	**433**	**722**
All Ship	**41,824**	**3,609**	**41,142**	**3,273**
%	**2.5%**	**29.0%**	**1.1%**	**22.1%**

This represents about 350 dual fuel ships or about 250 dual fuel ships per year if we exclude LNG carriers that have always been propelled on LNG. At this pace, it will take more than 100 years to have a full dual fuel fleet in place, further assuming that it will fully meet the 2050 targets.

There is an urgency across the world to seriously engage in the fight against climate change in which every industry is involved and bears its own responsibility. The shipping industry need to take drastic solutions and focus on the existing fleet. Banning HFO in an orderly way so as to take care of everyone's interest would be a sensible solution. It is already banned in Arctic and Antarctic areas. Other methods to reduce shipping's environmental footprint could be adopted today, notably embracing slow steaming (a reduction of 20% of speed would result immediately into a 50% drop in CO2 and GHG emissions). Meanwhile, it is evident that increased resources must be diverted to longer-term solutions such as the development of carbon neutral e-fuels and the development of green corridors where cleaner fuels would be available, and which would be characterised by stricter environmental legislation and more efficient logistics optimising ship use.

That is why the International Maritime Organization should also follow in the footsteps of the European Union and develop a carbon tax for shipping with a reasonable amount of levy per ton of CO2 to become the international norm and a way of levelling the playing field between HFO and cleaner fuels.

Back in 1987, a worldwide ban on ozone-depleting chemicals was agreed under the Montreal Protocol to save the ozone layer that absorbs most of the ultraviolet radiation from the sun. This resulted in the banning of chemicals such as chlorofluorocarbons. Human action to save the ozone layer has worked as hoped, and according to a recent UN report it may recover in just decades.

The shipping industry could show its leadership now by phasing out HFO and in doing so make history!

François CADIOU
Chairman

Offshore Wind Energy: Ambitions and Challenges

CSOV ISLAND DILIGENCE

Offshore Wind Energy: Ambitions and Challenges

Ramp up wind power 'on a large scale, in a short time and at a competitive price' to tackle climate, energy and security crises

2022 saw countries around the globe strengthening their commitments towards the development of offshore wind energy. The war in Ukraine and subsequent drastic increase in energy prices focused attention once again on European energy security and reinforced (if not accelerated) a strategic re-balancing of the European energy mix towards locally generated and sustainable energy. To accelerate their development, the European Commission signed a motion to simplify the process of getting permits for renewable projects (one of the main hurdles for their development so far). And in September, during the COP27 UN Climate Change Conference in Egypt, 9 countries from 3 continents – namely Belgium, Colombia, Germany, Japan, the Netherlands, Norway, UK and the US - joined Denmark in the Global Offshore Wind Alliance (GOWA) and pledged to ramp up wind power "on a large scale, in a short time and at a competitive price" to tackle climate, energy and security crises.

Such an ambitious development plan raises many questions or concerns about the ability of the industry to deliver it. In this paper, two key challenges are addressed: Firstly, across the short term; the provision and installation of wind turbines and secondly, across the longer term; the logistics required to install floating wind farms.

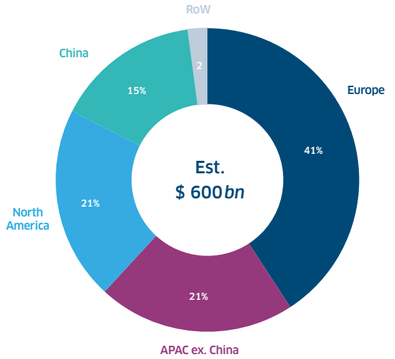
I. An ambitious plan to develop offshore wind energy on a global scale

The main driver of the global energy transition as well as European energy security is electrification. DNV, a consultancy, estimates that (i) the share of electricity in the global energy mix will raise from 19% today up to 36% in 2050 and (ii) electricity generation will double by 2050 (from 27 PWh p.a. till 62 PWh p.a.). Offshore wind energy is to increase 26-fold during the period.

As a consequence, market consultancy 4C Offshore estimates that capex dedicated to the offshore wind industry will reach $700 bn over the period 2020-2030, from $35 bn in 2022 till est. $106 bn in 2030 (i.e. 200% increase).

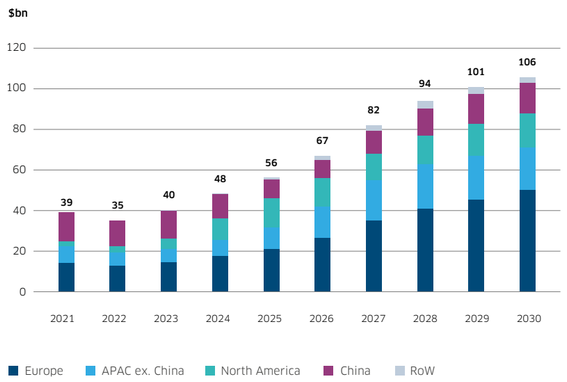
While global capital expenditures remained stable at around USD 35-40bn p.a. over the period 2020-2023, a sharp increase is expected in 2024 and 2025 due to installation of large bottom-fixed wind farms recently awarded in Europe and the installation of large projects of the US East Coast market. Another sharp increase is expected in 2029-2030 with the installation of the first large-scale floating wind farms. The growth in capex and thence installation of offshore wind farms is expected to be driven by Europe in the coming decade (est. 65% of total 2020-2030 capex).

Total capex 2023-2030



Sources: from 4C Offshore Limited 2023

Global Offshore Wind – Est. Annual capex



Sources: from 4C Offshore Limited 2023

ASIA

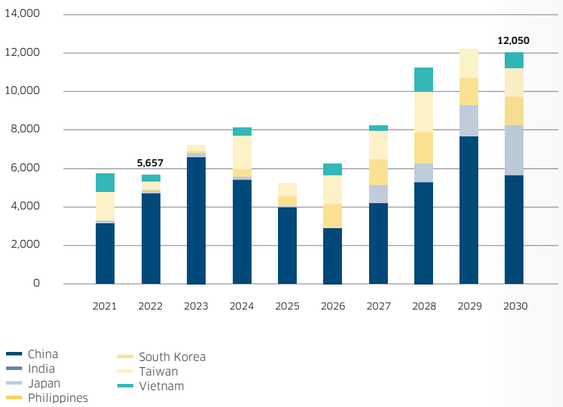
In Asia, China will remain the undisputed largest developer of offshore wind farms despite 2022 being characterized by a drastic fall in new installations. From 2025 onwards, China will, according to a Global Wind Energy Council (GWEC) report, install above 10 Giga Watts (GW) of new capacity per year. Other main developers in the regions will be Taiwan (an existing offshore wind farms operator), and new countries including South Korea and Japan. Indeed, each country is projected to see more than 1 GW of new capacity installed per year across 2025-30. Additionally, Vietnam is expected to become the next significant market for offshore wind owing to its thriving economy and the associated need for it to increase electricity supply.

THE AMERICAS

In the Americas, the development of offshore wind farms across this decade will almost exclusively be driven by the US, with their first commercial wind farms coming onstream in 2023 (Vineyard Wind 1, South Fork on the US East Coast). The Biden administration has recently announced an ambitious plan to construct 30 GW of offshore wind capacity by 2030. Based on this ambitious target, and actions implemented by the federal and state administrations, GWEC predicts that up to 27.5 GW could be built in the US from now until 2030.

Capacity installed per year in Asia

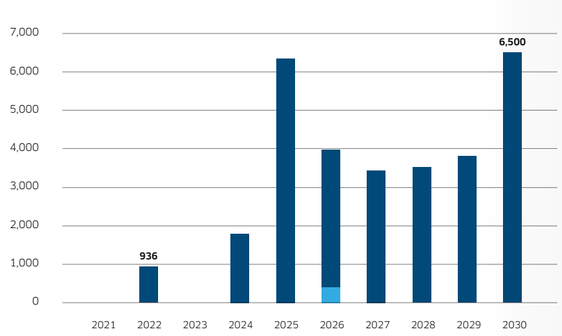
MW



Sources: from 4C Offshore Limited 2023

Capacity installed per year in the Americas

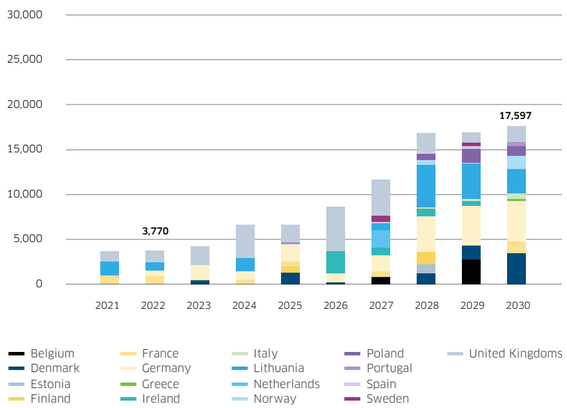
MW



Sources: from 4C Offshore Limited 2023

Capacity installed per year in Europe

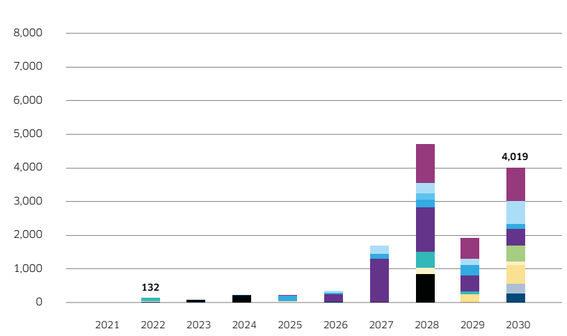
MW



Sources: from 4C Offshore Limited 2023

Global floating wind capacity installed per year

MW



Sources: from 4C Offshore Limited 2023

EUROPE

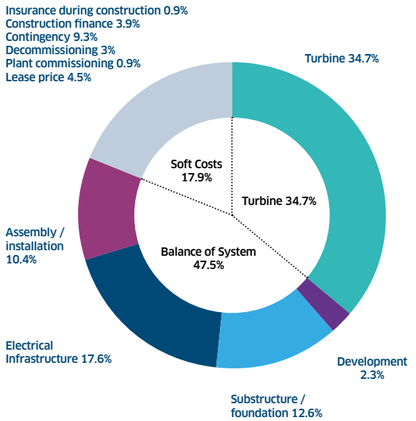
As previously stated, Europe is expected to become the largest recipient of offshore wind dedicated capex. From 2027 onwards, Europe is expected to overtake Asia (including China) in terms of new capacity installed per year and, by 2030, should install 40% more capacity than Asia. The largest contributor to these figures is the UK, which from 2026 onwards, is expected to install more capacity than the US on an annual basis. The other main contributors over the decade will be those countries with an already-established track record in offshore wind, notably Germany, Denmark, the Netherlands, France and Poland.

Developments in floating offshore wind farms

Floating offshore wind farms that can be installed further out at sea and catch stronger and more regular winds are not expected to be commissioned on a large scale before the end of the decade. However, up to 14 countries across all continents are currently working on various programs and projects. Consequently, GWEC expects the installation rate of new floating wind farm to be around 1 GW per annum in 2025 and increase up to 7 GW per annum in 2030, mostly supported by projects in the UK (Scotwind), South Korea, Japan and the US.

II. SHORT TERM.
Can a global supply chain support such growth? – the case of the turbine

Capex for a typical fixed-bottom offshore wind farm



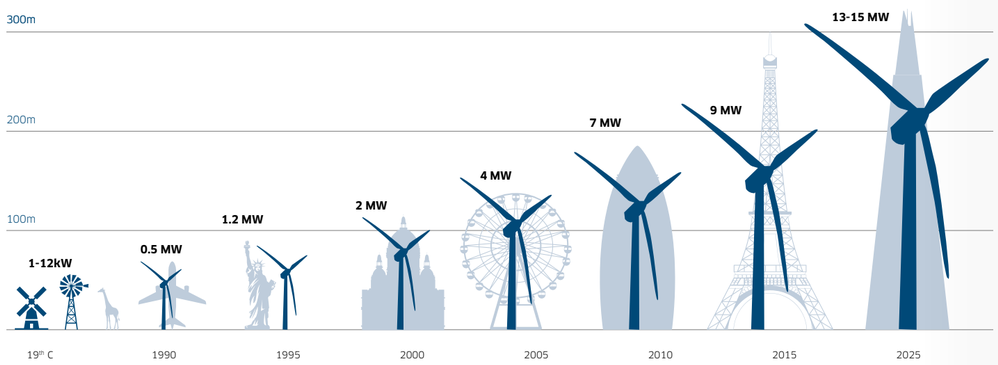
Sources: from 2020 Cost of Wind Energy Review, Tyler Stehly and Patrick Duffy, National Renewable Energy Laboratory 2021.

This ambitious commitment can only materialize if it is supported by a strong and efficient supply chain. The main single capex item of a standard wind farm is the procurement of wind turbines with may represent up to 35% of a project's total capex, on top of which come installations costs. Could they become a bottleneck slowing down the global offshore wind development?

Wind turbine manufacturing is a very concentrated market. In 2021, 10 wind turbine manufacturers supplied 3,340 offshore wind turbines worldwide. Of these 10 suppliers, 7 (including the 3 largest) were based in China, 2 in Europe (Vestas and Siemens Gamesa) and 1 in Japan. Outside China, the European suppliers dominated the global market with main manufacturing hubs in Denmark, UK, Germany, France and Taiwan. Although we may not see newcomers emerge in this market in the short term, it is expected that local players like Doosan in South Korea or Mitsubishi and Hitachi in Japan will support the expansion of their respective markets. In addition, large Chinese manufacturers are already venturing abroad. For example, turbine manufacturer Goldwind has set up an office in Denmark. Consequently, there is no specific concern in the market about a potential short-term bottleneck for the procurement of offshore wind turbines - even if new investments, especially in Europe and in the US, would be required to address the drastic step-up from 2025 onwards.

In parallel, the capacity of the wind turbine is increasing, hence reducing the number of turbines required, shortening installation times and consequently strengthening the economic viability of offshore wind projects. Offshore wind turbine manufacturers have been able, through innovation, to steadily increase the size and capacity of the turbines: from 8 MW turbines currently installed, to 15 MW currently on order, to efforts to design and construct 20 MW turbines by the end of the decade.

Evolution of Wind turbine heights and output



Sources: From Bloomberg NEF

Picture(right): *Jan de Nul's WTIV* ***VOLE AU VENT*** *performing turbine installation in France in 2022.*

Can the industry manage to install so many turbines and such a short time?

As an industry-standard, offshore wind turbines today (on bottom fixed foundations) are installed using a self-propelled jack-up vessel with a heavy crane and high lifting height called Wind Turbine Installation Vessel or ("WTIV").

As the size of the turbines increases, the WTIV needs to have bigger deck, to transport larger and heavier turbine components, and have a bigger and stronger crane, to install gearboxes and blades at a higher altitude. As an illustration, the blade of a 15MW turbine is 115m long. As early as 2025, WTIVs will be required to transport and install such long blades 200m above sea level. The global WTIV fleet with crane above 500t (able to install turbines with capacity of > 4MW) totals 33 units, of which, 22 are on the water and 11 are on order to be delivered between 2023 and 2025. Looking at the fleet of WTIVs with cranes above 2,000t and sufficient outreach (able to install the turbine with 15MW capacity), the fleet today stands at 2 units. Meanwhile another 11 are on order.

Can we consider that the WTIV fleet is large enough and has the right characteristics to support the expansion of offshore wind across this decade?

1. WTIVs can also be used to install foundations – more specifically monopile foundations. As such, the global WTIV fleet might not be used at full capacity to install wind turbines. Certain WTIV owners have already made the strategic decision to dedicate their WTIV fleet 100% to monopile installation.

2. Out of 33 assets, 6 (18%) will operate in heavily protected markets (China, USA, Japan) and are therefore unlikely to be deployed elsewhere.

3. WTIV may represents a challenging market for certain investors due to three key reasons: (i) relatively low revenue visibility due to seasonal, campaign-based term employment contracts 1-2 years max, (ii) a high entry ticket: a newbuild costs $250-350m and (iii) a highly competitive current market with 15 owners controlling the 33-strong global WTIV fleet. Most of the vessels under construction have been ordered on speculation.

As a conclusion, the main bottleneck to reach the ambitious global installation targets might not come from issues related to procurement and delivery of turbines and foundations -even as their size increase. Securing access to installation vessels (foundation installation vessels, WTIV, cable-layers, etc.) may become a challenge for several developments in the years to come.

III. LONGER TERM.
The Logistic challenges of the installation of floating offshore wind farms.

‘Long range, deep sea, transportation is on a critical path towards increasing efficiency and reducing the carbon footprint of offshore wind farms’

As the world already plans for the strong growth of floating offshore wind by 2030, many technical challenges are currently being addressed by the industry. These include floaters’ design, permanent mooring solutions, dynamic power cables and heavy maintenance. Another issue that has, so far, not been heavily discussed is logistics and port operations.

How to manufacture and transport large floaters?

To support turbines of 150-200 meters, floaters need to be very stable and as such come with a very heavy footprint.

Both the Hywind Scotland and Kincardine pilot projects count 5 turbines (i.e. 5 floaters each) and have an overall respective capacity of 30 MW and 50 MW. In comparison, a 1 GW floating offshore wind farm uses 15MW turbines (i.e. the largest commercially available) which will require 67 foundations!

The industry is working on various floater designs and although certain designs are using concrete instead of steel (Hywind Tampen), it seems likely that the majority of the floating offshore wind farms to be installed in the years to come will have steel floaters. Considering that the steel quantity estimated for each floater is twice that required for monopile foundations for bottom-fixed wind farms we can expect that, to manage a floating wind project’s capex, the manufacturing of such floaters will require large and cost-efficient fabrication capacities. In most cases, these will be located far from the installation sites in Europe or the US.

Long range, deep sea, transportation is on a critical path towards increasing efficiency and the carbon footprint of offshore wind farms. This leaves companies in the offshore wind sphere grappling with how to transport, in a timely and efficient manner, these hundreds of foundations or sub-parts. The bulk of the fleet of suitable vessels is composed of semi-submersible transportation vessels and large deck carriers. However, their number is limited, and these vessels are already being used in other competing markets (notably high and heavy, oil and gas). In addition, existing assets can only carry a few foundations or large components per trip. To limit the requirement of very large (and expensive) transportation vessels, several companies are today offering floater designs that can be transported in pieces and assembled at a site close to installation.

We expect that questions related to manufacturing and transportation of floaters will, in the near future, become more and more important and directly influence floater designs. We might see, in the years to come, new vessels dedicated to floaters/ floaters component transportation in a similar way as we have recently seen new freighters dedicated to the transportation of wind turbine components.

Ports operations – what is needed? Bottom-fixed wind turbines are assembled on pre-installed foundations by WTIVs. To perform such installations, a port and sheltered deep water area(s) will be required to load on the foundations and large turbine components onto a foundation installation vessel and a WTIV, respectively. Existing commercial ports are already used to perform such activities. The use of harbour services and requirements for floating wind farms is very different as turbines are installed on their floaters in sheltered areas close to shore and then towed out at sea and moored to the seabed once on site.

The developers of floating wind farms will need to source and secure (and potentially compete for) port access with:

1. Large onshore storage areas for wind turbine and floaters components.

2. Large offshore storage areas for floaters waiting for turbines to be installed and fully installed floaters + turbines waiting for tow out to site. Such offshore storage areas must be large enough to accommodate several floaters in various stages of assembly and include all relevant mooring permits.

3. Tugs, barges, and relevant moving and lifting assets – including large crane to install turbines on floaters. One of the first floating wind farms, namely Hywind Scotland used the 7,000t semi-submersible double crane Saipem 7,000 to install the turbines on the floaters. This may have been seen by some as an “overkill”. In comparison, the most recent Hywind Tampen project is using a Mammoet shore crane for installation.

Although the use of a shore crane is certainly seen as the most economically suitable solution (also used during the installation of the Kincardine offshore wind farm), it will require the use of port facilities with enough depth at quayside to bring the floater alongside. This reflects that most of the floaters designed today have several meters draft and extra sequences to bring the floater from its offshore storage position to the assembly quay and then to send it back to its storage position (for each move, this involves mooring and unmooring the asset). An alternative approach would be to keep the floaters moored on the seabed and install the turbine with floating cranes or sheerlegs.

Finally, port facilities addressing these constraints might potentially be located far from the wind farm site. In this case it would require extra time for towing fully assembled floaters and turbines to site, hence extra logistical complexities.

Problems around port operations to support the development of floating offshore wind at the commercial stage are still being addressed by various industry players today. This has seen certain companies investigate concepts of constructing temporary “floating ports” that would not require large shore facilities and could hence be mobilized in shallow waters closer to the wind farm site. These could be relocated and reused for future projects.

The installation of floating offshore wind farms requests very different technology, competences and assets than bottom-fixed offshore wind farms. Today a few years ahead of the expected ramp-up of the floating offshore wind market, there remain many issues and challenges to be resolved. This undoubtedly makes this market particularly interesting as, again, it will require new type of assets not existing today to support installation and future maintenance which in turn will help to drive future growth of the sector.

Picture (left): *Seaway* ***ALBATROSS*** *carrying Hywind substructures.*

Carbon Markets

Let’s shed some light on these unchartered waters

Shipowners are already experiencing pressure to reduce the footprint of maritime transport from investors, cargo owners and consumers. In addition, this year could bring significant changes to the maritime industry as new emission regulations are coming into force. At the international level, two IMO regulations entered into force at the beginning of this year to measure and promote the efficiency of existing vessels, while the European Union delayed the inclusion of the shipping sector in its key climate tool, the European Emission Trading System (EU-ETS) until 2024 but voted to broaden its scope and strengthen its requirements.

INTERNATIONAL REGULATIONS

Almost 200 countries signed up to the United Nations-led Paris Agreement in 2015, committing themselves to tackling climate change. Following this agreement, the International Maritime Organization (IMO) set targets to reduce greenhouse gas emissions from the shipping industry by at least 50% by 2050, compared with 2008 levels. However, the past year has seen growing industry and political pressure to raise the goal to a 100% by 2050 pledges from major economies of the world agreed in Paris. The IMO's Marine Environment Protection Committee (MEPC) made progress at end-2022's MEPC 79 meeting and expect to finalise their GHG reduction strategy at MEPC 80 to be held in mid-2023.

IMO's measures to cut emissions

1 January 2023 marked the introduction of the IMO short term mandatory measures adopted at MEPC 76 in 2021, namely the Energy Efficiency Existing Ship Index (EEXI) and the Carbon Intensity Indicator (CII). These short-term measures are implemented in support of the intermediate target set out in the context of IMO's initial GHG strategy back in 2018, which aimed for a 40% reduction in vessels' carbon intensity per transport work by 2030 vs 2008.

The EEXI is a technical measure addressing the design of an existing vessel by retroactively imposing energy efficiency requirements equivalent to the Energy Efficiency Design Index (EEDI) of newbuildings. The EEXI is a one-off certification at a ship's first annual, intermediate or renewal survey of its IAPP Certificate on or after 1 January 2023. It is expected by market participants to be relatively straightforward with some engine derating involved or the installation of energy saving devices that reduce standardized CO_2 emissions related to the installed engine power, capacity of the vessel and speed for the least efficient ships in the fleet.

However, the implications of the CII enforcement are more complex. The CII is an operational efficiency measure calculated as grams of CO_2 emitted per Dwt nautical mile on an annual basis. The CII calls for a 2% annual CO_2 carbon intensity reduction between 2023 and 2026 or an 11% cumulative improvement by 2026 vs a 2019 reference level. Future reduction rates for 2027-30 are yet to be determined and will be decided as part of a review to be concluded by January 2026.

Vessels will be given an annual rating ranging from A to E, where A and B are related to major superior and minor superior performance respectively, and D and E to minor inferior and inferior performance, respectively, while C is the minimum carbon intensity compliance rating. The ratings will be derived from the attained CII calculated on an annual basis, which will be compared with the CII reference line. The attained CII will be calculated based on the Annual Energy Efficiency ratio (AER) formula, which is a supply-based metric.

Currently there are no penalties for the most carbon-intensive ships. However, speed reduction is being discussed as the primary tool to reduce ships' fuel consumption and emissions in order for them to comply with the CII.

Several interested parties have voiced concern over potential market distortions driven by the AER metric. For example, the most fuel inefficient vessels might increase their ballast legs in order to inflate the annual distance travelled which would improve their CII rating. Furthermore, there is no penalty in place that would help bridge the gap between the potential earnings loss incurred by having to steam at optimal speeds dictated by commercial factors vs optimal speeds dictated by efficiency criteria, while increasing the ballasting distances in order to achieve CII compliance.

The above could lead to differing freight market impacts across maritime sectors, as dry bulk, tankers and containers (together accounting for around 80% of global marine fuel consumption) do not stand at the same point in the shipping cycle. Meanwhile, the technological profile of the existing fleet is diverse. Therefore, the operational and commercial chartering strategy selection criteria will differ substantially within each fleet. Furthermore, if VLSFO prices were to move higher versus 380 Cst fuel over the coming years, eco and non eco vessels without scrubbers are more likely to have an optimal speed closer to the speed required to satisfy the minimum CII required. On the other hand, higher scrubber penetration in the larger sizes of the fleet (VLCCs, Capesizes etc) makes speed as a commercial and operational tool more complicated to use and is likely to reshape the chartering strategy regarding spot and period charters. This suggests that the bargaining power between shipowners and charterers in each trade and vessel segment will differ and will ultimately dictate the optimal mix of strategies in each sector in relation to operational performance.

In anticipation of the CII enforcement, the market has stipulated that modern, energy efficient eco vessels may be preferred and gain a structural premium. Meanwhile, trade flows could potentially shift due to higher voyage costs. This means that even though there is no regulated penalty in place, an endogenous market penalty will arrive in the form of a multi-tier freight market with modern eco vessels enjoying premiums particularly in the West, where the EU is further increasing the voyage cost burden via the EU-ETS. In addition, lower speeds particularly of the vessels rated 'D' would increase inefficiencies and thereby tighten effective fleet supply. However, this development is likely not to be uniform across regions. If achieving the required CII is prioritized in commercial decision making, then a scenario could develop where the AER metric risks reducing inefficient vessels' speeds and utilization, which would see the speeds of efficient vessels rise.

Finally, although we suggest that freight market tiers related to CII performance will emerge in 2024 when 2023 performance reporting will take place, an impact on nominal supply fundamentals will likely not be seen immediately, but in two to three years' time. This reflects the timeframe in which ships rated 'E' or 'D' will have to implement their reported carbon intensity correction plan. If these vessels are not able to comply in time, they will naturally be squeezed out of the market, accelerating scrapping and incentivizing fleet renewal which is required the decarbonization of the shipping sector.

EU Emissions Trading System (EU ETS)

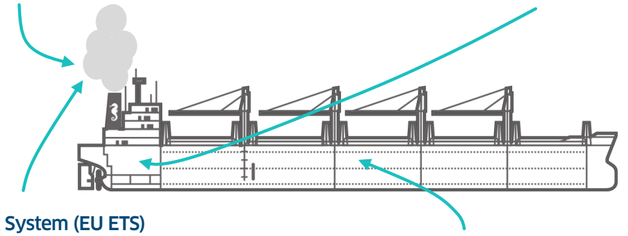
Addresses: Ship GHG emissions, tank-to-wake approach

Applicable measures: All GHG reduction measures

FuelEU Maritime

Addresses: Fuel well to wake GHG intensity

Applicable measures: Alternative fuels, shore power, wind



EU Emissions Trading System (EU ETS)

Addresses: Actual carbon intensity

Applicable measures: All measures except logistics

EEDI / EEXI

Addresses: Ideal carbon intensity

Applicable measures: New ships - hull, machinery, LNG, speed, Existing ships – speed, basic hull improvements

Source: adapted from DNV

EEXI	CII
For Ships:	**For Ships:**
• Ships built before 2013 • Larger than 400 gt • Measured once	• Larger than 5,000 gt • Measured every year • From 01/01/2023 onwards
Depends on:	**Depends on:**
• Ship type • Capacity • Propulsion	• Operational efficiency • Length of voyages • Time spent idle • Fuel consumption
Attained EEXI	**Results in:**
• Certificate issues (kept on board)	• Ranking A (good) - E (bad) • Minimum of C must be attained • D 3 years in a row or E once • Assessed once a year • A ship's CII letter shows its efficiency attained the previous year
EEDI	**CII Rating**
• Same concept for new ships built after 2013	A Major Superior B Minor Superior C Moderate D Minor Inferior E Inferior

NATIONAL / SUPRA-NATIONAL REGULATIONS

Policymakers have drawn up several instruments to discourage greenhouse gas emissions: bans, direct carbon taxes and carbon markets. Governments around the world seem to prefer market-based options when it comes to the control and limiting of emissions from energy intensive businesses. As of January 2023, there are 26 active emission trading systems across the world. Meanwhile, another nine are under development and expected to become operational in the next few years.

Regulated carbon markets are schemes that require businesses whose emissions exceed a defined threshold, or who operate in specific industry sectors, to obtain a permit, often called an allowance, for each tonne of carbon dioxide equivalent that they emit annually. These carbon permits are tradable assets and can usually be purchased during government auctions or on exchanges. Every year, companies included in a carbon market scheme will have to give back to the regulation authority enough allowances to cover their annual emissions.

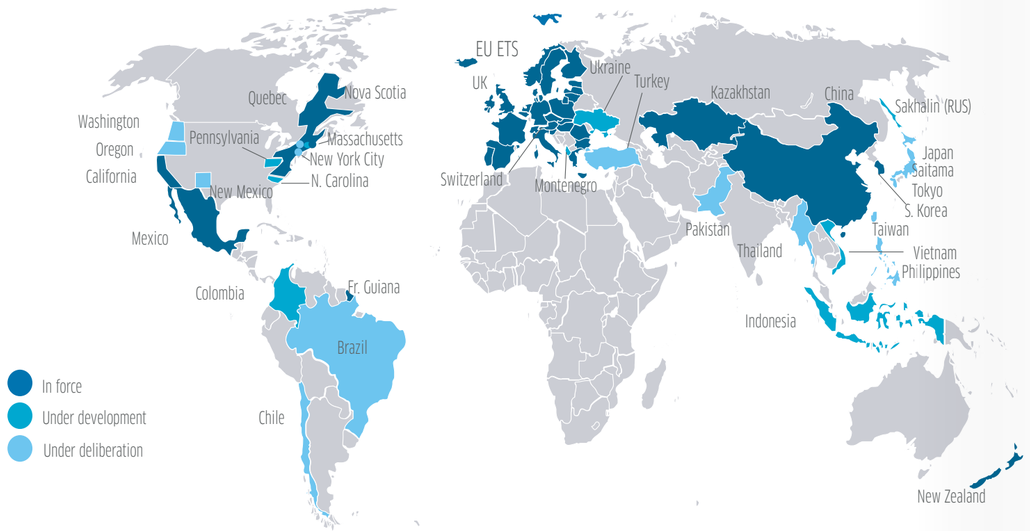
The inclusion of shipping in the EU-ETS

To date, the European Emission Trading scheme (EU-ETS) is the only carbon market in the world that has officially decided to include the emissions of the maritime industry in its scheme. Other carbon markets are considering adding the maritime sector in their scheme: Britain launched a consultation last May on possible changes to its UK-ETS, including adding the maritime sector. Meanwhile, China and Japan are also thinking to expand their scheme to shipping.

Rules applicable to shipping

EU negotiators from the Commission, the Parliament, and the Council of Member States struck a provisional agreement on 29 November last year, which broadly confirms the announcements and drafts which had leaked over previous months.

Since 2018, ships larger than 5,000 Gt calling ports in the European Union, Norway or Iceland have had to monitor and report their CO_2 emissions to the European authorities. From 2024 onwards, these ships will be included in Europe's Emission Trading scheme where they will have to purchase European Allowances (EUA) and give them back (surrender) to the EU. Large offshore vessels larger than 5,000 Gt. will have monitoring requirements from 2025 and will join the ETS in 2027. The European Commission justified the 5,000 Gt. threshold based on the potential administrative burden, claiming that although it would exempt 45% of ships that operate in Europe, it would only exclude 10% of the emissions. However, in response to criticism of this threshold, EU policymakers eventually decided to include ships larger than 400 Gt in the monitoring mechanism from 2025. Subsequently, a revision of the ETS directive in 2026 will determine whether they will be required to join the EU-ETS.



Picture: ***EMISSIONS TRADING WORLDWIDE.***

To ensure a smooth inclusion of the maritime sector in the EU ETS, the surrendering of allowances by shipping companies will be gradually increased with respect to verified emissions, and they will be liable to surrender allowances according to the following schedule: 40% of verified emissions reported for 2024, 70% of verified emissions reported for 2025, and 100% of verified emissions reported for 2026 onwards. While 100% of emissions produced from intra-EU voyages will be covered, only 50% will be covered for extra-EU emissions. The idea behind this second discount is that the other 50% of the emissions of the voyage should eventually be accounted for by the carbon scheme in the non-EU country.

Using BRS' carbon calculator tool, we can help shipowners and charterers estimate the emission of each voyage and the carbon cost they will incur.

Furthermore, shipping will have to cover not just its CO_2 emissions but also methane, nitrous oxide. Methane and Nitrous Oxide GHGs were not included in the monitoring obligation that started in 2018 but will be included in ETS from 2026 after a two-year data collection period. Finally, negotiators have agreed to allocate the revenue from the sale of 20 million auctioned allowances to the EU Innovation funds which will be focussed on decarbonising the shipping sector.

Summary of the provisional agreement:

	Preliminary agreement between the EU Commission, Parliament and Council - 29/11/2022
Vessel minimum size	Larger than 5,000 Gt. Larger than 400 Gt. if new ETS review approves it in 2026
Voyages affected	100% of the emissions for voyages between EU ports and at berth in EU 50% of the emissions from voyages that departed or arrived in EU
Starting phase	Gradual phase-in starting with 40% of the emissions in 2024, 70% in 2025 and 100% in 2026
GHG gases covered	CO2 from the start in 2024. CH4 and NO2 from 2026 after a two-year monitoring period.
Offshore activities	Offshore vessels larger than 5,000 Gt. to join the ETS in 2027 after a two-year monitoring period
New fund?	No dedicated ocean fund but income from the sale of 20 million EUA must go to the innovation fund, which in turn will revert the proceeds to shipowners willing to modernize their vessels.
Who pays?	ETS responsibility is on the vessel owner/manager, who could optionally negotiate with the charterer on a contractual mechanism for sharing cost.

→ Panamax Narvik to Amsterdam

360t CO_2 – 100% covered by EU-ETS
Estimated cost in 2024 = € 13,000 *

→ Suezmax Basrah to Rotterdam

2,300t CO_2 – 50% covered by EU-ETS
Estimated cost in 2024 = € 41,400 *

**based on a carbon price of €90/t*

From 2024, ships larger than 5,000 G.t will be included in the world's largest carbon trading scheme, the EU-ETS

Despite the energy crisis, 2022 saw EUA prices consolidate around EUR 80/t

EUA Futures

Source: The ICE

EUA price developments

In 2021, the price of emitting one tonne of CO_2 in Europe tripled, driven by a sharp rebound in EU's industrial activity, soaring financial and energy markets, the strengthening of emissions regulations, and increased interest from speculators. Accordingly, European Allowances (EUAs) traded in their widest yearly range ever: moving from the low 30s EUR/t at the beginning of January 2021 to a maximum of 90.75 euro in December. Last year saw prices consolidate around the 80 EUR/t level, signalling to market participants that carbon prices around the 15 – 30 EUR/t mark that they were used to since the launch of the system in 2005 were now a thing of the past.

Russia's invasion of Ukraine took the world by surprise and had a profound effect on global energy markets. Price volatility, supply shortages, security issues and economic uncertainty have contributed to what the International Energy Agency termed "the first truly global energy crisis, with impacts that will be felt for years to come". The value of European allowances plummeted in the days following the invasion, pushed by major divestments from speculators, Russian companies with production facilities in Europe, and concerns that the ETS might not be a priority for the EU in the coming months. Despite the war, carbon prices never fell below 55 EUR/t and 15 days after the start of the conflict, EUAs had already rebounded to 80 EUR/t. In August 2022, as Europe was struggling with sky-high energy and gas prices, EUAs reached the maximum of the year at 99.22 EUR/t. However, as some reforms to the EU-ETS proposed in 2021 have been softened and new ones introduced to take into account the new economic landscape, the carbon price calmed down and closed the year at 84 EUR/t. In February 2023, the benchmark carbon contract rallied above the 100 euro mark for the first time ever since the start of the EU-ETS in 2005. While the reforms included in the Fit for 55 package are expected to support the carbon price in the medium term, in the short run few fundamental factors can justify three digit prices. The supply of EUAs via auctions is expected to increase to help finance part of the RePowerEU plan, the Carbon Border Adjustment Mechanism (CBAM) will not start cutting free allocation before 2026, and it will do so only gradually, while the major economies of the world are still struggling with high inflation rates and a slow down in economic growth.

The FuelEU maritime regulation proposal

The FuelEU Maritime proposal, as well as the extension of the scope of the EU-ETS to the maritime industry, is part of the large climate policy package proposed by the EU Commission in July 2021 entitled Fit for 55 which aims to reduce the block's GHG emissions by at least 55% by 2030 compared with 1990 levels. Despite progress in recent years, the maritime sector still relies almost entirely on fossil fuels and therefore is a significant source of greenhouse gases and other harmful pollutants. The goal of this proposal is to promote the use of renewable and low-carbon fuels in maritime transport to reduce the greenhouse gas intensity of the energy used by ships by up to 75% by 2050. The IMO estimates that about 64% of the total amount of CO_2 reduction in 2050 would result from the use of alternative fuels. However, the switch to new fuels takes time.

The main problems this initiative addresses concern the low uptake of renewable and low-carbon fuels (RLF) by ships calling EU ports and the low use of zero-pollution fuels by ships at berth in EU ports. The FuelEU Maritime Regulation proposal evaluated three policy options in its impact assessment:

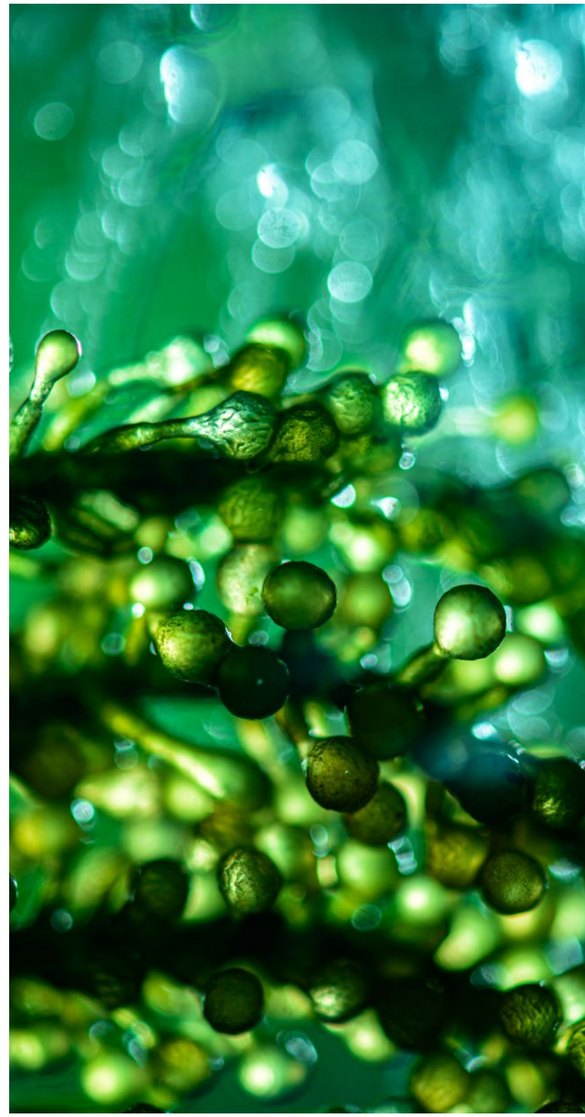
1. A prescriptive approach that would require vessels to use an increasing share of RLF. The type of fuels and the corresponding shares would be established in line with the technology's maturity and its GHG saving potential.

2. A goal-based approach requiring fuels used in navigation and at berth to meet maximum GHG intensity targets. A maximum limit on the GHG content of energy used by ships in navigation (e.g. CO_2 eq/MJ) is identified to deliver comparable GHG emissions reductions on a well to wake basis as in Policy 1. This target will become more stringent over time which would require operators to increase the overall share of RLF in their fuel mix (or switch to more innovative solutions such as hydrogen-based fuels or electricity at berth).

3. A goal-based approach similar to Policy 2 but with a mechanism to reward and foster over-achievement and encourage the development of more advanced, zero-emission technologies. Possible rewards include the provision of free EUAs to companies overachieving their targets.

In all three policy options, the use of onshore power supply will be mandated from 2030 onwards for the most polluting ships in ports (containerships, passenger ships and RoPax ships) unless they use cleaner alternatives (e.g., batteries).

Against this policy proposal by the European Commission, the TRAN committee of the European Parliament adopted a report in October 2022 with amendments on the commission's proposal. Although, the proposed GHG emissions intensity reduction targets for 2025 and 2030 were maintained, the European Parliament introduced higher cuts from there onwards compared with those proposed by the EC – 20% as of 2035, 38 % from 2040, 64 % as of 2045 and 80% as of 2050. Furthermore, a 2% penetration target for fuels RFNBOs (Renewable fuels of Non-Biological Origin) from 2030 was introduced.



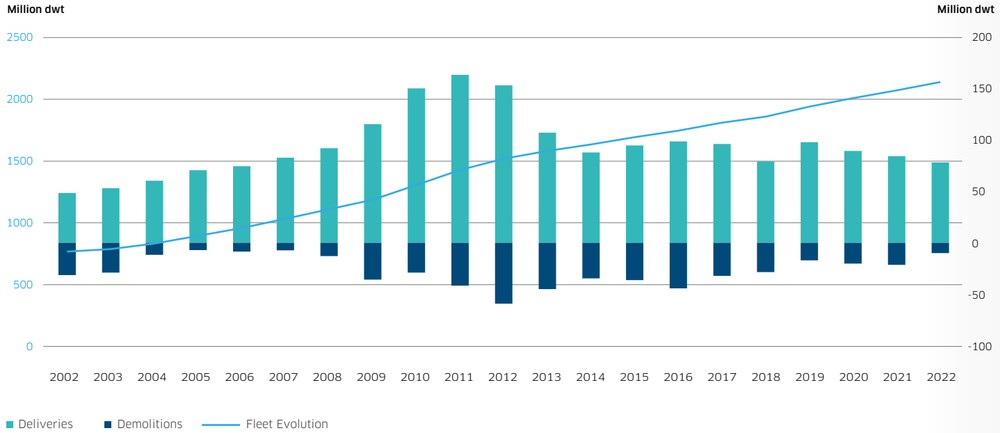
Shipbuilding

A year of contrasts

2021 had been an incredible year for the shipbuilding industry with about 140 m dwt (2,000 ships) of newbuilding orders, the second highest volume across the previous ten-year period. This had allowed shipyards worldwide to book most of their slots over 2022, 2023 and 2024. To a lesser extent, 2022 continued the positive momentum of 2021 and saw about 89 m dwt (1,447 ships) of new orders placed, which was slightly above deliveries (78.5 m dwt). Last year's orders did, however, help extend full yards into 2025, thereby maintaining the three-year horizon beyond which both shipowners and shipbuilders feel uncomfortable to commit.

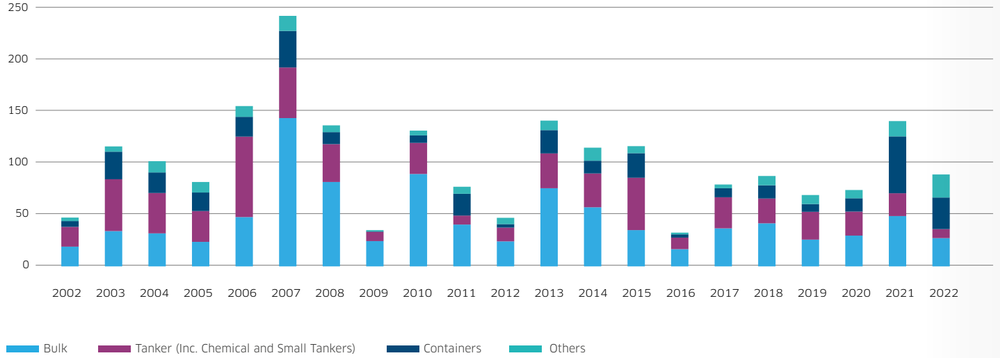
MINERAL BOCIMAR
Artist´s impression of an ammonia-fueled 210,000 DWT Bulk Carrier under construction in CSSC Qingdao Beihai Shipyard for CMB Group.

Fleet evolution



Deliveries vs demolitions

Orders



	2021			2022		
	GT	Dwt	N° Ships	GT	Dwt	N° Ships
Market Sales	153,013,125	244,191,020	4,598	127,619,064	203,867,302	3,992
Demolition Sales	14,490,150	23,256,679	505	7,663,180	12,650,021	241
NB Resales	14,409,408	22,218,557	260	14,081,065	19,112,699	226

KEY POINTS OF 2022

The demand for newbuildings of each of the three main components of the merchant fleet decreased last year. However, it should be noted that even if the demand for container carriers fell, down from 57 m dwt to 30 m dwt (- 27 m dwt), orders remained strong, which made it the second-best year across the last 10 years and the main contributor to the total new orders placed last year. After being sustained in 2021, the demand for bulkers was much weaker, down from 48.6 m dwt to 27.4 m dwt (- 21.2 m dwt). The demand for tankers was even weaker plunging from 22.1 m dwt to 8.7 m dwt, the lowest across the previous ten-year period. However, 2022 will be remembered for the sharp increase in newbuilding orders of the 'other types of ships' which reached a record high of 22.2 m dwt, driven by the exceptional demand for LNG carriers (+ 16.2 m dwt) and Pure Car Truck Carriers (PCTC) (+1.9 m dwt).

As a consequence of this firm shipbuilding activity, newbuilding prices continued to steadily increase, following the trend which began in 2021. They only started to run out of steam in the last quarter of the year when they plateaued, although, as always, this depended on the type and size of vessels ordered. For example, newbuilding prices for LNG carriers and PCTCs continued to rise across the year in the wake of unabating demand. Price increases were mainly fuelled by the competition between buyers for the remaining yard slots, and as building costs rose (raw materials, energy, wages, marine equipments). However, the general strengthening of the US Dollar against the main shipbuilding currencies (Yuan, Won, Yen and Euro) may have helped somewhat to mitigate price rises.

The question of propulsion remained a conundrum for most shipowners. However, the number of dual fuel vessels ordered continued to soar from 152 ships in 2020 (or 14% of new orders) to 388 ships in 2021 (or 22% of new orders) and then 482 in 2022 (or 33% of new orders) including LNG carriers and LNG bunker vessels. It is interesting to note two trends: Firstly, that bulkers and tankers, apart from a few cases, stayed away from dual fuel propulsion.; Secondly, that dual fuel methanol gained some traction in 2022.

The three Asian shipbuilding giants, together accounting for about 95% of the global orderbook by deadweight, continued to fight fiercely while trying to focus their efforts on high value transactions. For example, in 2022, a few additional Chinese yards entered into the high-end segment of building LNG carriers. Accordingly, China's shipbuilders took orders for up to 55 large LNG carriers in 2022, which accounted for about 30% of the total global LNG carrier orders. This saw the entry alongside Hudong-Zhonghua which had been the sole Chinese shipbuilder building LNG carriers until last year, of newcomers such as Jiangnan, Dalian and CMHI and attempts from Yangzijiang. Chinese shipyards also received orders for 70 PCTC/PCCs, accounting for about 79.5% of the world's orders.

China improved its market share from 47.7% to 50.3% while increasing its orderbook significantly. Although Korea's market share inched down from 29.6% to 29%, it managed to increase its orderbook slightly. Japan's market share slipped from 17.6% to 15.1% which saw its orderbook contract. Meanwhile, the shares held by the rest of the world (RoW) grew from 2.6% to 3.3% while the share of Europe remained at about 2.3%.

Newbuilding deliveries inched down slightly both in deadweight and number of ships terms in 2022 at 78.5 m dwt (1,226) versus 84.5 m dwt in 2021. Reflecting the imbalance between deliveries and newbuilding orders, the global orderbook increased from 231 m dwt at end-2021 to 240.9 m dwt at end-2022 to represent 11.3% of the active fleet. Meanwhile, the world fleet of ships of over 3,000 gt continued its uninterrupted growth since 1999, as it increased to 2,141 m dwt (41,823, ships) at end-December 2022 from 2,072 m dwt (40,826 ships) one year earlier.

Summary		2021	2022
Orders	m dwt	140.5	88.9
	ships	2,014	1,447
Deliveries	m dwt	84.5	78.5
	ships	1,291	1,226
Orderbook	m dwt	231.0	240.9
	ships	3,415	3,622
Active Fleet	m dwt	2,072	2,141
	ships	40,823	41,826
Orderbook/Active Fleet	m dwt	11.1%	11.3%
	ships	8.4%	8.7%

Orderbook		2021	2022
China	**Market Share**	**47.7%**	**50.3%**
	m dwt	110.1	121.3
	ships	1,708	1,794
Korea	**Market Share**	**29.6%**	**29.0%**
	m dwt	68.3	69.8
	ships	626	734
Japan	**Market Share**	**17.6%**	**15.1%**
	m dwt	40,7	36.5
	ships	612	587
Europe	**Market Share**	**2.4%**	**2.3%**
	m dwt	5.5	5.5
	ships	288	319
ROW	**Market Share**	**2.8%**	**3.3%**
	m dwt	6.4	7.9
	ships	180	188

2022 also saw a remarkable number of transactions in the second-hand market as approximately 3,992 (203 m dwt) changed hands. This was slightly less than in 2021 where 4,174 ships (223 m dwt) were sold and purchased but remained comfortably above average. This activity supported second-hand prices at firm levels.

The global fleet and orderbook continued to grow in 2022

WORLD ECONOMY, MARITIME TRADE AND FREIGHT RATES

World Economy

Global economic activity experienced a general slowdown with inflation reaching levels not seen for several decades. Russia's invasion of Ukraine and the lingering effects of the COVID-19 pandemic including regular, localized lockdowns in China all weighed heavily on the global macroeconomic backdrop. Accordingly, after a deep recession in 2020 (-3%), a spectacular rebound in 2021 (+6%), global growth slowed down in 2022 to 3.2% and is expected to decelerate further to 2.7% in 2023.

Maritime Trade

Of the three main trade sectors, only the tanker trade witnessed some growth in 2022. After a sharp fall in 2020 (-7.4%), tanker trade rose by 1.7% in 2021 and expanded by 3.7% in 2022. Dry bulk trade that had contracted by 2.8 % in 2020 and rebounded by 3.6% in 2021 remained flat in 2022. Likewise, container throughput that had contracted by 1.4% in 2020 and rebounded spectacularly by 6% in 2021, was flat in 2022.

Freight Rates

Dry bulk

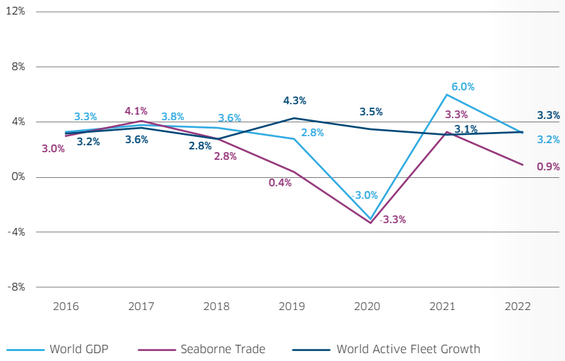
Although the annual average Baltic Exchange Dry Index (BDI) decreased significantly from 2,943 in 2021 to 1,934 in 2022, last year shall be remembered as the second-best year of the past ten years, just behind 2021. It is interesting to note that the last time the annual BDI average exceeded the 3,000 mark coincided with the boom years of the shipping and shipbuilding industry. Notably averages of more than 6,000 were posted in both 2007 and 2008.

As has been the case in previous years, the dry bulk market was characterized by significant volatility. The BDI started the year at 2,285 and sank to 1,291 before end-January. It then climbed almost continuously to peak at 3,369 on 23 May, before plummeting to a nadir of 965 on 31 August. It then rebounded to hot close to 2,000 on 5 October, before finishing the year at 1,515.

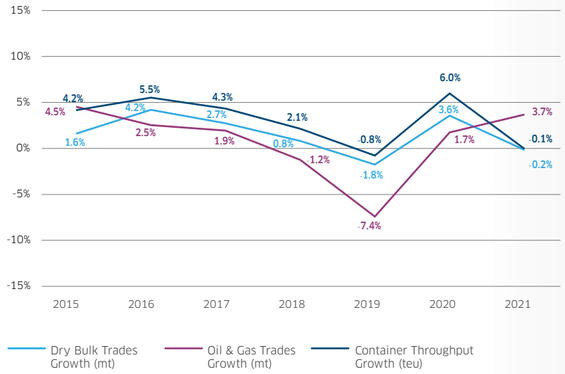
The average 1-year time charter rates illustrate not only the decrease in earnings between 2021 and 2022, but also the significant variations between vessel sizes and that the timing of decisions remains key to shipping.

2022 was the second best year for the dry bulk freight market over the last 10 years, just behind 2021

Global trade and world GDP & active fleet growth



Maritime trade growth



Average 1-year Time Charter rates were as follows:

- Supramax (50-60,000 dwt): **$26,770** in 2021 and **$22,152** in 2022
- Kamsarmax..... : **$26,898** in 2021 and **$20,736** in 2022
- Capesize..... : **$33,333** in 2021 and **$16,070** in 2022

During 2022, 1-year Time Charter rates fluctuated within the following bands:

- Supramax.... : between **$11,685** and **$33,366** per day
- Kamsarmax: between **$10,956** and **$30,746** per day
- Capesize..... : between **$ 2,505** and **$38,169** per day

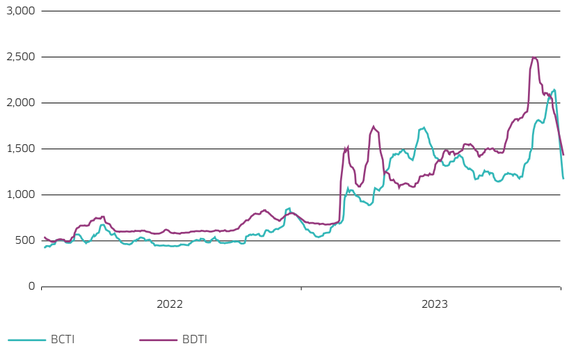
Tanker

Last year saw a much needed rebound in the tanker market as the BDTI and BCTI annual averages surged to ten-year highs of 1,391 and 1,231, respectively. This was significantly up from 2021's lows with that year going down as one of the most challenging years ever for the market, with annual BDTI and BCTI averages of 644 and 532, respectively. 2021 also saw the majority of non-scrubber-fitted, non-eco crude tonnage operate at below OPEX levels. Meanwhile, non-eco, non-scrubber fitted product tankers averaged only close to their OPEX levels even when accounting for slow steaming.

Unfortunately, and without any doubt, the good fortune of the tanker market last year came on the back and suffering of the Ukrainian people in the wake of the Russian invasion on 24 February, a powerful catalyst for a rapid and often chaotic shift in oil flows. As flows shifted, it caught tonnage by surprise with units not in the right place at the right time. In turn, hire rates soared to previously unseen levels, especially for those tanker owners which remained willing to transport Russian cargoes. As the year went on, ton miles continued to rise as more Russian crude and products was shipped to Asia. Meanwhile, as Russian barrels were steadily backed out of the Atlantic Basin, this saw Europe especially, have to look farther afield for both its crude and products.

However, it was not only Russia which drove tanker earnings higher. Oil demand continued its post-Covid growth, and as inventories fell, especially in the Atlantic Basin, more and more product was required to be carried by tankers. As the year turns, the market appears in relatively healthy shape with earnings for tankers moving well above their break-even levels.

BDTI and BCTI



Annual average (ECO)

Date	VLCC	SUEZMAX	AFRAMAX	LR2	LR1	MR2	MR1
2020	44,933	31,981	24,087	24,644	18,760	16,476	14,548
2021	27,817	21,731	18,567	20,154	15,889	14,457	12,538
2022	34,460	30,420	29,800	33,630	29,100	24,045	19,450

BDTI	Average	Min	Max
2021	644	492	835
2022	1,391	679	2,496

BCTI	Average	Min	Max
2021	532	432	856
2022	1,231	543	2,143

In the clean segment, the Baltic Exchange Clean Tanker Index (BCTI) began 2022 at 722, sank to its nadir of 679 on 3 February, rose to a maximum of 2,496 on 23 November, and ended the year at 1,873. Furthermore, it averaged 1,231 over the year, compared with 532 in 2021.

Average 1-year eco Time charter rates were as follows:

- **MR2**.....: **$14,457** in 2021 and **$24,045** in 2022
- **LR1**.....: **$15,889** in 2021 and **$29,100** in 2022
- **LR2**.....: **$20,154** in 2021 and **$33,630** in 2022

During 2022, 1-year eco Time charter rates fluctuated within the following bands:

- **MR2**.....: between **$14,750** and **$34,000** per day
- **LR1**.....: between **$16,000** and **$46,000** per day
- **LR2**.....: between **$21,000** and **$54,000** per day

In the crude segment, the Baltic Exchange Dirty Tanker Index (BDTI) started the year at 675, sank to a nadir of 543 on 25 January before steadily increasing to, peak at 2,143 at year-end. Across the year it averaged 1,391, compared with 644 in 2021.

Average eco Time charter rates were:

- **Aframax**: **$18,567** in 2021 and **$29,800** in 2022
- **Suezmax**: **$21,731** in 2021 and **$30,420** in 2022
- **VLCC**.....: **$27,817** in 2021 and **$34,460** in 2022

During 2022, 1-year eco Time charter rates fluctuated within the following bands:

- **Aframax**: between **$20,000** and **$36,000** per day
- **Suezmax**: between **$21,000** and **$50,000** per day
- **VLCC**.....: between **$24,500** and **$58,000** per day

2022 was the best year for the tanker freight market across the last 10 years

Charter rates for cellular ships (6-12 month fixtures)

Size	2019 avg $/day	2020 avg $/day	2021 avg $/day	2022 avg $/day	Change 2022/2021
8,500 teu	25,875	24,425	90,792	124,458	37%
5,600 teu	16,633	18,354	70,479	102,417	45%
(Panamax) 4,000 teu	11,088	13,792	61,458	83,646	36%
2,500 teu	9,275	10,027	46,900	59,558	27%
1,700 teu	8,096	8,242	33,460	44,438	33%
1,000 teu	6,283	6,125	23,696	28,771	21%
Alphaliner Index	**72.3**	**76.5**	**312.7**	**421.3**	**35%**

Container

After having risen by more than 300% in 2021, the Alphaliner Charter Rate Index continued its ascension as it increased by 35% in 2022 to reach record highs. Thus 2022 continued the trend of 2021 which saw a complete market turnaround with the main carriers able to hike their freight rates tenfold. This saw them significantly improve their cash flow, in turn allowing them to purchase and order ships as if there was no tomorrow. That dynamic continued until May 2022 before the market turned and plunged back towards where it had come from.

The incredible and sudden change of fate that took place in 2021 certainly came from the clash of the post-Covid recovery in demand with continuing supply chain disruptions as port congestion impeded the long, lean supply chains that the market had grown accustomed to in pre-Covid times. The opposite occurred in 2022 when port congestion disappeared, and cargo volumes slumped in the wake of soaring inflation and the associated economic downturn.

Container carrier freight market back to normal?

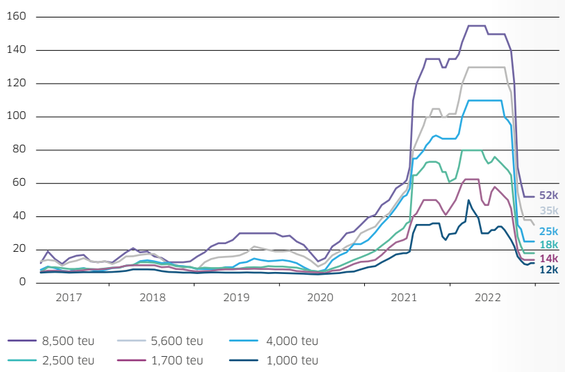
Average 1-year Time charter rates were as follows:

- 1,700 teu.....: **$33,460** in 2021 and **$ 44,438** in 2022
- 4,000 teu.....: **$61,458** in 2021 and **$ 83,646** in 2022
- 8,500 teu.....: **$90,014** in 2021 and **$124,458** in 2022

During 2022, 1-year Time charter rates fluctuated within the following bands:

- 1,700 teu.....: between **$14,000** and **$ 62,500** per day
- 4,000 teu.....: between **$25,000** and **$110,000** per day
- 8,500 teu.....: between **$52,000** and **$155,000** per day

Containership freight rates



Source: Alphaliner

ORDERS AND ORDERBOOKS

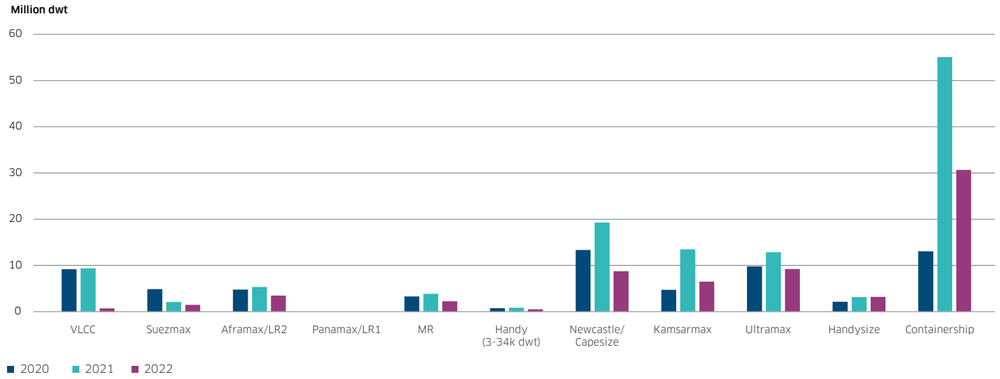
Orders and orderbooks for standard vessels

Newbuilding orders decreased by 37 % globally from 140.5 m dwt in 2021 to reach 88.9 m dwt in 2022, just below the annual average of 94 m dwt over the last ten years.

In spite of the best freight market in a decade, the largest reduction can be assigned to tankers, orders for which slumped by about 60%, dropping from 22.1 m dwt to 8.7 m dwt, well below a ten-year average of 26.3 m dwt. Newbuilding orders for container carriers decreased by 45% going from 55.1 m dwt to 30.6 m dwt. However, they remained well above their ten-year average of 19.0 m dwt, and still totalled their second-highest figure of the previous ten years, behind only 2021. Bulker orders decreased by 45%, dropping from 48.6 m dwt in 2021 to 27.4 m dwt. This was well below the 10-year average of 39 m dwt, and third lowest figure across the last ten years.

2022 saw shipbuilders maintain a three-year order backlog

New orders for standard vessels per year



New orders per year (2012 - 2022)

m dwt	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Bulk	24.2	75.5	57.2	35.2	16.7	36.8	41.5	25.9	29.8	48.6	27.4
Tanker	13.3	33.6	32.6	50.7	11.2	30.1	24.0	27.0	23.2	22.1	8.7
Container	3.5	22.7	12.5	23.6	3.2	8.6	13.1	7.4	13.0	55.1	30.6
Other	6.0	9.1	12.5	6.8	1.6	3.8	8.8	8.6	7.9	14.8	22.2
Total	**47.0**	**141.0**	**114.8**	**116.2**	**32.7**	**79.3**	**87.4**	**69.0**	**73.9**	**140.5**	**88.9**

Bulk Summary		2021	2022
Orders	m dwt	48.6	27.4
Deliveries	m dwt	37.8	30.1
Orderbook	m dwt	78.9	75.9
Active Fleet	m dwt	936.9	964.0
Orderbook/Active Fleet		**8.4%**	**7.9%**
China	m dwt	48.1	47.2
	Market share	60.9%	62.2%
Korea	m dwt	1.2	0.4
	Market share	1.5%	0.5%
Japan	m dwt	25.8	23.9
	Market share	32.7%	31.5%

With 75.9 m dwt, the **bulker orderbook** represented 7.9 % of the active bulker fleet of 964 m dwt at the end of 2022. It is reasonably evenly spread between the five main segments of the dry bulk fleet from Handysize to Newcastlemax, with the exception of the VLOC class where no ships are now on order. Deliveries in 2022 of 30.1 m dwt were at the second lowest in 10 years, well below the average for the period of 43.3 m dwt.

The bulker orderbook is basically in the hands of two countries: China on one side with a market share of 62.2 % and Japan on the other side with a market share of 31.5%. Korea, although the second largest shipbuilding country in the world, continues to stay away from the construction of bulkers with no more than 0.5% of its market share. The bulker fleet remains the largest fleet afloat, totalling 964 m dwt.

m dwt	Orderbook	Fleet	Ratio
Handysize/handymax	8.9	118.5	7.5%
Supramax/ultramax	19.1	197.5	9.7%
Panamax/kamsarmax	17.9	200.1	9.0%
Post-Panamax/babycape	4.4	63.9	7.0%
Capesize/Newcastlemax	24.9	284.8	8.7%
VLOC	0.0	81.7	0.0%

Tanker Summary		2021	2022
Orders	m dwt	22.1	8.7
Deliveries	m dwt	26.1	29.2
Orderbook	m dwt	51.1	30.4
Active Fleet	m dwt	672.8	695.6
Orderbook/Active Fleet		**7.6%**	**4.4%**
China	m dwt	13.6	9.2
	Market share	26.6%	30.2%
Korea	m dwt	27.5	13.5
	Market share	53.8%	44.4%
Japan	m dwt	5.4	2.6
	Market share	10.6%	8.6%

With 30.4 m dwt, the **tanker orderbook** represented 4.4% of the active tanker fleet of 695.6 m dwt at end-2022, its lowest figure since 1990. Contrary to the bulker segment, there are significant variations between the six main segments of the tanker fleet from MR1 to VLCC. For example, there are no MR1s under construction, with most owners instead having opted for MR2 and LR2 units. Deliveries in 2022 of 29.2 m dwt were in line with a 10-year average of 27.9 m dwt.

The tanker orderbook is basically in the hands of two countries: Korea on one side with a market share of 44.4 % and China on the other side with a market share of 30.2%. However, Korea is under pressure as its market share decreased from 53.8% in 2021 whereas that of China went up from 26.6% in 2021. Japan's market share continued to erode as it dropped from 10.6% in 2021 to 8.6% of what is the second largest individual segment with a 695 m dwt fleet.

m dwt	Orderbook	Fleet	Ratio
MR1	0.0	19.0	0.2%
MR2	5.3	86.8	6.1%
Panamax/LR1	0.3	32.8	0.9%
Aframax/LR2	10.9	119.5	9.2%
Suezmax/LR3	3.1	104.5	3.0%
VLCC	7.8	272.6	2.9%

Oil tanker orderbook now at its lowest since 1990

*Picture: MV **BIT WIND**, a high heat IMO 2 ice class 1A dual fuel (LNG) bitumen tanker delivered on 23 May 2022 by NYZ (China) to Tarbit (Sweden).*

With 91 m dwt, the **container carrier orderbook** represented 29.7% of the active container carrier fleet of 306 m dwt at the end of 2022, the highest figure of the decade. There are wide variations between the main segments of the fleet, although trends are difficult to isolate. In 2022, the focus was placed on large vessels between 12,000 and 24,000 teu as well as on the units between 5,000 and 7,500 teu on one side and between 1,500 and 4,000 teu on the other side. Deliveries in 2022 of 12.1 m dwt were slightly below a 10-year average of 13.5 m dwt.

The container carrier orderbook is in the hands of two countries: China on one side with a market share of 57.5 % and Korea on the other side with a market share of 33%. Japanese market share continued to fall, as it slipped from 11 % in 2021, to 8.9% of what is the third largest individual segment with a 306 m dwt fleet.

	Existing		Orderbook		O / E
Size range teu	ships	teu	ships	teu	%
above 18,000	153	3,212,425	70	1,674,820	**52.1%**
13,300-17,999	261	3,838,514	234	3,574,992	**93.1%**
12,500-13,299	92	1,198,780	36	472,870	**39.4%**
10,000-12,499	195	2,133,728	13	149,090	**7.0%**
7,500-9,999	485	4,295,560	55	437,312	**10.2%**
5,100-7,499	437	2,721,426	159	1,038,976	**38.2%**
4,000-5,099	633	2,863,469	18	82,176	**2.9%**
3,000-3,999	269	925,967	75	244,744	**26.4%**
2,000-2,999	780	1,982,793	130	339,772	**17.1%**
1,500-1,999	677	1,182,677	140	255,114	**21.6%**
1,000-1,499	737	853,474	96	111,591	**13.1%**
500-999	676	501,620	2	1,120	**0.2%**
100-499	197	66,473	3	975	**1.5%**

Container Summary		2021	2022
Orders	m dwt	55.1	30.6
Deliveries	m dwt	11.7	12.4
Orderbook	m dwt	72.8	91.0
Active Fleet	m dwt	293.8	306.2
Orderbook/Active Fleet		**24.8%**	**29.7%**
China	m dwt	41.6	52.3
	Market share	57.1%	57.5%
Korea	m dwt	22.9	30.0
	Market share	31.5%	33.0%
Japan	m dwt	8.0	8.1
	Market share	11.0%	8.9%

The container carrier orderbook hit a ten-year high

Orders and orderbooks for specialised vessels

The demand for specialized vessels is generally strong in poor newbuilding markets when prices are low. However, 2022 saw an extraordinarily large increase in the demand for LNG carriers and PCTC / PCC units in spite of rising newbuilding prices.

Newbuilding orders for specialized tonnage increased globally by 50.5% from 14.8 m dwt in 2021 to reach 22.2 m dwt in 2022, well above the annual average of 9.6 m dwt over the last ten years and comfortably the best figure for a decade.

The largest increase came from LNG carriers, orders for which surged by 120.4% going from 7.4 m dwt to 16.2 m dwt. This was a record over the past ten years despite very late delivery times which stretched into 2026, and despite prices which soared across the year from $200 m to $250 m for a standard 174,000 m3 LNG carrier. Without any doubt, that bonanza was driven by Europe's decision to break their dependance on Russian natural gas.

Newbuilding orders for PCTC / PCC soared by 123.3% going from 0.9 m dwt to 1.9 m dwt well above their ten-year average of 0.5 m dwt and only slightly behind 2021's ten-year high. Chinese car manufacturing champions such as BYD, Geely, NIO are arriving with steamroller force on the European automotive market. In addition to being supported by Beijing, the strength of these Chinese groups is that they control the entire production chain of electric cars, including batteries. This makes them the match for Tesla with whom BYD is engaged in a battle to become the global market leader.

Some offset came from falling orders for LPG tankers. These decreased by 58.9% as they fell from 4.4 m dwt in 2021 to 1.8 m dwt last year. Accordingly, LPG tanker orders were below their average of the last 10 years.

Last year saw new orders for cruise ships signed. Although these were nothing compared with their pre-covid peaks, they were still noteworthy since orders almost vanished during Covid. Indeed, this was the sole shipping segment which had completely fallen into a coma during Covid and its main players including CCL and RCCL accordingly lost billions of Dollars.

Orders for specialised vessels

	2017	2018	2019	2020	2021	2022
LNG (cbm)	3,145,678	10,815,889	8,886,069	8,126,733	13,498,448	31,215,645
LPG (cbm)	1,252,298	2,025,601	2,507,769	2,600,895	6,462,814	2,762,024
Ferries & Ro-pax(gt)	504,373	926,099	888,010	126,989	604,582	358,730
Cruise (gt)	3,067,681	2,369,233	1,631,722	81,371	138,533	467,952
SST Chemical (dwt)	445,900	304,649	404,536	547,469	851,676	644,086
Car carriers (cars)	38,310	20,830	34,715	21,150	339,490	663,650
Ro-Ro (lm)	46,138	124,727	30,426	8,263	41,060	34,744

N° of Ships	2020	2021	2022
LNG	50	88	189
LPG	7	11	14
Ferries & Ro-pax	11	19	21
Cruise	7	3	10
SST Chemical	33	44	31
Car carriers	3	47	88
Ro-Ro	5	14	8

Picture: ***Havila Castor****, HAV 923. Photo: Jan Magne Goksøyr.*

ORDER CANCELLATIONS IN 2022

Order cancellations in 2022 remained at subdued levels of 1.3 m dwt.

Orders vs cancellations (2014-2022)

m dwt	2014	2015	2016	2017	2018	2019	2020	2021	2022
Orders	114.8	116.2	32.7	79.3	87.4	69.0	73.9	140.5	88.9
Cancellations	14.7	11.2	12.0	4.4	7.8	2.0	0.9	4.8	1.3

RECYCLING IN 2022

The years follow each other and are alike. 2022 was no exception and the tonnage sent for demolition remained at subdued levels, totalling no more than 10 m dwt, the lowest in over a decade and well below the 29.0 m dwt 10-year average. It represents also less than 0.5% of the total in service merchant fleet. Every year, the shipping community entertains big hopes that demolition volumes will increase and bring some relief to markets or simply allow the market to evacuate vintage and old-fashioned tonnage. Last year, stricter environmental legislation and higher steel costs had no effect. It appears that market considerations are much stronger and that shipowners wish to surf on the peaks of freight rates a last time, as we saw for container carriers, tankers and bulkers.

The tanker segment was the most active in demolition, and tonnage sent to the beach totalled around 6.2 m dwt in 2022, down from 12.3 m dwt in 2021. It represented almost 1% of the active tanker fleet (695 m dwt).

In the bulker segment, the tonnage sent to the beach reached about 3.1 m dwt in 2022 down from 7.3 m dwt in 2021, the lowest figure of the past 10 years and well below the 10-year average of 15.1 m dwt. It represented less than 0.5% % of the active bulker fleet (965 m dwt).

Logically, very little demolition activity occurred in the containership sector where only one ship was scrapped in 2022, a record low.

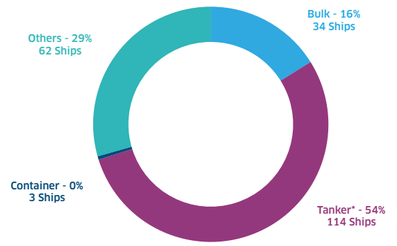
Demolitions vs deliveries (2014-2022)

m dwt	2014	2015	2016	2017	2018	2019	2020	2021	2022
Demolitions	34.6	36.3	44.4	32.3	28.5	17.0	20.3	21.5	10.0
Deliveries	88.2	94.9	99.0	96.6	79.3	98.1	89.7	84.5	78.5

Contrary to previous years, a fall in tonnage being demolished was accompanied by a decrease in the average age of vessels being demolished. In 2022, average ages decreased across the board for container carriers from 30 to 29 years, for bulkers from 30 to 29 years and for tankers from 27 to 25 years.

Demolition prices rose sharply in 2022 to hit unprecedented levels of $582/ldt, $612/ldt and $622/ldt for bulkers, tankers and container carriers, respectively. Nonetheless, these prices proved insufficient to attract shipowners.

Demolitions in 2022 (n° of ships)



** Incl. Chemical and Small Tankers*

Recycling dropped to a ten-year low

The number of active building facilities worldwide now stands at about 300, compared with the peak of 700 facilities seen in 2007

DELIVERIES AND WORLDWIDE SHIPBUILDING CAPACITY IN 2022

Total deliveries waned to 78.5 m dwt in 2022 from 84.5 m dwt in 2021. On a segment-by-segment basis, deliveries amounted to 30.1 m dwt of bulk carriers (37.8 m dwt in 2021), 29.2 m dwt of tankers (26.1 m dwt in 2021) and 12.4 m dwt of containerships (11.7 m dwt in 2021).

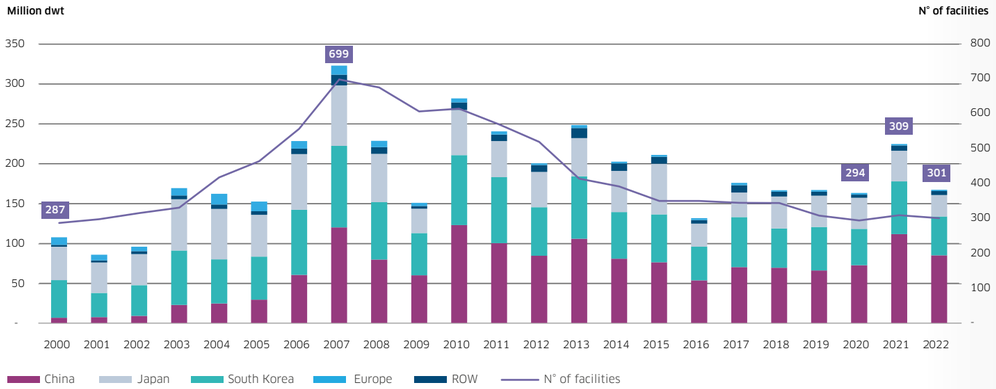
In China, Korea and Japan, deliveries all slipped down from 40.8 m dwt to 36.7 m dwt, from 24.1 m dwt to 23.7 m dwt and from 16.8 m dwt to 15.6 m dwt, respectively.

The number of active building facilities (yards that either won new contracts and/or delivered tonnage during the year) worldwide now stands at about 300, only slightly more than 40% of the peak of about 700 facilities seen in 2007.

Ship deliveries in China, Korea & Japan (2014-2022)

Deliveries (million dwt)	2014	2015	2016	2017	2018	2019	2020	2021	2022
China	35.9	38.7	36.1	38.8	34.8	36.7	38.4	40.8	36.7
South Korea	24.5	29.2	35.9	30.8	19.0	32.3	25.3	24.1	23.7
Japan	22.4	21.1	21.6	20.2	20.1	24.6	22.6	16.8	15.6

Active building facilities per year & region (excluding offshore)



Newbuilding and asset prices ($ million)

	Age	End 2021	End 2022	% variation
Kamsarmax Bulker	15 years	18	16	-11%
	5 years	33.5	28.5	-15%
	Newbuilding	35	33	-6%
VLCC Tanker	15 years	32	60	+88%
	5 years	70	98	+40%
	Newbuilding	106	123	+16%
1,700 TEU Containership	15 years	27	11	-59%
	5 years	43	22	-49%
	Newbuilding	27	31	+15%

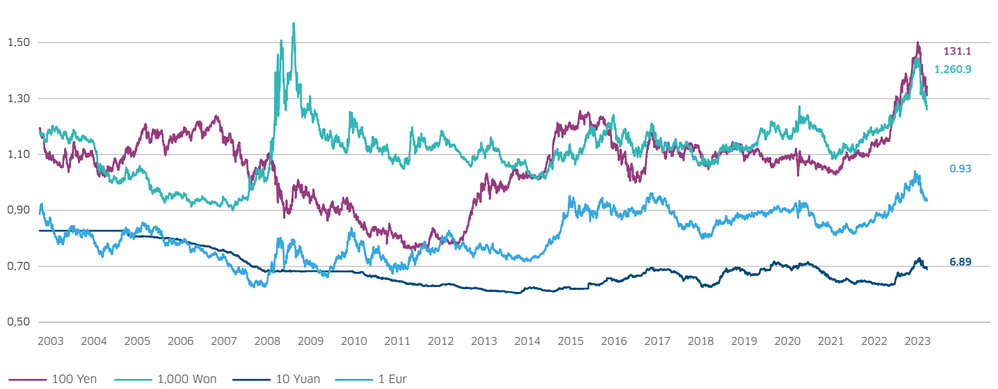
NEWBUILDING PRICES IN 2022

Newbuilding prices for bulkers, tankers, container carriers rose by around 5 to 10% during the first part of 2022 until early autumn. They then eased to finish the year at between 0 and 5% above the levels at the beginning of the year. This came after they had soared by about 30% in 2021. Price rises were more acute for in-demand tonnage such as LNG carriers and PCTCs. For instance, prices for 174,000 m3 LNG carriers to be delivered in three- or four-year time from Korean yards soared from $220 m to $250 m (+13%). As usual we have to look more precisely at the specifications that evolve with time. In particular, the trend for LNG carriers has been to add technical features such ALS, PTO and EGR on top of a now conventional reliquefication plant, which might be worth altogether about an extra $10 m. Prices for 7000 PCTC dual fuel (LNG) went up from $83 m to $88 m (+6%) in China.

There is an urban legend in the shipbuilding industry that shipbuilders make a profit when prices rise. Unfortunately, sometimes, building costs increase quicker. This was aptly demonstrated last year as Korean stock exchange-listed companies and first-class shipbuilders such as DSME and SHI posted significant losses for 2021.

Prices in the second-hand market followed a similar pattern to the charter markets. Second-hand prices for container carriers strengthened significantly in the first part of 2022 before plunging in the second part of the year. Second-hand tanker prices rose substantially during the whole year.

US Dollar exchange rates



Newbuilding prices (million $)

	End 2021 China 1st tier*	End 2021 SK/Japan	End 2022 China 1st tier*	End 2022 SK/Japan
Tankers				
VLCC	95	106	115	123
Suezmax	66	74	71	83
Aframax (A) **/ LR2**	55 (A)/57 (LR2)	59 (A)/61.5 (LR2)	56 (A)/59 (LR2)	67 (A)/70 (LR2)
LR1			49	58
MR2 IMO 3 (12+2)	39	39.5	39	45
Bulkers				
Newcastlemax (205k dwt)	65/67	71/73	63	73
Capesize (180k dwt)	60/61	66/68	60	69
Kamsarmax (K)	35/36	38/40	33	38
Ultramax (U) **Handymax** (H)	32/32.5 (U) 28.5 (H)	35/36 (U) 30/31 (H)	32 (U)	37 (U)
Containers				
Intermediate (7k teu)	74/75 (6k)	77/78 (6k)	82	90
Panamax (5.5k teu)	68/69	70/71	70	77
Superhandy (2.7k teu)	38	40	40	45
Handy (1.9k teu) (1.1k teu)	28 23	29.5 24	32 24	34 27

** Prices at China's 2nd tier yards are an estimated 5% lower*

Second hand price evolution during 2022 for 5 year old vessels (million $)

	Jan 2022	High		Low		Dec 2022	Variation Jan- Dec
VLCC	72.35	72.29	21 Jan	93.73	02 Dec	93.58	+ 29.3%
Aframax	40.76	40.76	07 Jan	59.03	23 Dec	59.03	+ 44.8%
MR Tanker	28.68	28.68	07 Jan	41.39	23 Dec	41.39	+ 44.3%
Capesize	45.88	42.39	23 Dec	52.05	01 Jul	42.39	- 7.6%
Panamax	32.47	29.31	23 Dec	37.65	01 Jul	29.31	- 9.7%
Supramax	27.66	24.11	23 Dec	31.12	08 Jul	24.11	- 12.8%

Values based on Baltic Sale and Purchase Index

SHIPBUILDING IN THE WORLD

Shipbuilding in China

For the first time since ever, in 2022, China passed the symbolic bar of holding 50% of the global orderbook. This confirms their domination of the worldwide shipbuilding industry with their orderbook standing at 121.3 m dwt (50.3% market share) at end-2022. Despite securing 67% less orders last year (48.1 m dwt) compared with 2021 (71.1 m dwt), Chinese shipyards still managed to secure more orders then their competitors abroad, with their share amounting to 54.1% of all orders placed last year.

In terms of new orders secured, China supplanted the countries across all the main segments (Bulk, Tanker, Containership). It held the top position in Bulk segment with 18.3 m dwt (67%) against 7.7 m dwt (28%) for Japan, top position in the containership segment with 17.7 m dwt (58%) against 10.7 m dwt (35%) for Korea. Even in the tanker segment, traditionally led by Korea, it led with 3.9 m dwt (44%) against 2.0 m dwt (23%) for Korea. This was a significant achievement considering that the country's borders were mostly shut between 2020 and end-2022, with contracts negotiated mainly through video calls.

Last year, total Chinese shipbuilding output decreased slightly, from 40.8 m dwt to 36.7 m dwt, reflecting the low ordering activity in 2020. The orderbook / yearly output ratio reached a record with 3.3 against 2.7 in 2021, thereby highlighting that most Chinese yards are completely full for the next 3 years and therefore not proposing delivery slots earlier than 2026 (more than 3 years after contract signing, even 4 years in some cases).

China		2021		2022	
		m dwt	Ships	m dwt	Ships
Orderbook	Market share	47.7%	50.0%	50.3%	49.5%
	Bulk	48.1	564	47.2	567
	Tanker	13.6	278	9.2	189
	Container	41.6	534	52.3	627
	All ships	**110.1**	**1,708**	**121.3**	**1794**
Orders	Bulk	31.4	374	18.3	247
	Tanker	3.8	118	3.9	68
	Container	32.4	412	17.7	208
	All ships	**71.1**	**1,089**	**48.1**	**739**
Deliveries	Bulk	25.1	278	19.0	243
	Tanker	9.4	162	8.3	155
	Container	4.5	96	6.9	115
	All ships	**40.8**	**654**	**36.7**	**649**

The top 4 Chinese shipbuilding groups CSSC, CHI, YZJ and NTS together accounted for 77% of the Chinese orderbook

Top 4 Chinese shipyards

The top 4 Chinese shipbuilding groups consolidated their respective positions in 2022 as CSSC, CHI, YZJ and NTS together accounted for 77% (previously 75%) of the Chinese orderbook. Meanwhile, their combined share of the global orderbook increased slightly from 36% in 2021 to 39%.

China State Shipbuilding Corporation (CSSC) remains the number one shipbuilding group worldwide holding 42% of the Chinese orderbook and 21% of the global orderbook. CSSC secured new orders amounting to 22.5 m dwt in 2022, about 60% more than the largest Korean group HHI which secured 14.3 m dwt.

Cosco Shipping Heavy Industry (CHI) is the second largest shipbuilding group in China, holding 15% of the Chinese orderbook and the third (Last year, CHI was fourth) largest global shipbuilding group accounting for 7% of the world orderbook. In 2022, CHI secured new orders totalling 8.2 m dwt, slightly below the 8.7 m dwt secured in 2021.

In third and fourth position are Yangzijiang (YZJ) and New Times Shipyard (NTS), the two largest private shipbuilders in China with orderbooks of about 14.7 m dwt and 10.7 m dwt, respectively. This ranks them in sixth (previously 7th) and eighth position globally. They both secured about 4.4 m dwt of orders placed last year, each accounting for around 5% of global ordering.

Newbuilding Capacity

After the reopening of Jiangsu Yangzi Changbo Shipyard by Yangzijiang (YZJ), Quanzhou shipyard by Quanzhou Transportation Development Group (QTDG) and the reorganisation of Taizhou Kouan by two local companies last year, the willingness to increase Chinese shipbuilding capacity continued in 2022.

Hengli Heavy Industries Group Co. Ltd, a subsidiary of the Hengli Group, won the auction of the assets of STX Dalian. The yard accordingly restarted in January 2023. The shipbuilding facility consists of one large graving dock and 4 large slipways, with its output estimated at 1 m dwt/year.

The former CEO of Jiangsu Rongsheng Heavy Industries is trying to reopen the giant facility under the name of "SPS Shipyard". However, reopening is being delayed by a failure to secure refund guarantees, the lack of a reopening fund and the loss of a restructuring partner. The yard is located in the Yangtze River Delta, and was founded in 2006, after which it became the largest private shipbuilder in China before collapsing in 2014.

Dalian Shipbuilding Industry Company (DSIC) located in Dalian has launched a project to relocate, build and upgrade their facilities in Taiping Bay, 100km north of Dalian City. The aim is to have a modern high-end ship assembly and construction base with an expected annual shipbuilding capacity of 2.6 m dwt. There is no firm schedule on the relocation yet but it is expected to take several years to complete.

CSSC SWS, located in Changxing island, plans to restart the facilities which belonged to Shanghai Edwards on Chongming island to increase their capacity.

Overview per segment

Bulk
Qingdao Beihai, part of CSSC group, has retained its position as the shipyard with the largest dry bulk order backlog by deadweight in 2022. The state-owned shipyard had a total of 8.5 m dwt of bulk tonnage on order consisting of 39 Newcastlemax and 4 Panamax. In second place is New Times (NTS) with a total of 4,7 m dwt (20 Newcastlemax and 4 Baby capes) and in third is CHI Yangzhou with a total of 3.0 m dwt (4 Newcastlemax and 26 Kamsarmax).

Containerships
Yangzijiang, the largest private shipyard in China, confirmed their leadership in the containership segment with an orderbook of 11.5 m dwt (114 ships from 1,000 to 24,000 teu). This is followed by CSSC Jiangnan with 4.4 m dwt (28 ships) and New Times with 3.8 m dwt (35 ships).

Tankers
The tanker segment is largely dominated by two shipyards: New Times with an orderbook of 2.2 m dwt (29 ships including 4 Suezmax, 6 LR2s and 19 MRs) and CSSC GSI with an orderbook of 1.9 m. dwt (28 ships including 9 LR2s and 19 MRs)

LNG
The construction of large LNG carriers has been, for years, limited to CSSC Hudong-Zhonghua which, in 2022, had an orderbook of 3.9 m dwt (49 ships). In 2022, under the pressure of high demand and the limited slots available in Korea, three other yards entered the club of large LNG carriers builders. CSSC Dalian secured 6 units for China Merchant, CSSC Jiangnan received orders for 6 units from the UAE's ADNOC and Yangzijiang secured 2 units for Germany's Hammonia Reederei and Peter Dohle with the backing of the German government. Another yard, CMHI Jiangsu has entered into discussions with Denmark's Celsius to construct 4 units.

PCTC
2022 saw an explosion in the ordering of PCTCs. Across the year, 88 ships were ordered including 70 ships at Chinese yards, who now control 79.5% of the world orderbook. This is followed by Japan with 15.9% and Korea with 4.5%. Ten Chinese yards share the orderbook of 101 units; GSI (19 units), CMHI Jiangsu (15), CIMC Raffles (13), CMHI Jinling (11), Xiamen (17), CMHI Weihai (10), CSSC Jiangnan (7), Mawei (5), CSSC SWS (3) and CMHI Nanjing (1).

Ropax and Ferries
The construction of Ropax and Ferries is mainly controlled by three shipyards: GSI with 10 units (4 for GNV, 2 for Moby, 2 for P&O and 2 for domestic companies), CMHI Weihai with 4 units (3 for Stena and 1 for a domestic company) and CMHI Jinling with 2 units (both for Grimaldi).

Cruise
On top of the famous two 135,500 gt Vista-class vessels (each 323.6 meters long and 37.2 meters wide, able to accommodate 5,246 passengers) still under construction at CSSC Shanghai Waigaoqiao Shipbuilding (SWS), in cooperation with Italy's Fincantieri and to be delivered in 2023, CMHI Jiangsu is the second Chinese shipyard building cruise ships with three units on order. These are the last of the four 4,500 gt expedition cruise ships for the Sunstone and two 37,000 gt cruise ships for the domestic owner Shanghai Style Cruise.

Some significant orders of the year

- In 2022, Chinese shipyards secured orders for 172 dual-fuel propulsion ships (excluding LNG carriers) against 150, 61 and 50 orders placed in 2021, 2020 and 2019, respectively. This represented 58% of total dual-fuel ships ordered globally last year and 26% of the total orders placed in China. Meanwhile, Korea and Japan secured 25% and 8%, respectively, of dual-fuel orders placed last year. These orders included 62 dual-fuel (LNG) ROROs, 10 dual-fuel (LNG) tankers, 6 dual-fuel (LNG) bulkers, 52 dual-fuel (LNG) containerships and 22 dual-fuel (Methanol) containerships.
- Chinese shipyards secured 80% (70 units) of all the PCTCs ordered worldwide (88 units) and about 30% (60 units) of all LNG carriers (all sizes) ordered last year (191 units).
- Bocimar, a division of CMB group, signed for another 12 Ammonia-ready Newcastlemaxes at CSSC Beihai which brings the total ordered to 20 units.
- MSC continued their expansion and placed more orders for container vessels in Chinese shipyards. These included 6 x 16,000 teu LNG dual fuel at DSIC, 10 x 8,100 teu LNG dual fuel and 10 x 11,400 teu LNG dual fuel at New times and 12 x 16000 teu LNG dual fuel at Yangzijiang.

Chinese shipyards secured 80% (70 units) of all the PCTCs ordered worldwide (88 units) and about 30% (60 units) of all LNG carriers (all sizes) ordered last year (191 units)

Shipbuilding in South Korea

South Korea		2021		2022	
		m dwt	Ships	m dwt	Ships
Orderbook	Market share	29.6%	18.3%	29.0%	20.3%
	Bulk	1.2	5	0.4	3
	Tanker	27.5	192	13.5	102
	Container	22.9	197	30.0	295
	Gas	16.4	222	25.5	318
	All ships	**68.3**	**626**	**69.8**	**734**
Orders	Bulk	0.4	2	0.0	1
	Tanker	14.6	106	2.0	23
	Container	17.2	161	10.7	131
	Gas	9.6	135	12.3	143
	All ships	**42.0**	**412**	**25.2**	**305**
Deliveries	Bulk	1.8	6	0.8	3
	Tanker	11.7	99	16.1	113
	Container	4.8	31	3.6	33
	Gas	5.8	73	3.2	47
	All ships	**24.1**	**212**	**23.7**	**197**

In 2022, Korea ranked second globally for its 69.8 m dwt orderbook (29% of global market share), its 25.2 m dwt of newbuilding orders (28% of global market share) and its tonnage output of 23.7 m dwt (30% of global market share). The orderbook remains on par with 2021 despite a 40% drop in the volume of new orders secured (from 32 m dwt to 25.2 m dwt).

In the tanker segment, Korea slipped from first position globally as its yards secured only 2 m dwt of new orders compared with 14.6 m dwt in 2021. Nonetheless, this still represented 23% all tankers ordered last year. The containership segment resisted better than in China as the volume of new orders only dropped by 38% compared with 45% in China. The bulker segment remains essentially reserved for only domestic owners only since Korean shipyards decided to exit this segment several years ago.

Korean yards still dominate the construction of LNG carriers and accounted for 71% of orders placed globally (160 new units compared with 86 in 2021). However, Chinese yards are gearing up by taking the remaining 29% (60 new units compared with 14 in 2021)

Illustrating the strong consolidation of the Korean shipbuilding industry, 88,6% of orders in 2022 were secured by the Big Three, with Hyundai HI holding 48%, Samsung 20.7%, and DSME 19.9%. Only 8 Korean shipyards received new orders in 2022 compared with 23 in 2008.

Korean shipbuilding output continued to slightly decrease from 24.1 m dwt in 2021 to 23.7 m dwt in 2022. Meanwhile, the orderbook to yearly output ratio continues to increase and has risen from 1.7 at end-2019, to 2.3 at end-2020, to 2.8 at end-2021 to 2.9 at end-2022. With China now having a ratio above 3.3, it is now easier to find an earlier delivery position in Korea than in China.

Some newsworthy events of the year

Hyundai Heavy Industries (HHI/HMD) secured some 48% of new orders placed in Korea in 2022 worth about $25 bn (its highest since 2017), well above their initial annual target of $17.44 bn. For 2023, the group has set a $15.74 bn target for its three shipyards, down by 10% from 2022. Furthermore, the Hyundai Heavy Industries Group has completed its shift to a holding company structure by launching "HD Hyundai", the new name of the mother company.

With their strong orderbook, HHI has revived its mothballed Hyundai Gunsan shipyard to fabricate hull blocks. It is expected to have capacity to produce 100,000 tonnes of blocks annually which it will supply to Hyundai Ulsan, Hyundai Samho and Hyundai Mipo. Hyundai Gunsan was built at the height of the shipbuilding boom in 2007 but was closed five years ago due to the downturn in the industry.

Of the 164 ships secured last year, 60% were based on dual-fuel propulsion.

Samsung HI (SHI) secured some 20.7% of new orders placed in Korea in 2022 and exceeded their sales target. For 2023, the annual target has been raised to $9.5 bn. Of the 56 contracts it secured in 2022, 43 (77%) were for large LNG Carriers. Accordingly, the yard is now concentrating on LNG carriers rather than on large containerships and tankers.

Daewoo Shipbuilding and Marine Engineering (DSME) secured 20% of the total new orders placed in Korea in 2022 which amounted to $10.4 billion (122% of its initial target). 88% of the new orders were for large LNG carriers. Like Samsung, DSME is now concentrating on LNG carriers and large containerships.

Following the failure of the merger between DSME and HHI, DSME's main shareholder KDB was actively looking after a new buyer. Finally, it was the South Korean defence and energy conglomerate Hanwha Group (South Korea's seventh-largest conglomerate) who signed an agreement at end-2022 to take a controlling stake in DSME. The transaction will allow KDB to reduce their share from 55.7% to 28.2% within the first half of 2023. It is expected that the proposed new owner will use the shipbuilder to expand its defence and green energy businesses.

Hyundai Mipo Dockyard (HMD) continued to dominate the medium sized shipyard segment (below LR2 size) and collected most of the small and medium sized new orders placed at Korean yards in 2022. It won 56 orders in 2022 against 92 in 2021 and 51 in 2020. Its main product remains the MR tanker and together with its Vietnamese affiliate (HVS), it succeeded in winning 45% of MR orders placed worldwide.

Daehan Shipbuilding disappeared. Welcome to DH Shipbuilding! Following the acquisition of the majority of Daehan, KH Investment (KHI) renamed the Mokpo-based shipyard, 'DH Shipbuilding'. The yard became then a sister company to Kshipbuilding owned by the same main

shareholder. DH Shipbuilding was previously under the control of the state-owned Korea Development Bank (KDB) after filing for bankruptcy restructuring in 2009 when the shipbuilding market collapsed. The yard continues to focus mainly on constructing large tankers and large containerships. In 2022, they secured 9 ships (2 Suezmax, 3 Aframax and 4 x 7,000 teu containerships) compared with 17 ships in 2021.

K Shipbuilding (ex - STX Offshore & Shipbuilding) who went through the same situation as DH Shipbuilding 2 years ago, continued to focus on tankers and succeeded in securing new orders for containerships and tankers. In 2022, they secured 16 orders (4 Aframax, 8 MRs and 4 x 7,700 teu containerships) compared with 25 ships in 2021.

HJ Shipbuilding (ex - Hanjin Heavy Industries & Construction) who also changed ownership 2 years ago and focuses only on containerships. In 2022, they secured 4 containerships (2 x 7700 teu and 2 x 5500 teu). Their orderbook has grown to stand at 8 ships (2 x 7,700 teu and 6 x 5,500 teu) by end-2022.

Dae Sun Shipbuilding and Engineering secured only 5 orders in 2022 (4 x 1,000 teu and 1 small ferry) compared with 20 ships in 2021. Like many other small and medium size shipyards, they had some trouble to issue refund guarantees. Established in 1945, Dae Sun is one of the few medium-sized shipyards left in South Korea. Domestic steel manufacturer Dongil Steel became the major shareholder in early 2021 after purchasing 83% of the yard's shares from the state-owned Export-Import Bank of Korea.

Some significant orders of the year

- In 2022, Korean shipyards secured orders for 73 dual-fuel propulsion ships (excluding LNG carriers) against 122 orders in 2021, 38 orders in 2020 and 34 orders in 2019. This represented 25% of total dual-fuel ships ordered globally last year and 24% of the total orders placed in Korea. In comparison, Chinese and Japanese yards won 58% and 8%, respectively, of the dual-fuel orders placed last year. These orders included 12 dual-fuel (LPG) LPG tankers (9 VLGCs, 3 MGCs), 44 dual-fuel (LNG) containerships and 10 dual-fuel (methanol) containerships.
- A remarkable record: 43 Intermediate Containerships between 5,000 and 8,000 teu were ordered in Korea (27 at HHI, 4 at Samsung, 4 at K Shipbuilding, 5 at DH Shipbuilding and 4 at HJ Shipbuilding).
- The Big Three secured 71.5% of the 165 large LNG carriers ordered globally in 2022 (45 units for HHI, 36 for Samsung and 37 for DSME).

Illustrating the strong consolidation of the Korean shipbuilding industry, 88.6% of orders in 2022 were secured by the Big Three

*Picture: **FEEDER BLOSSOM**, Japanmax Feeder Cont of 1,096 TEUS, delivered to Erasmus Shipinvest Group by Kyokuyo Shipyard Corporation on Jan 5th 2023.*

Shipbuilding in Japan

Japan		2021		2022	
		m dwt	Ships	m dwt	Ships
Orderbook	Market share	17.6%	17.9%	15.1%	16.2%
	Bulk	25.8	347	23.9	322
	Tanker	5.4	77	2.6	61
	Container	8.0	92	8.1	96
	All ships	**40.7**	**612**	**36.5**	**587**
Orders	Bulk	13.9	191	7.7	103
	Tanker	1.6	38	1.0	32
	Container	5.3	67	1.9	35
	All ships	**21.8**	**359**	**11.4**	**229**
Deliveries	Bulk	9.7	144	9.5	125
	Tanker	4.2	44	3.8	48
	Container	2.3	32	1.8	31
	All ships	**16.8**	**268**	**15.6**	**251**

Japan maintained its position as the third largest shipbuilder in 2022 with its 36.5 m dwt orderbook (15% market share), its 11.4 m dwt of newbuilding orders (13%) and its tonnage output of 15.6 m dwt (20%).

The loss 52% decline in newbuilding orders was proportionally limited in Japan considering that orders fell by 63% worldwide. Indeed, last year saw orders for 88.9 m dwt secured less than the 140.1 m dwt won in 2021. This reduction hit all segments including the bulkers, historically the backbone of the Japanese shipbuilding industry.

Japan's five largest shipyards Nihon (Imabari + JMU), Oshima, Shin Kurushima and Namura secured a combined 73.5% of the total new orders placed at Japanese yards in 2022, with shares of 52.2%, 10.8%, 6.2% and 4.3%, respectively.

Japan's total shipbuilding output decreased slightly, from 16.8 m dwt in 2021 to 15.6 m dwt in 2022. The orderbook to yearly output ratio continued to increase reaching 2.3 against 2.1 in 2021, emphasizing the long delivery positions.

Some newsworthy events of the year

- **Imabari Shipbuilding and Japan Marine United (JMU)**, are Japan's two largest shipbuilders with an orderbook of 14.2 m dwt (38.8% of Japan's orderbook) and 6.8 m dwt (18.7 % of Japan's orderbook), respectively. In January 2021, they launched a new joint venture company, Nihon Shipyard Co, with Imabari holding a 51% stake and JMU 49%. This new company is handling all commercial ships excluding LNG carriers. In 2022, Nihon won orders for 70 ships (against 89 last year) for a total of 6.6 m dwt. At the end of 2022, the orderbook of Nihon totalled 235 ships for a total of 21.1 m dwt. This makes it the world's third largest after CSSC and HHI.

  Similar to CSSC and HHI groups, Imabari shipbuilding plans to have its own marine engine manufacturer by creating a joint venture with its engineering giant compatriot Hitachi Zosen. Imabari will own 35% of the business and Hitachi the remaining 65%. Hitachi is already one of Imabari's main marine engines suppliers and it is the only manufacturer in Japan licensed to build marine engines designed by both MAN Energy Solutions and WinGD.
- **Oshima Shipbuiding, Namura and Shin Kurushima**, respectively, the third (1,4 m dwt), fourth (0.8 m dwt) and fifth (0.5 m dwt) largest Japanese shipbuilders, secured a total of 48 ships for a total 2.7 m dwt. In Japan, 25 shipyards secured new orders including the first five Japanese shipyards which controlled 73% of the total new orders in 2022.
- Collaboration is also helping the Japanese yards improve their competitiveness. For example, Namura is working with Mitsubishi Heavy Industries on advanced ship designs. Meanwhile, Tsuneishi Shipbuilding is collaborating with Mitsui E&S Shipbuilding on low-emission designs, is this an extension of their ties as Tsuneishi is already the main shareholder in Mitsui E&S. Furthermore, Mitsui E&S has established a joint venture with Chinese Yangzijiang named Jiangsu Yangzi-Mitsui Shipbuilding. This venture offers ship designs and building facilities to Japanese customers. Finally, Kawasaki Heavy Industries also owns production sites in China through NACKS (Nantong Cosco KHI Ship Engineering) and DACKS (Dalian Cosco KHI Ship Engineering). These yards are currently building methanol-fuelled container ships.
- With the acquisition of the former Mitsubishi Heavy Industries (MHI) Koyagi shipyard, Oshima Shipbuilding is gearing up to build low-emission Capesize bulk carriers at the giant newbuilding facility. The shipyard recently made its mark as a builder of low-emission ships after constructing a 100,000-dwt bulk carrier fitted with a telescopic hard sail for Mitsui OSK Lines. Established in 1973, Oshima is controlled by Daizo Corporation, Sumitomo Corporation and Sumitomo Heavy Industries.
- Sasebo Heavy Industries finally shifted from newbuilding to ship repair. Following the acquisition of Sasebo by Namura in 2014, the yard concentrated on building bulkers until Namura decided to withdraw Sasebo from commercial shipbuilding due the strong competition from China and Korea.
- Since the dry bulk market failed to generate enough newbuilding orders, Japanese shipyards could not benefit from the rapid devaluation of the Yen which fell to a 32-year low against US Dollar .

Shipbuilding in Europe

European shipyards saw a 42% increase in the number of new orders won in 2022 as 99 contracts were signed compared with 69 in 2021. This came against the global trend of slowing new orders. We attribute this increase to orders of small dry cargo units (38 units), a ship type for which Europe is becoming more attractive due to short delivery times. However, the declining cruiseship orderbook has led to a loss of market share in gt terms from 6,7% to 5,1% despite European yards still having 10 cruiseships on order (all medium sized units). In 2022, China, Korea, Japan and Europe accounted for 100.6, 68.1, 25.5 and 10.7 m gt of the global orderbook, respectively. In million dwt terms, the equivalent figures were 121.3, 69.8, 36.5 and 5.4 million dwt.

The region's total shipbuilding output continues to increase following the delivery of several large cruise ships. Accordingly, output hit 2.5 m gt in 2022, up from 1,8 m gt in 2021. The orderbook to yearly output ratio of 4.3 is not so representative in Europe due to the typology of the region's shipyards as there are few large premises building very large units and a multitude of small yards building small units.

Some newsworthy events of the year

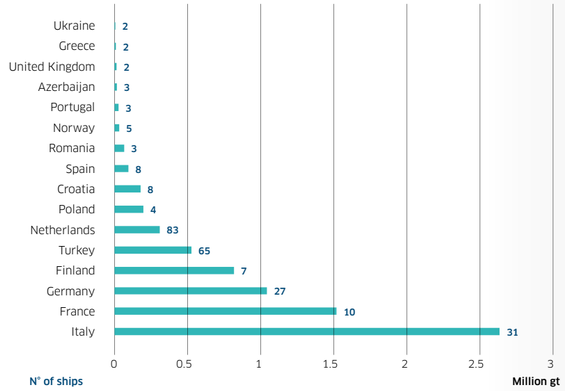
- Based on current figures, Russia is in first place among the European countries with 3.0 m gt. However, in view of the ongoing war in Ukraine, we are not sure these orders are still valid and will be delivered. The orderbook of Russia's Zvezda shipyard consists of LNG Carriers for which the hull blocks and other components were to be constructed in Korean shipyards including HHI and Samsung. Thus, when ranking European countries together, we believe it is better to exclude Russia until we have a better understanding of its shipbuilding industry. Consequently, all European countries move up the rankings compared with 2021.

- In 2022, Italy had the strongest orderbook with 2.6 m gt due to Fincantieri's position as the largest cruise ship builder in the world. By end-2022, Fincantieri has 29 large cruise ships on order, representing 40% of the global cruise ship orderbook and which will be delivered up until 2028. Italy can also count on Visentini which is constructing one large LNG-ready Ropax for Pol Ferries, and on Mariotti which is building one 23,000 gt cruise ship which will be delivered in 2023.

- France is in second place due to its leading shipyard – Chantiers de l'Atlantique – which has a total orderbook of 10 cruise units for a total of 1.5 m gt after having contracted 2 new yacht cruise ships with LNG propulsion for the Ritz-Carlton Group. In terms of tonnage, this represents 24% of the global cruiseship orderbook. All units will be delivered before 2027. The French State remains the main shareholder in Chantiers, holding an 84% stake after European competition regulators rejected a proposed merger with Fincantieri.

Europe		2021		2022	
		m gt	Ships	m gt	Ships
	Market share	6.7%	8.4%	5.1%	8.8%
Orderbook	Bulk	0.0	13	0.0	11
	Tanker	1.2	50	1.7	49
	Container	0.0	0	0.2	4
	LNG	1.9	15	1.9	15
	Dry Cargo	0.5	101	0.7	144
	Cruise	7.7	77	6.1	66
	All ships	**12.3**	**288**	**10.7**	**319**
Orders	Bulk	0.0	12	0.0	2
	Tanker	0.7	28	1.0	26
	Container	0.0	0	0.2	4
	LNG	0.0	0	0.0	0
	Dry Cargo	0.2	38	0.3	62
	Cruise	0.1	2	0.5	10
	All ships	**1.1**	**69**	**1.1**	**99**
Deliveries	Bulk	0.0	1	0.0	4
	Tanker	0.5	29	0.4	23
	Container	0.0	0	0.0	0
	LNG	0.0	0	0.0	0
	Dry Cargo	0.2	40	0.1	19
	Cruise	1.4	20	1.9	18
	All ships	**1.8**	**83**	**2.5**	**65**

Orderbook of European shipyards at end-2022 (million GT)



- Germany is in third position reflecting it having one of the world's best cruiseship builders - Meyer Werft - who still enjoys an orderbook of 0,7 mil gt (7 units) representing 11% of the global cruise ship orderbook in tonnage terms. These units will be delivered up until 2025 and no new orders were signed in 2022. The country can also count on Flensburger Schiffbau-Gesellschaft (FSG) shipyard with 2 RoRo on order and with Ferus Smit Leer with its orderbook of 8 small ships (3 tankers, 2 MPP and 3 General cargo vessels).

  Finally, Germany's Fosen Yard Emden, part of the Norwegian Fosen group since 2019, which signed contracts for six 3,640 dwt general cargo vessels in 2021, filed for bankruptcy in mid-2022 after the contracts did not become effective.

  The three yards that form MV Werften were sold off individually: Werften Wismar was purchased by Thyssenkrupp Marine Systems (TKMS), the Werften Rostock naval shipyard, specialised in constructing submarines, was nationalised and converted into a site for making military equipment. Finally, Werften Stralsund was taken by the city of Stralsund and leased to Norway's Fosen yards.

- In Finland, the fourth European country in terms of gt, Meyer Turku Oy holds an orderbook of 0.7 m gt consisting of 4 cruise ships to be delivered up to 2025 for Royal Caribbean and TUI. Finnish yards did not receive any new orders in 2022. Rauma Marine are still constructing two 48,000 gt, 1,800-passenger, dual-fuel (LNG) ferries for Australian ferry operator TT-Line. The future of the Helsinki Shipyard is still uncertain. The company sold the SH Diana at auction, the cruise ship PC6 which was originally ordered by Russian owners. The yard has been owned by Russian's Algador Holdings since 2019.

- Turkey's shipbuilding industry made a spectacular return in 2022 as orders for 44 ships, totalling 0.4 m gt, were placed at 12 shipyards. The country is now in fifth position in Europe with an orderbook of 0.5 m gt (65 ships) spread across 19 yards. The Turkon group ordered in their own yard Sedef, 2 x 4000 teu and 2 x 3,000 teu containerships to be delivered in 2024. Meanwhile, Gisan secured orders for 10 ships from Turkish owners to be delivered until 2026. With Chinese shipyards being full, and not so interested in small units, Turkey is becoming a strong alternative.

Turkey's shipbuilding industry made a spectacular return in 2022 as orders for 44 ships were placed at 12 shipyards

Picture: ***FORTE DOS REIS MAGOS****, Elcano vessel, bearing Seller's hull no. B120K-4 was delivered successfully on 17th Feb.*

- Dutch shipbuilders won the highest number of new orders across the region in 2022 as 11 shipyards yards secured orders for 82 ships (0,3 mil. gt). Of these, 37 orders for mostly general cargo ships were won by 6 different shipyards. The main shipyards are Damen Gorinchem (22 ships), Royal Bodewes (17 ships), GS yard (13 ships), and Ferus Smit Westerbroek (13 ships).

- Poland did not secure any order in 2022. However, due to the 3 x 4,100 dwt dual-fuel ferries ordered at the Remontowa yard by the Polish Government, they stand in seventh position in Europe. Poland can also count on Gryfia Shipyard and its partner Stocznia. Poland also remains active as a block and hull manufacturer for other European builders.

- Croatian shipyards are falling in the ranking. Brodosplit, one of the largest of the country's shipyards, filed for bankruptcy in the wake of the sanctions placed on Russia following its war in Ukraine. The yard had a loan from the Russian bank VTB for building the ships on order and suddenly flipped to being in cash default. The new yard – "Uljanik Brodogradnja 1856"- is building a drydock for an Israeli shipyard. 3 Maj who is busy with finalising a 225m Self-Unloading bulkcarrier for Algoma and a luxury Polar Cruiser for Australian owners to be delivered 2023, also signed for the completion of the MR tanker which was already under construction at Brodotrogir and originally ordered at Russia's Sevmash in 2004. Brodotrogir still have two general cargo ships on order. All the yards are also building blocks for the cruiseship builder, and neighbour, Fincantieri.

- Spain is struggling to take new orders despite having several excellent shipyards. Only four ships were ordered in 2022. Of these, two were for a world's first LNG-fuelled fast ferry for Balearia at Armon. Meanwhile orders for two general cargo ships were received by Murueta. Last year saw a new giant born as the troubled Barreras shipyard was absorbed by Astilleros Armón. Following persistent financial problems over the past few years, in 2020, Barreras was taken over by the Ritz-Carlton group in order for them to finish construction of their cruise ship Evrima as well as the Norwegian ferries of Havila Kystruten. However, Evrima was finally completed in Santander and the Havila ferries in Turkey's Tersan shipyard. Armon has plans to reactivate the facilities on the basis of strong synergies with his yard in Vigo.

Shipbuilding in the Rest of the World

The orderbook at shipyards in the Rest of the World (RoW) increased slightly in 2022 from 6.4 m dwt to 7.9 m dwt. Accordingly, the region's global market share rose from 2.8% to 3.3% reflecting orders for 8 Aframaxes placed at HVS for Greek owners.

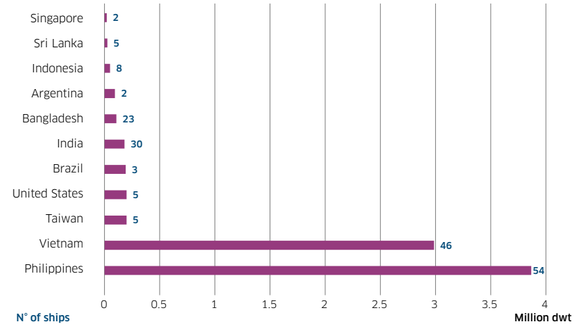
Deliveries continued to decrease from 3.5 m dwt in 2019, to 2.7 m dwt in 2020, to 2.3 m dwt in 2021 to finally to 1.7 m dwt in 2022. However, the ratio between the current orderbook and yearly output has continued to double each year from 1.4 in 2020, to 2.2 in 2021 and to 4.6 in 2022.

Last year, 14 RoW shipyards secured new orders (compared with 8 in 2021, 7 in 2020 and 13 in 2019). The first two yards Tsuneishi Cebu (Philippines) and HVS (Vietnam) account for 49% and 34%, respectively, of the RoW orderbook and together secured 77% of the region's new orders in 2022 compared with 92.7% in 2021. Indeed, Tsuneishi only secured 12 ships last year (7 kamsarmax and 5 ultramax) against 23 ships in 2021.

*Picture: **CMA CGM MASAI MARA**, 6,000 TEU container vessel being built for Delphis (CMB Group) in Qingdao Yangfan for long time charter to CMA CGM. Photo: CMB Group.*

ROW		2021		2022	
		m dwt	Ships	m dwt	Ships
Orderbook	Market share	2.8%	5.3%	3.3%	5.2%
	Bulk	3.8	74	4.4	76
	Tanker	2.0	50	2.9	49
	Container	0.3	12	0.4	9
	All ships	**6.4**	**180**	**7.9**	**188**
Orders	Bulk	2.9	39	1.4	21
	Tanker	1.3	28	1.8	26
	Container	0.1	4	0.2	3
	All ships	**4.3**	**84**	**3.5**	**75**
Deliveries	Bulk	1.1	16	0.8	19
	Tanker	0.8	29	0.7	23
	Container	0.1	4	0.1	6
	All ships	**2.3**	**74**	**1.7**	**63**

Orderbook in Rest of the World at end-2022 (million dwt)



Some newsworthy events of the year

- The Philippines, led by the Tsuneishi Cebu and Austral Philippines yards, maintained their leadership of the Rest of the World shipbuilding countries, and held 49% of the total RoW orderbook at end-2022. This compares with shares of 53.8% in 2021, 52% in 2020, 45% in 2019, 48% in 2018 and 54% in 2017. Last year, Tsuneishi secured orders totalling 0,9 m dwt (12 ships). These were all bulk carriers (7 Kamsarmax and 5 Ultramax) for Japanese owners. Austal Philippines are building a dual-fuel LNG, 115-metre, high speed vehicle-passenger ferry, named Express 5, for Denmark's Molslinjen.

- Last year, Vietnam retained its second position in the RoW due to Hyundai Vietnam Shipbuilding (HVS) which accounted for 92.4% of the country's orderbook. By end-2022 its orderbook totalled - 38 ships (12 LR2s, 22 MR tankers and 4 Ultramax) for 2.7 m dwt. The country can also count on other shipbuilders including Pha Rung, Ha Long and Dong Bac. It also has the French company Piriou who is building small cargo units with sails for Towt and Grain de Sail and also the Persévérance, the supply sailboat of Jean-Louis Etienne for the PolarPod project.

- CSBC, the largest yard in Taiwan, managed to sell their speculative order of 4 x 2,800 teu containerships placed in 2021 to Wan Hai lines while also securing a special order for one MR Tanker from domestic oil refiner CPC Corp (CPC). The last time that CSBC bagged a tanker order was in 2015.

- US shipyards had an excellent year as five ships were ordered totalling 0.18 m dwt. A Hawaiian liner operator ordered three dual fuel LNG 3,600 teu container ships under the Jones's Act to be delivered across 2026-27. Meanwhile, Keppel AmFELS are still building their second 2,500 teu dual fuel LNG containership ordered by Hawaii PASHA in 2017 and to be delivered in 2023. Finally, Vigor shipyards secured an order for one double-ended hybrid ferry for the US state of Washington.

- Brazil's orderbook is virtually empty. No orders have been taken since 2016. Currently only one shipyard (Eisa Ilha) still has orders (2 LR1s and 1 MR) which were ordered back in 2007-08.

- India confirmed their return into the international shipbuilding market in 2022. Chowgule Shipyard secured 12 new contracts, of these 6 were for highly efficient 5,350 dwt hybrid vessels for ESL Shipping's Swedish subsidiary AtoB@C Shipping and 6 were for 5,600 dwt general cargo ships for Dutch company Vertom. Meanwhile, state-owned Cochin Shipyard ordered 8 x 7,900 dwt general cargo ships for Germany's HS Schiffarts group to be delivered across 2024-2025.

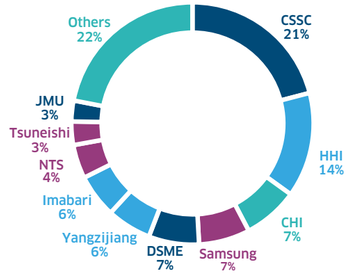
- Although no order has been secured since 2021, Bangladesh remains relatively active with an orderbook of 24 units spread across 6 different shipyards. The largest yard is Bashundara Group with 14 ships on its orderbook. Bangladesh is a mainly a domestic market. The size of ships built in Bangladesh is below 10,000 dwt.

- Despite difficulties in the country, Sri Lanka's Colombo Dockyard continues to build and deliver ships. They still have 7 x 5,000 dwt eco bulk carriers fitted with diesel/electric hybrid power systems to be completed for Norway's Misje Rederi. Furthermore, the "Sophie Germain", a cable layer ordered by Orange Marine was launched in November 2022. Japan's Onomichi Dockyard owns 51% of Colombo Shipyard.

India confirmed their return to the international shipbuilding market in 2022

Too early to talk about shipbuilding expansion

Top shipyard groups based on orderbook 2022 (in dwt)



Top Shipyards		% Orderbook in dwt
China	CSSC	42%
	CHI	15%
	Yangzijiang	12%
	Others	32%
South Korea	HHI	45%
	Samsung	24%
	DSME	23%
	Others	9%
Japan	Imabari	38%
	JMU	18%
	Oshima Saikai	14%
	Others	29%

The consolidation of the shipbuilding industry is a response to improve profitability

SOME ASPECTS OF THE SHIPBUILDING MARKET

The future of shipbuilding industry

In any period of sustained newbuilding demand, the same question arises concerning the response of the industry and whether existing shipbuilders will try to expand capacity to address the extra demand or whether others will open new yards?

We saw the Chinese group Hengli take over the ex-Korean STX Dalian yard, once part of the fourth largest shipbuilding group, that was declared bankrupt in 2014 following several years of severe financial struggles. Wuhu might follow with the takeover of the ex-Korean yard – Samjin – in Shandong. Former executives of Rongsheng made the news pushing for the re-opening of what was in the 2000s the largest Chinese private shipbuildier. At the same time, private yard Zhoushan Yangfan is showing signs of financial troubles which might instigate a closure or the takeover by another group.

Therefore, it looks too early to make a final statement.

In the 2000 we saw the formidable expansion of the Chinese shipbuilding industry, the global market share of which soared from 9% in 2000 to 38% in 2008, and of, to a lesser extent, the Korean shipbuilding industry which tried to compete by expanding its existing shipbuilders and by opening brand new yards, many of which have since closed. It is also interesting to bear in mind that in spite of the boom of the mid-2000s, no shipyard in Europe nor in Japan re-opened during this period.

That expansion was followed by massive closures and bankruptcies in the wake of the 2008 financial crisis and that memory remains vivid in the minds of many banks, investors, owners, equipment makers and shipbuilders that had to adjust and suffered collateral damage. It also remains sensitive for workers that were shed with the tide.

Shipbuilding is not an industry that makes money. This is demonstrated by the accounts of stock-listed shipbuilders such as Samsung H.I and DSME, two of the best shipbuilders in the world having built the finest ships for the finest ship owning companies. Besides which, it is a tough job. Consequently, shipbuilders have great difficulty to compete with other industries and retain their labour. It has also been hypothesised that in a global world, marine transportation must be cheap as it represents the last custom barrier between nations.

The shipbuilding industry is a strategic industry, often a provider of navy ships and the one who rules the waves, rules the world according to the famous English quote. It is a source, or rather was a source, of labour at a time when it was less industrialised. It is a source of national independence and in a post-epidemic world, a post-sanctions world, a deglobalized world, governments might push to redevelop shipbuilding back in the west.

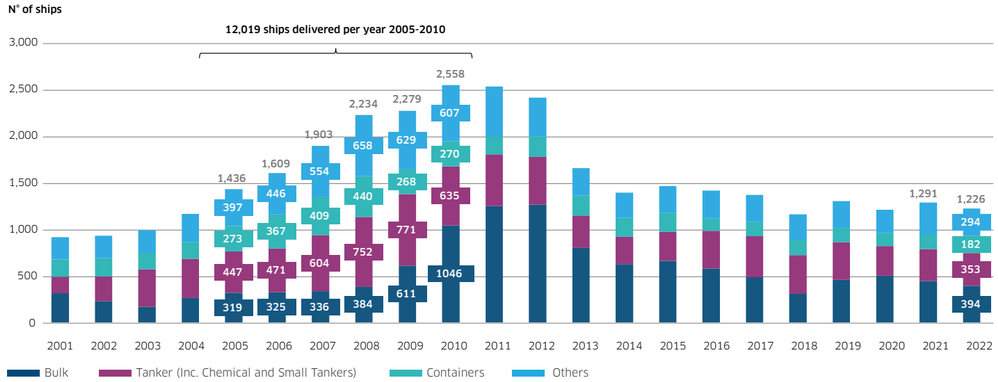
The shipbuilding industry is characterized by inadequate pricing where sale price is seldom above building costs. The industry has been trying to develop various strategies to counter low prices and one of the main findings has been to reduce global shipbuilding capacity via yard closures and consolidations.

Consolidation has been an ongoing process, as the number of shipyards dropped steeply from about 700 in 2007 to about 300 by 2022. This saw the active global shipbuilding capacity contract so that about 1,200 to 1,300 vessels can currently be built and delivered annually compared with the capacity for the construction and delivery of 2,000 vessels per annum in the years 2005 to 2010.

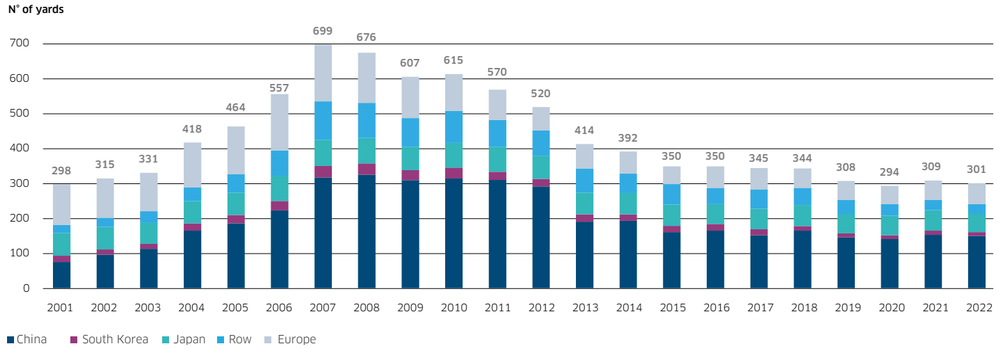
Due to the significant consolidation that took place amongst shipbuilders in the intervening years, 75% of world shipbuilding capacity is now in the hands of nine shipbuilding groups. Furthermore, 68%, 92% and 71% of the capacity in China, Korea and Japan, respectively, is in the hands of only three shipbuilding groups.

SHIPBUILDING
SOME ASPECTS OF THE SHIPBUILDING MARKET

Shipyard deliveries by year



Number of active shipyards by year



Picture: ***STENA PRO PATRIA & STENA PRO MARINE*** *, Launched at Guangzhou Ship Yard (GSI). Photo: Stena Rederi.*

EEXI and CII: a convoluted process?

Much has been written on the EEXI and CII regulations that came into force on 1 January 2023. Notably several major shipowners and operators, including MSC and Oldendorf, have expressed their concern about the methodology and its possible flaws.

The EEXI and CII are short-term measures implemented to support the intermediate target set out in the context of IMO's Initial GHG strategy back in 2018 which aims for a 40% reduction in the carbon intensity of vessels by 2030 versus 2008. Critics suggest that a poor rated ship based on the current CII methodology could ultimately be an idle ship in a port, consuming no fuel and emitting no CO_2, simply because calculations are based on the maximum deadweight of the ship and not on the cargo actually transported. This thereby denies the realities of a shipping market characterized by part cargoes, long waiting times and sometimes even longer than scheduled voyages in the wake of issues including congestion, strikes and accidents. Likewise, a modern ship with a very good EEXI, a very low fuel consumption and very low CO_2 emissions could still have a poor CII rating compared with an older ship with a poorer EEXI and a higher fuel consumption and CO_2 emission, because of its operational profile. Indeed, under these circumstances, the CII would be a way to castigate that modern ship.

The EEXI and CII are positive developments in a sense that they provoke dialog and reflection. No doubt that EEXI and CII will be revisited. Firstly, due to its imperfections, but also since the regulations are just too slow to address the task. The CII calls for a 2% annual carbon intensity reduction between 2023 and 2026 or an 11% cumulative improvement by 2026 vs a 2019 reference level. Future reduction rates for 2027-2030 are yet to be determined and will be decided as part of the review to be concluded by January 2026. In short, what is important for the shipping community is that the rules make sense in the real world and that they are applicable and lead to the result wanted, namely the reduction of emissions.

What is surprising about these rules and regulations is their complexity and lack of ambition. Indeed, the cheapest, most comprehensive and immediate solution remains to reduce power and speed. Therefore, the question of last year remains very vivid – why does the shipping industry not decide to simply adopt slow steaming? Since this has been a broad trend for much of the last 15 years, driven by increasing fuel prices, the industry just needs to go one step further. A 20% reduction in service speed could result immediately into a 50% drop in CO2 and GHG emissions. We increasingly accept speed limits for terrestrial vehicles when there is a high pollution episode in a city. Yes, we might need some additional tonnage to cope with the lower speeds, but before coming to that point we could also further optimise ships (main engine, propeller, auxiliaries), adopt higher bloc-coefficients and larger deadweight, design smaller engine rooms and develop enlarged cargo capacity. A reduction in speed would make it easier and less expensive as well to instal dual fuel propulsion and wind assisted propulsion would also become more efficient.

If the shipping community is right to criticize the EEXI and CII from their perspective, the regulations do, however, pinpoint some of the inefficiencies in the shipping market that the non-shipping community wish to be addressed. Why do we have ships idle, carrying ballast or part cargoes? Why do we have ships sailing at full speed only to slow down and wait for extended periods before delivering their cargo or crossing oceans in ballast at full speed. Why don't we have more flexible ships capable of carrying both solid and liquid cargoes to avoid large bulkers and tankers sailing empty almost half of the time.

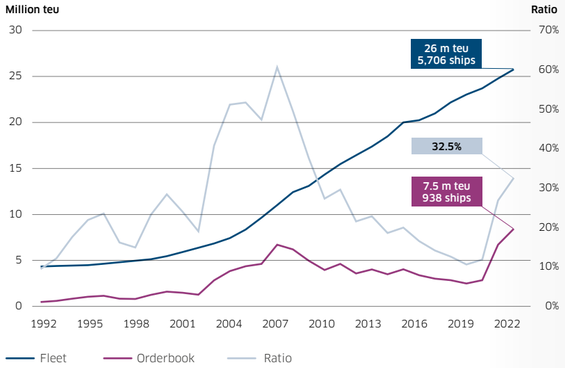
It might be too quick to conclude abruptly and condemn for instance short sea trade that tries to substitute terrestrial means of transport or the cruise industry since cruises are seldom to 'nowhere' and most of the time their purpose is to reach one destination and stay there as long as possible to visit the area.

Shipping sometimes finds itself in the line of fire of public opinion. We need to emphasize the very positive aspects of the industry and issue regular reminders that transportation by sea is the most energy efficient, and least polluting, means of transport when measured by ton mile. The industry is undoubtedly a victim of its own success, inevitably generating emissions because it transports more than 90% of global trade. News footage of vessels belching out plumes of black smoke detracts from the public's appreciation of trade being a vector for economic growth and of the huge progress made by the industry across the past 10 years which amounts to an eco-revolution. The shipping community must continue with the revolution and further minimise its carbon footprint, but also learn to publicise its achievements more effectively.

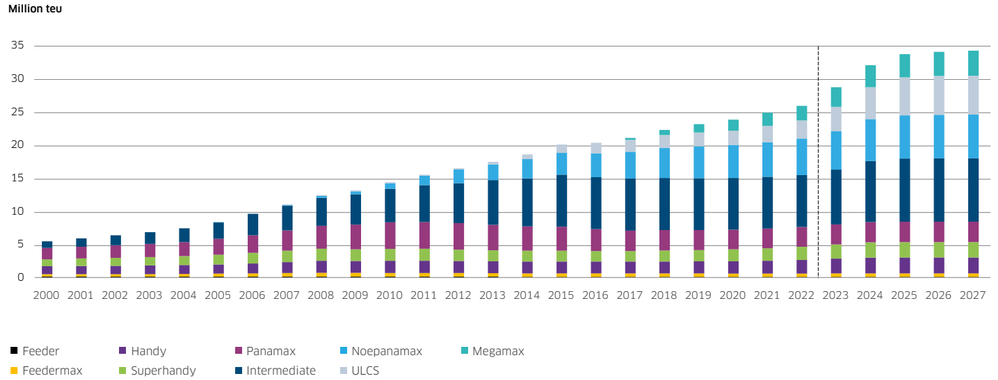
Frenzy for container carriers: what's next?

When looking at the evolution of container freight rates and the almost perfect bell curve spread across 2021 and 2022, we may wonder if the volumes of container carriers ordered - as if there was no tomorrow- was wise and what will be the consequences of a return to reality? Will the market see another 13 years of miserable markets as we had between 2009 and 2021 after a similar ordering frenzy across 2006 to 2008?

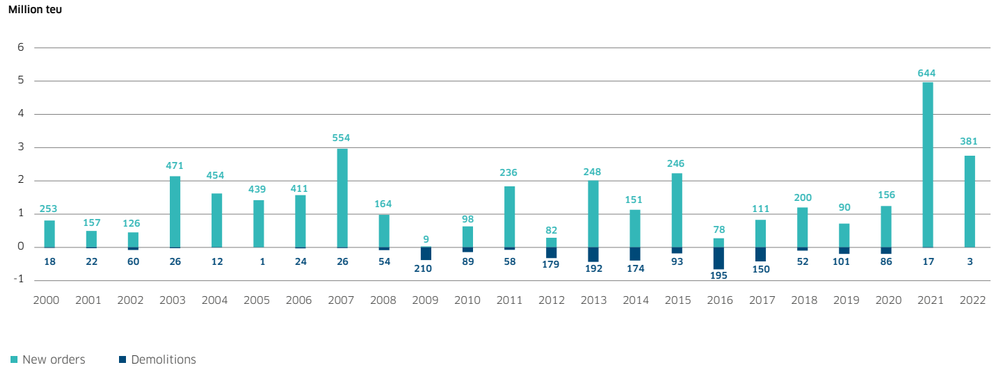
Containership fleet and orderbook evolution



Containership fleet evolution and current orderbook



Containership fleet new orders vs demolitions



Picture: ***ECO ADRIATICA****, RoRo capacity of 7,800 LM over 5 decks, featuring scrubbers and a hybrid battery system delivering zero emissions in port. Delivered in August 2022 by China Merchants Jinling to the Grimaldi Group for their own operations.*

At the end of 2022, the container carriers orderbook stood at a mammoth 8 m teu, a record level in absolute terms, and well above the previous peak of about 6 m teu posted in 2007. However, there are several differences that might help to amortize the impact:

- First of all in relative terms, the shock is less as 8 m teu represents only 32.5% of the existing fleet whereas in 2007 that represented 60%.
- Secondly, the ships ordered in 2007 were faster, and in theory the whole supply chain needed less tonnage.
- Thirdly, the ship owning landscape is now very different. In 2007, the market had a far greater constellation of players with the 10 largest companies controlling only 60% of the market. Today, in the wake of significant consolidation, the 10 largest players control 85% of the market. Therefore, they have the means to adjust better to new market conditions.
- Fourthly, the implementation of new rules, notably the EEXI and CII will push a number of ships towards recycling yards and further reduce speed. The average age of the fleet is also older (9.8 in 2007 versus 13.5 in 2022).
- Finally, the main container carrier owners have accumulated large financial reserves that will help them to absorb any economic shocks.

Oil tanker orderbook at its lowest since 1990 in relative terms

PERSPECTIVES FOR 2023

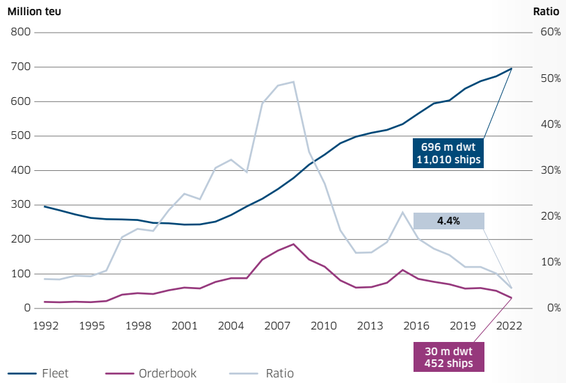
New orders, prices, deliveries, cancellations and demolitions

In early 2022, we estimated that around 100 m dwt of new tonnage could be ordered in 2022 split roughly as follows: 30 m dwt bulkers, 20 m dwt tankers, 30 m dwt container carriers and 10 m dwt for the 'others'. We were not far away on the global figure with 88.9 m dwt as well as on bulkers with 27.8 m dwt and 30.6 m dwt on container liners. However, the 20 m dwt expected for tankers was never in sight as only 8.7 m dwt was ordered while the 10 m dwt projected for the 'others' proved to be underestimated as a significant 22.2 m dwt was contracted. Yes, we could argue that somewhere LNG carriers took the place of oil tankers in 2022. Considering how the spotlight has once again fallen on energy security, it appears that fossil fuels, including oil will remain an integral part of the energy mix for many years to come.

Although there is the potential for a new super cycle in the shipbuilding industry in the years to come to replace all the ships that were delivered in large numbers between 2005 and 2010, there remain many issues which could hinder this. These include; macroeconomic headwinds, heightened geo-political tensions between main economic zones, post-Covid calls for the repatriation of manufacturing for national security considerations, persistent inflationary pressure and the lack of a universally favoured marine fuel.

Thus, it is hard to believe that there could be more container owners looking at to order newbuilds considering today's high prices and low freight environment. Likewise, it is hard to believe that more LNG carriers could be ordered considering that they already reached record prices and that the time of delivery is beyond a 4-year horizon. Still some major projects from Qatar and some other places could defy the laws of gravity.

Tanker* fleet and orderbook evolution



*Inc. Chemical and Small Tankers

In these conditions, we would then anticipate the following individual ordering levels in 2023:

- not more than 10 m dwt for container carriers
- probably 20 m dwt for tankers
- probably 40 m dwt for bulkers
- and 15 m dwt for the 'others'
- i.e. a global of about 85 m dwt for 2023

Of course, when looking at the tanker fleet and orderbook evolution, we could find additional reasons for a new wave of tankers to be ordered. However, tanker owners seem to be exercising caution for several reasons:

- Long delivery time (more than 3 years)
- High prices now close to their 2008 peaks, if and when cost for dual fuel propulsion is factored in
- Difficulty to decide about propulsion between conventional or dual fuel and which dual fuel ?
- Increasing difficulty to obtain the finance for oil tankers from banks and other financiers in the context of lenders' ESG commitments.

We believe that a number of cancellations especially for these large container carriers orders will take place or be replaced with new types of ships such as tankers.

We trust that deliveries in 2023 could reach a figure of around 85 m dwt.

In principle, vessel scrapping should rise in the near future, especially in the container sector. Nonetheless, we remain quite cautious on this issue and argue that not more than 20m of tonnage will be demolished in 2023, all the more that the situation at recycling yards in Pakistan and Bangladesh has become more difficult for plenty of reasons.

As for newbuilding prices, we expect them to remain firm during 2023.

2022 NB prices for dual fueled tankers tracked closely 2008 record peak values

*Picture: **BOCHEM HOUSTON**, 25,000 Dwt Stainless steel chemical tanker under construction in CMJL Yangzhou for BOCHEM, CMB GROUP.*

Ship Finance

Financing cost on the rise

Shipping finance saw its cost double over the year, which overshadowed the fact that the LIBOR was on the exit lane, with the new base rate – the SOFR – taking over.

Last year came with unexpected events, starting with the invasion of Ukraine by Russia at the beginning of the year.

From an economic perspective, this triggered a series of price increases in energy and commodities, ultimately contributing to inflation. After some time, it became clear that this inflation would not be transitory. Throughout the year, the main focus of monetary policy was to reduce inflation, through successive interest rate increases.

Owners with their pockets full of cash continued to repay debt and exercise their purchase options to end leases.

Following news reports relating to multiple detentions of top shipping financiers, Chinese Leasing activity maintained a low profile throughout the year.

With the rise in newbuilding prices, fleet expansion via mergers and acquisitions was preferred in a number of instances which brought back some activity in this line of business.

Smooth transition from LIBOR to SOFR

BYE BYE LIBOR!

As of the 1 January 2022, most LIBOR benchmark rates ceased to be published. Some of the remaining USD LIBOR will follow suit and are expected to be discontinued mid-2023.

This change had been expected. Loan agreements signed in the lead up to this date usually contained a clause facilitating a smooth transition, so only older loan agreements had to be amended to accommodate the benchmark change.

The new recommended benchmark rate is the SOFR (Secured Overnight Financing Rate). The SOFR is not a strict replacement of LIBOR and holds a number of differences to LIBOR.

Major differences between LIBOR and SOFR

LIBOR	SOFR
London Interbank Offered Rate	Secured Overnight Financing Rate
Bank-to-Bank lending rate	Risk-free rate
Unsecured	Secured with US treasuries
Based on estimates	Based on actual transactions
Covers several currencies USD, JPY, CHF, GBP, EUR	Only covers USD

There is a variety of different SOFR rates, and shipping financiers have largely transitioned to using Term SOFR, either 1-month Term SOFR or 3-month Term SOFR, depending on the interest rate periodicity.

While SOFR is an overnight rate based on last done, Term SOFR is a forward-looking rate based on SOFR futures so it moves along anticipated rate hikes or declines.

Changing a financing benchmark rate is not a regular exercise and could have attracted more attention, but finally what made the headlines was the steep increase in interest rates witnessed in 2022.

FIGHTING INFLATION

Inflation had been on the rise post Covid, and the perception was that it would be possible to deal with it. Furthermore, the invasion of Ukraine helped accelerate inflation and it hit a level where it was no longer deemed transitory and rather became self-inflicting.

Last year, monetary policy focused on curbing inflation by raising interest rates. Over the full year, the Fed raised interest rates seven times for a 4.25% cumulated rate increase. By end-2022, interest rates reached a 15-year all-time high.

As a capital-intensive industry, shipping is naturally sensitive to moves in interest rates. For a financing bearing a floating interest rate of 2.7% early in 2022, the interest cost was close to 7% by the end of the year.

While shipping loans were traditionally quoted on a floating basis, shipowners who were anticipating a rate increase were able to swap some of their exposures.

Sale and Leaseback transactions, which used to be proposed with a fixed bareboat rate, had to adapt and move to floating rates as Lessors were understandably unwilling to take the interest rate risk.

SHIPPING FINANCE ACTIVITY IN 2022

2021 had been a quiet year in terms of shipping finance activity, and 2022 proved to be even quieter. With ship owners enjoying performing markets for most segments, their liquidity came from operations and reduced the need to borrow.

Banks witnessed significant portfolio movements, with continued strong repayment activity, especially in the container shipping segment. To replenish portfolios, bankers had a very busy year of origination, doing their best to fill in their books with financing for tankers and bulkers.

Syndicated activity was reported to be slow, with a steep increase in club deals, at the expense of larger syndicates. The most active banks were the traditional European banks as well as a few US banks.

Although some shipowners did use their liquidity to expand by acquiring secondhand vessels or ordering new units, the overall spending was constrained by perceived high secondhand and newbuilding prices.

While banks are traditionally the cheapest source of shipping finance, the rise in interest rates contributed to bring the cost of bank debt closer to that of the alternative lenders who had raised funds on the basis of yield requirements determined prior to any rate increase. This allowed some alternative lenders to enter into transactions which benefitted from a much better risk profile than what they had been used to and thus represented a significant market opportunity for these players.

Some unexpected financing activities for the year included the termination of business relationships by banks and shipowners with Russian counterparts ahead of sanctions. Russian shipowner Sovcomflot ended lending relationships by means of early repayments to the banking pool. Shipowners who had taken leases from Russian lessors GTLK had to source an alternative.

2022 saw a rise in interest rates to reach the highest level in 15 years by the end of the year

There was limited information on Chinese Leasing throughout the year. It is hence difficult to judge of the actual level of activity for this market in 2022. While some deals have been reported and Leasing houses seemed to have remained active overall, it is likely that activity was slower in 2022 compared with previous years.
Most of the news related to Chinese Leasing had to do with reports of shipping financiers being detained or under investigation. In total, up to 8 shipping financiers were reported to be under investigation, including prominent figures of major Chinese Leasing houses as well as financial brokers.

The impact these investigations will have on future Chinese Leasing activity is yet to be determined.

EVERYTHING GREEN

One more bank joined the Poseidon Principles initiative in 2022, it now has 30 signatory banks, representing around $200bn of shipping finance.

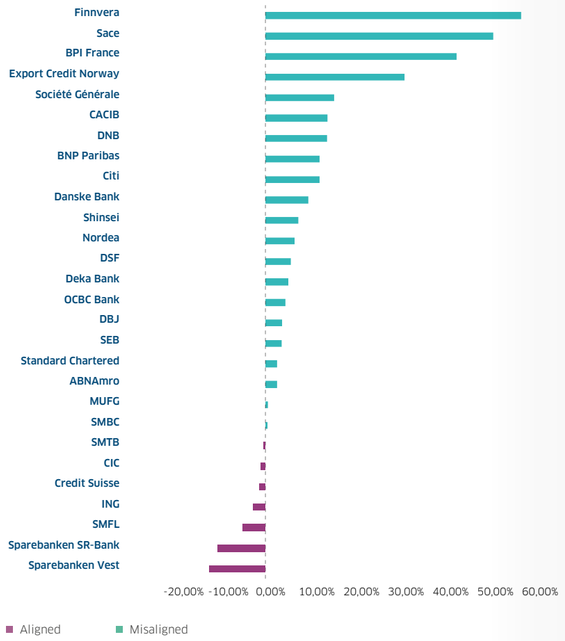
The third reporting year, covering the 2021 portfolios, continued to see an increase in the number of banks providing their portfolio statistics, with a total of 28 reporting banks this year. Each of them disclosed how their portfolio aligned compared with the 4th IMO GHG study in terms of carbon emissions.

This year, results were again difficult to interpret, with still some unusual trading patterns for some sectors affected by Covid-19, such as container ships stuck in port congestion and lack of activity for passenger vessels. This especially affected banks with a large portion of their portfolio in these segments.

With that in mind, the report shows that only 7 signatories had portfolios aligned with the IMO's GHG strategy.

In September 2022, the Poseidon Principles announced their commitment to be more ambitious than the IMO and align their framework with the temperature goal of the Paris Agreement. This means that new decarbonization curves will need to be traced as a matter of reference.

Alignment of the Poseidon Principles signatories to the 4th IMO GHG study (2022 reporting)



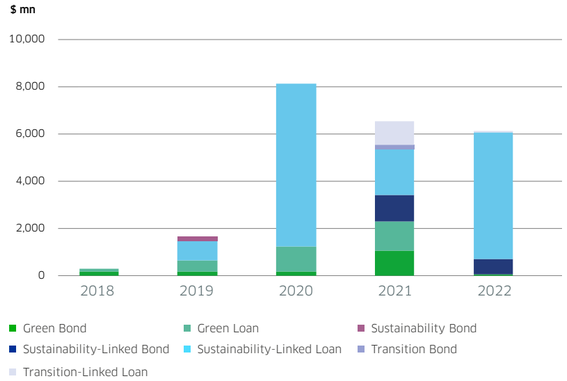
Sustainable finance continued to represent a sizeable portion of shipping finance activity. As per our own compilation, total volumes reached around $6bn in 2022. The bulk of the sustainable financing was provided under the form of sustainability-linked loans, which are very well suited to the maritime sector. While in terms of volume, the level for 2022 was close to 2021, the number of issues was lower at 20 versus close to 30 in the previous year. This broadly reflects the slower financing activity seen in 2022.

Some noteworthy transactions include: the initiative of DEME to switch over $658mn of their loans to sustainability-linked loans, with KPIs related to low carbon fuel and work safety, as well as Ardmore's total $308mn sustainability-linked facilities which uses KPIs related to carbon emissions as well as overall ESG performance.

Other notable transactions included the acquisition of Evergas by Seapak, for an estimated enterprise value of $700mn, the acquisition of Carl Büttner by Lomar or the acquisition of Seatrucks by CldN.

On the alternative financiers' front, Northern Shipping Fund was acquired by Hudson Structured Capital Management, creating a platform with over $1bn of assets under management.

Maritime sector sustainable finance



The Poseidon Principles announced their commitment to align their framework with the temperature goal of the Paris Agreement

MERGERS AND ACQUISITIONS

Liner companies took advantage of their pockets full of cash to expand and secure new sources of growth.

MSC acquired Bolloré Africa Logistics, which primarily covers shipping, logistics and terminal operations in Africa for a purchase price of $6.3bn.

Hapag Lloyd acquired a terminal business comprising of the ownership and operation of ten terminals located in the Americas for $1bn, as well as DAL, a liner specialized in Africa.

Now that there seems to be some light at the end of the tunnel, interest in the offshore sector was revived with a number of transactions taking place in 2022. Helix Energy Solutions acquired Alliance, a US-based company providing offshore decommissioning services in the Gulf of Mexico. Swire Pacific Offshore was acquired by Tidewater.

DEBT AND EQUITY CAPITAL MARKETS

2022 was quiet for the equity and debt capital markets, with a significant drop in activity compared to the previous year.

On the equity side, there was only one IPO, by Excelerate Energy for up to $416 million, the rest of the activity consisted in private placement and follow-on offerings.

The US market saw a few issuances, primarily related to the cruise sector, which are typically large in volume. The Norwegian market was very quiet with only 3 deals this year which is very low for this market.

Dry Bulk

Navigating the Turbulence Ahead

Right off the bat, on the first day of 2022, markets were hit by news of Indonesian authorities implementing a coal export ban. As if setting the tone for a disruptive year ahead, the shipping market then had to deal with the unfortunate news of the Russian-Ukrainian war in late February. This caused a 'sugar rush' whereby massive dislocations and inefficiencies in the dry bulk supply chain allowed freight rates to surge in the first five months of the year, continuing the exuberant streak of 2021.

MV PACIFIST
Capesize Bulk Carrier / 181,458 Dwt / Built 2011 by Koyo, Imabari / Managed by Nicholas G. Moundreas Shipping S.A.

In fact, such an outperformance become a double-edged sword as it masked the poor import appetite of China in the second quarter in the wake of Beijing's "Zero-Covid" policy while generating unrealistic hopes that there would be an improvement by the third quarter, supposedly from a "post-Shanghai lockdown" boom that never materialised. In this context, once the "sugar rush" was over, freight rates inevitably corrected downwards.

By late 3Q22, and coupled with the ill-effects of the war, the prospects in the dry bulk market were significantly dimmed. This was reflected by rates for geared bulkers which approached levels last seen during the pandemic in 2020. Furthermore, the noticeable absence of a spike in October 2022 capped off a lacklustre end to a turbulent year.

On the commodity side, many industry participants rightly speculated that the Ukrainian conflict would fracture existing coal trade flows and lead to longer distances and voyage days in shipping coal, thereby supporting dry freight. However, that was only just part of the picture. Coal alone cannot be the sole saviour as iron ore and grains were sluggish. For reference, total coal shipments' tondays in 2022 improved by 8.4% year-on-year, while iron ore and grains both registered declines of 5.9% and 4.9% respectively.

Flipping to fleet side, the orderbook remains very limited due to uncertainties in fuel regulations and soaring newbuilding prices. However, that was partially offset by demolition falling to a 30-year low as freight rates remained well-above cash breakeven levels for most of 2022.

To end off an unpredictable year, in December, Chinese authorities unexpectedly changed gears in their approach to Covid, going from "Zero-Covid" to "Total-Covid". On paper, this appeared to be a boon to 2023 prospects as the previously draconian measures were finally abandoned. However, anecdotal evidence suggests that local consumers, enterprises and foreign investors are lacking the confidence to borrow, spend and invest despite an official narrative to focus on growth for 2023. Hence, it might take some time before the Chinese economy can catch its breath and observe credible spillover effects.

Lastly, the war remained the wildcard for freight with significant potential upside. Should the war in Ukraine end soon, it seems inevitable that this would trigger a wave of external investment for the rebuilding of destroyed cities and infrastructure. In turn, this will stimulate fresh dry bulk demand and trading patterns, offering vessels within the Black Sea vicinity both inbound and outbound opportunities.

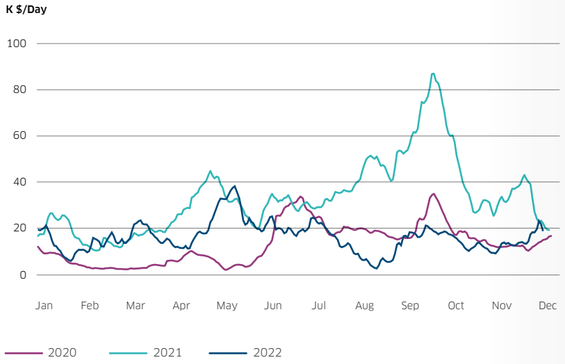
Once the 'sugar rush' was over, freight rates inevitably corrected downwards

CHARTERING

Capesize (>125,000 dwt)

2021 proved to be a fresh revelation as dry freight rates posted their best performance over the past decade as the Capesize C5TC reached a record high since its inception in 2014. In contrast, C5TC experienced a sharp reversal in 2022. This precipitous decline can be attributed to two exogenous shocks; Firstly, the war in Ukraine, followed by China's Zero Covid policy and the construction sector weakness. In this context, macro fundamentals deteriorated with sharp interest rate hikes, an appreciating US dollar and a squeeze in the profitability of steel mills across the world. In particular, China's steel demand and production declined, reflecting sustained weakness in the property sector. Irrefutably, the war was the dominant factor in impacting trade patterns, abrogating forecasts for global commodity markets. That said, the Capesize segment was less exposed to the war and more leveraged to iron ore fundamentals (aka China's economy).

C5TC



C5TC plunged from $21,000/day to under $6,000/day in January which set the first quarter off on the wrong foot. The first quarter is typically the weakest quarter for Capesize due to Brazil's inclement weather. Low seasonality was exacerbated by an untimely Indonesian coal export ban, which resulted in an oversupply of Panamax vessels in the Pacific, thereby heaping downward pressure onto the largest segment. Fortunately, several factors combined to drive up the utilization of the Capesize fleet and support rates; Firstly, although Chinese port congestion declined from multi-year high levels 4Q21 (due to then Chinese pilotage unavailability), it remained relatively high to cushion the fall. Secondly, steady Australian iron ore exports and thirdly, Europe's scramble for coal cargoes from further afield due to Russian coal sanctions.

Looking at freight rates, C3 (fronthaul voyage) climbed to nearly $30/mt at the beginning of March. The C5 (pacific voyage) route was under pressure at start of 2022 following Indonesia's' coal export ban but swiftly rebound from circa $6/mt (at the end of January) to $12/mt levels in March as the ban was lifted and supported by Europe's appetite for East Australian coal. The C16 (timecharter backhaul) route was the main beneficiary, with earnings rallying from -$9,900/day in January to north of $16,000/day in mid-March. European imports of Australian and Indonesian coal increased by 6.6m mt and 5.4m mt year-on-year, respectively. These were, mainly delivered to the Netherlands and France. Meantime, India's coal imports from Indonesia skyrocketed by 35m mt in 2022.

Although that was partially offset by a 15m mt decline in its Australian coal imports. Furthermore, India was an opportunistic buyer of Russian coal last year which provided additional support for Capesizes.

The second quarter saw a sharp rise in VLSFO prices (courtesy of the war) which fueled voyage rates. This rally in vessel earnings was short-lived due to seasonal Chinese restocking, Europe and India's coal import strategy and the rise in congestion in Europe.

Thereafter, Capesizes resumed their downward trend in the third quarter, marked by the muted Black Sea grain season as the UN-brokered 'Grains Corridor' was largely a failure. Accordingly, Panamaxes were redirected to compete in traditional Capesize trades. Another key point was Vale reducing its iron ore production guidance for 2022, from 320-335m mt to 310-320m mt. Meanwhile, VLOCs gained market share at the expense of Capesizes. Last but not least, the sustained premium for Capesizes fitted with scrubbers (i.e. approx. 50% of the Capesize fleet) further undercut the $/t voyage iron ore freight, particularly in the Pacific basin. With Chinese port congestion dissipating, this culminated in the absence of an October rally (which was present in 2020 and 2021) that set the lackluster tone for the remainder of 2022.

The C5TC saw a brief recovery late in 4Q22 as it drew support from the seasonal rebound in Brazilian iron ore volumes and bauxite exports from Guinea which covered a significant number of ballasting vessels. Meanwhile, the Capesize fleet's average laden speed dropped from 11 knots in Jun-22 to 10.4 knots in Oct-22 which provided a degree of cushioning. However, Indonesian and Australian coal shipments came under pressure as Europe had a less pressing need to built its coal stockpiles for an unseasonal warm winter.

Supply

By end-2022,

VLOC (220K+ dwt): Active fleet count at 262. Net-ship count increased by 4 (5 deliveries, 1 demolition). Zero orderbook across 2023-26.

Capesize (160-220K dwt): Active fleet count at 1512. Net-ship count increased by 36 (44 deliveries, 8 demolitions). Total orderbook from 2023-26 stands at 122, 64 to be delivered (4.2% of active fleet) in 2023.
Smallcape (120-160K dwt): Active fleet count at 14. Net-ship count decreased by 3 (no deliveries, 3 demolitions). Zero orderbook from 2023-26.

The new EEXI and CII regulations coming into force as of January 2023, will create an environment whereby older, less energy efficient engines and ship designs are at a distinct disadvantage. This could see older units increasingly heading to scrap over the next two years, which in turn could create supply shortages in the sector. All told, this would have the potential to support freight rates over the next few years.

Demand

Ld Country	Vsl size segments	2021 (mln mt)	2022 (mln mt)	Y.o.Y %
Australia	VLOC	136,42	138,44	+1,5%
	Cape	835,19	840,33	+0,6%
	Small Cape	5,94	4,69	-20,9%
Brazil	VLOC	169,50	181,58	+7,1%
	Cape	159,90	140,96	-11,8%
Guinea	VLOC	9,29	10,41	+12,0%
	Cape	58,86	80,32	+36,5%
South Africa	VLOC	10,21	8,21	-19,6%
	Cape	78,48	69,43	-11,5%
	Small Cape	0,51	1,67	+230,3%
Indonesia	Cape	45,45	71,82	+58,0%
	Small Cape	0,38	0,41	+6,7%
Canada	VLOC	0,19	0,00	-100,0%
	Cape	50,84	52,33	+2,9%
	Small Cape	0,80	0,53	-34,4%
Colombia	Cape	30,78	31,23	+1,5%
USA	Cape	17,78	15,61	-12,2%
Russia	Cape	23,03	34,99	+51,9%
	Small Cape	0,79	0,40	-49,5%
Ukraine	Cape	18,41	2,95	-84,0%

*Picture: **FLORIDA**, Capesize Bulk Carrier, 182,063 DWT, built in 2022 by Namura Shipbuilding Co. Ltd., operated by Diana Shipping Services S.A.*

Babycape and Post Panamax
(85,000-125,000 dwt)

This past year, changes in the geo-political landscape and the effects of the war in Ukraine were significant. Russian origin Babycape voyages halved year-on-year, with Babycape shipments grinding almost to a complete halt after the August sanctions grace period. Nevertheless, Overpanamax Russian origin shipments remained unchanged in 2022, with an uptick in Russian cargo observed on the first-generation units principally controlled by Head Owners.

The story of optimism came from agri-product and grains shipments. Overpanamaxes enjoyed almost 100% growth y-o-y in shipment volume. Meanwhile, we were very happy to be singled out by Bloomberg for fixing "grimy" Babycapes for their first shipments of soybean meals.

Southern and East Africa remains a positive story, with Mozambique in particular providing growth in cargo. Manganese, magnetite and chrome shipments now regularly compliment steam coal exports from South Africa. West Africa should see growth in bauxite and manganese ore volumes, with the port of Abidjan and new berth at Takoradi, Ghana, both currently unable to load a ship larger than Babycape dimensions.

In spite of these changes, the principal Australian trades for coal and bauxite on Overpanamaxes and iron ore on Babycapes remain the bread-and-butter of these size segments. However, the first year of Rio Tinto's Amrun project saw strong growth in Babycape shipments from the deeper water port, away from Weipa.

Babycape
(100,000-125,000 dwt)

Trade patterns saw some shifts even if the total volume of cargo transported by the segment was slightly lower than in 2021. West Australia remains the epicentre of the segment, with close to 35 m mt of iron ore and manganese, almost exclusively shipped to China, whilst coal and bauxite shipments remain steady. The orderbook is feeble with only 8 units, all ordered for contract business rather than tramping, whilst approximately two-thirds of the fleet have surpassed 10 years old.

Looking forward to incoming carbon regulations, there is an interesting comparison to be made between Babycapes and Capes. In 2022, 33% of the Babycape fleet obtained a hypothetical CII rating below C, whereas only 6% of the cape fleet were rated D or E. This not only reflects the older Babycape fleet, but also the longer ballasts of a young Capesize fleet, of which only 20% is over 15 years old.

Overpanamax
(85,000-99,999 dwt)

The continued popularisation of the modern 85,000 dwt Overpanamax, in place of the original 93,000 dwt Postpanamax has led to a diversification in the number of operators taking vessels in the Overpanamax segment. Indeed, grain houses were the first movers on the original 85,000 dwt Japanese designs in the middle part of the previous decade. The new designs are Chinese models (over half the Overpanamax orderbook are Chinese built 85,000 dwt units) with Charterers a mix of the traditional Postpanamax players, Rio Tinto's Weipa project, and curious Kamsarmax operators, eager to try out one or two units to see how they trade. It was interesting to watch the index period percentage swings during 2022.

Conversely, after enjoying a renaissance in the five years leading up to IMO 2020, the 90-100,000 dwt units, largely built between 2008 and 2014, are falling back out of favour in the face of high fuel prices and a small orderbook. Thus, they now receive less premium to the index when taken on period, with the looming spectre of the EU-ETS regulations set to largely exclude them from the North Atlantic basin.

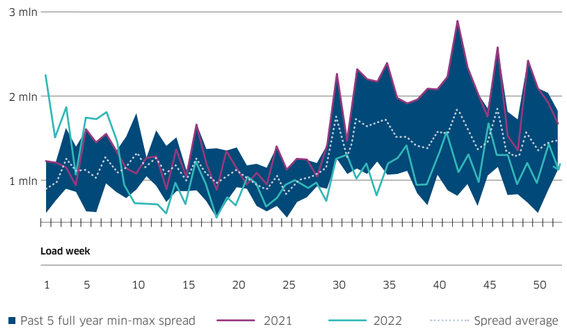
*Picture: **NORDIC OASIS**, Panamax Bulk Carrier, 75,800 Dwt, built in 2016 by OSHIMA OSHIMA, operated by Nordic Bulk Carriers.*

Panamax (68,000-84,999 dwt)

It was a largely respectable year for the Panamax market and, despite failing to reach the lofty standards set in 2021, it remained significantly above its levels of 2018-19. This was reflected in the annual averages of the P5TC, which fell by $6,162/day (-23%) from $26,898/day in 2021 to $20,736/day in 2022. This decline can be partly attributed to the unwinding of Chinese port congestion, whereby average waiting times fell from 19.5 days in 2021 to 6.7 days in 2022, a fall of 66%. Meantime, grain shipped by Panamaxes from the US Gulf fell from 36.8 m mt in 2021 to 30.5 m mt in 2022 (-17%).

The war in Ukraine had many impacts , the most attention-grabbing impact for Panamaxes was the sharp decline in loadings from the Black Sea. Here, Panamax annual shipments (for all commodities) decreased by 42% from about 57 m mt to about 33 m mt despite the much lauded 'grain corridor' in the 2H22. Except for January and February, weekly shipments in 2022 were consistently below those of 2021. Furthermore, historically, Black Sea shipments tend to peak in the second half of the year, a trend which was sorely absent last year.

Weekly Black Sea seaborne exports



The fracture in coal trade dynamics benefited both sub segments, Kamsarmax (79,000-85,000 dwt and Large, Modern and Economical (LME) (68,000-79,000 dwt). Despite seaborne coal volumes hauled by Kamsarmaxes (+2.8%) and LMEs (+6.3%) witnessing modest year-on-year improvements, there has been a disproportionate increase in ton days (calculated as cargo intake* laden voyage days) which rose by 11.4% and 10.1% for Kamsarmaxes and LMEs, respectively. As EU member countries banned Russian coal imports, they had to substitute the close proximity coal from Russia with that from further away. This resulted in an uptick of imports from the US, Columbia, South Africa and Australia which was hauled by these two vessel types. Overall, Panamax coal shipments from these four swing producers increased by 14.4 m mt from 13.3 m mt to 27.7 m mt (+52% y-o-y). This reinvigorated the backhaul rates and was reflected in the P4_82 route averaging $20,378/day in 2Q22 vs $14,617/day in 2Q21 (+39%).

ECSA grains shipments (including soybeans and corn) made a strong return in 2022 for the Panamax market. The La Nina effect which delayed the Brazilian soybean harvest during 1Q21 was less intense in 1Q22. This resulted in notable increases in soybean exports ahead of the typical peak export season in 2Q, particularly in January and February. Panamax ECSA grain stems in January jumped from 31 in 2021 to 115 in 2022, while February's fixtures rose from 115 to 165. This development provided critical as these long-haul shipments cushioned the negative impact of January's Indonesian coal export ban.

Seaborne coal volumes (MT)

Vsl segments	2021	2022	Y.o.Y %
Cape	286,647,674	306,180,549	+6.8%
Kamsarmax	226,588,060	232,929,830	+2.8%
LME	193,582,958	205,821,058	+6.3%
Over panamax	173,603,320	181,832,434	+4.7%
Supramax	139,286,354	133,421,916	-4.2%
Ultramax	74,330,978	74,819,180	+0.7%
Babycape	56,980,914	50,238,652	-11.8%
Handysize	42,527,036	31,521,350	-25.9%
Minibulk	26,561,408	25,577,646	-3.7%
Handymax	24,787,533	23,861,567	-3.7%
Small cape	9,182,800	8,095,723	-11.8%
All	1,254 mln	1,274 mln	+1.6%

Seaborne coal Tonday (MT.Days)

Vsl segments	2021	2022	Y.o.Y %
Cape	9,696,443,507	10,889,847,752	+12.3%
Kamsarmax	6,088,858,748	6,782,694,176	+11.4%
Over panamax	4,438,623,703	5,115,697,848	+15.3%
LME	4,224,244,105	4,652,317,453	+10.1%
Supramax	3,242,078,070	3,179,553,671	-1.9%
Ultramax	1,886,582,610	2,018,179,707	+7.0%
Babycape	1,608,751,971	1,567,645,215	-2.6%
Handysize	781,614,868	588,659,512	-24.7%
Handymax	452,338,119	429,085,475	-5.1%
Small cape	345,208,827	347,078,709	+0.5%
Minibulk	317,293,855	304,466,246	-4.0%
All	33,082 mln	35,875 mln	+8.4%

Another factor dragging down Panamax prospects in 2H22 was the underperformance of the containers sector. This removed the main driver behind the outperformance of Supramaxes. Further downward pressure came from disruption to the US Gulf grains export season in October due to low water level on southern sections of the Mississippi river.

Overall, Panamaxes transported 929.7 m mt in 2022, up from 914.4 m mt (+1.7%) in 2021. The Panamax market accounted for approximately 17.8% of all seaborne dry bulk trade flows across all sizes. This increased demand is reflected by Panamaxes completing a total of 13,693 voyages in 2022, 255 more voyages than 2021.

Supramax and Handysize
(25,000-67,999 dwt)

It's been one extraordinary ride, but it does seem that the engine behind geared bulkers that propelled performance to giddy levels had finally come to an end as we bid 2022 farewell.

Since 2016, which saw the beginning of the structural upward trend for the dry freight market, S10TC had been increasing (on an annual basis) steadily from $7,000/day to $10,000/day prior to 2020. Post-pandemic, we initially appeared to enter to a 'new normal' for geared bulkers as the average time charter assessments surged above $20,000/day in 2021. Charterers who had been accustomed to a decade of low hire rates for these small-sized ships had to painfully (and quickly) re-adjust to a market in which Owners had the upper hand. Despite S10TC dipping from $26,770/day in 2021 to $22,152 day in 2022, it represents the first time in a long while that S10TC significantly outperformed C5TC. In fact, across 2018-20, C5TC had exceeded S10TC for 80% of the time. Then in 2021, that outperformance dipped to 70%. By 2022, this long-established script had a material deviation whereby C5TC only outperformed S10TC for 17% of Baltic publishing dates.

The small-sized geared vessels benefitted from two unlikely one-off developments that resulted in spillover effects;

Firstly, it was the uncharacteristic rise of container rates in 2021, following a 'lost decade'. This was triggered by logistic bottlenecks and magnified by the MV Ever Given Suez incident in March 2021. This was added to by soaring global consumer spending (in particular Western economies) in the wake of government stimulus. These disparate developments overlapped to create the perfect recipe (for liners) or nightmare (for Charterers). To avoid the exorbitant costs of transporting their cargoes in boxes, Charterers resorted to hiring multipurpose and geared bulkers, giving an unforeseen leg-up that allowed S10TC and HS7TC rates to cruise comfortably beyond the $20,000/day threshold in 2021. As we entered 2022, early signs of inflation had signaled that container market could run out of stream. However, another unexpected curveball was then to arrive...

Secondly, the unexpected arrival of the Ukrainian conflict threw the market into disarray as traditional trade patterns shifted. Geographic mismatches between vessels and cargoes resulted in the fleet being sub-optimally deployed. Risk premiums for voyages across the Skaw-Passero range ballooned as shipowners demanded to be compensated for the lack of nearby cargoes, while insurance companies required hefty premiums.

This resulted in a 'sugar rush' effect whereby geared bulkers managed to shine even during a traditionally weak first quarter. Back at end-2021, we were expecting a gentle weakening of dry freight rates in 2022, driven by a tapering off of the initial post-pandemic rebound in global economic growth. In addition, the sterling performance by geared bulkers in 1H22 diverted the attention of market participants away from China's appalling import appetite as Covid remained a concern there. Indeed, due to its outsized influence, whenever Chinese imports sneezes, the dry freight market tends to catch a cold. However, the 'sugar rush' was timely and served as a cold remedy while the market was distracted by blinded optimism that things would eventually improve by the third quarter amid misplaced faith that Beijing's 'Zero-Covid' policy would have been abandoned by then.

As the term implies, all sugar rushes are temporary. The war neither induced significant congestion levels in the affected areas nor did it materially increase the amount of volume shipped in absolute terms. In fact, volumes for small-sized ships decreased last year. However, this loss of volume appears to have been unevenly distributed among subsegments. According to AXSMarine data, Ultramax (60,000-68,000 dwt) volumes rose by 1.3%. Meanwhile, volumes shipped on Supramaxes (50,000-60,000 dwt), Handymaxes (40,000-50,000 dwt) and Handysizes (25,000-40,000 dwt) decreased by 4.8%, 0.5% and 5.7%, respectively.

While expectations that coal would travel longer distances last year have held true, these mainly benefitted the larger-sized vessels such as Capesizes and Kamsarmaxes rather than geared bulkers. In fact, the ton days of Handysizes transporting coal declined sharply by 24.2% y-o-y last year. By the fourth quarter, container spot rates had plummeted despite liners aggressively pursuing blank sailings. And with a significant number of container liner deliveries slated for 2023, the timing could not be more unfavorable for geared bulkers. Hence, there is a possibility that in 2023, we might observe the end of geared bulkers outperforming gearless bulkers, if all goes well (igaw) & unforeseen circumstances all exempt (ucae).

While a lackluster freight environment might not be enticing, this could possibly be the best antidote as it could prove to be the catalyst for ushering in a fresh wave of demolitions, thereby setting the stage for modest upturn in 2024. Meanwhile, shipowners flushed with cash and little capex requirements would be in a better shape to survive a turbulent 2023. Lastly, the end of the Ukrainian conflict remains a wildcard which could stimulate fresh demand for a market that has faced and continues to face numerous uncertainties and headwinds.

Picture: ***BUNUN QUEEN****, Handysize Bulk Carrier, 37,299 DWT, built in 2022 by Saiki, operated by Wisdom.*

THE FFA MARKET

After the remarkable achievements in 2021 for dry bulk freight derivatives, it was going to be an arduous task for this to be replicated in 2022. Nonetheless, we entered 2022 with optimism, only to be proven wrong later when actual levels underperformed their initial expectations as all dry bulk vessel segments suffered significant setbacks. The sole consolation was that the dry bulk market ended 2022 in better shape than it was at end-2020. The average C5TC settled 51.7% lower than the previous year at $16,177/day, P4TC down 24.6% averaging $19,400/day. S10TC was the best performer of all 3 mainstream sizes but still down by 17.8% averaging the year at $22,152/day.

During 2020 and 2021, FFAs volumes increased by 60%, driven by several factors including increased hedging volume by grain houses, algorithm executions, speculation by hedge funds and as new market players adopted FFAs into their portfolio. The total traded volume in 2022 was 2.21 million lots, 305,772 lots lower (-12.1%) than the previous year. While the drop in volume for C5TC and S10TC was minimal, volumes on P4TC dropped by 299,485 lots (-24.8%) compared with 2021.

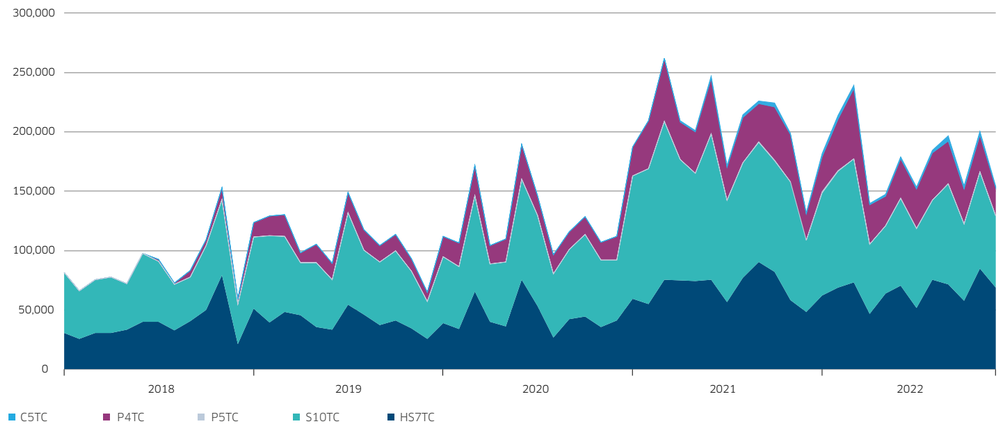
2022 started on the front foot with Q1 and Q2 managing to replicate 2021's uptrend. However, Q3 saw the market slump on all sizes and was followed by an uninspiring Q4. Accordingly, the year concluded with lower year-on-year averages. In 2023, we expect that the freight market will encounter similar headwinds to 2022 throughout the year and time charter averages will likely be on par or marginally lower than 2022 on all sizes (if China's recovery fails to gain traction). Capesize seasonality suggests that a real recovery might not arrive until April or May. Nonetheless, any significant push will not be without challenges and a peak of $40,000/day, similar to 2022, would be ambitious but not impossible. The increasing participation of grain houses hedging programs could see Panamaxes leading the recovery in Q1. Supramaxes may encounter a more challenging year in 2023 and likely require some positive spillover from the Capesizes and Panamaxes for support.

Macroeconomic uncertainties will continue to influence dry bulk recovery in 2023. China's post-pandemic economic rebound, its resumption of importing Australian coal, the correction between inflation and a potentially weaker US Dollar, IMO environmental regulations, the risk of a recession hitting global seaborne trade demand, weather and port disruptions – all will have a vital impact on shaping the dry bulk market this year. Furthermore, the increasingly popular algorithm executions of FFAs will also add additional dimensions to market trends and volatility.

Nevertheless, one thing for sure is that the demand for commodities including coal, iron ore and grains still possess fundamental strength. Considering that fleet supply growth remained limited as incumbent orderbook is still relatively small, and that demolitions are likely to increase this year, the dry bulk market could receive some support in latter half of 2023.

we entered 2022 with optimism, only to be proven wrong later when actual levels underperformed their initial expectations

Volumes breakdown of FFA TC contracts (in days)



THE SECOND HAND MARKET

Sale and Purchase markets typically lag the chartering markets of that asset. Trends in rates and trades need a few weeks, better months, to be reflected in asset prices. Brokers know of the arguments from clients, comparing seeming apples with oranges when they argue rising 'last done' transactions versus softening charter rates. This year proved no exception, however, it took longer for the turning markets to manifest in lower pricing.

The year began with good activity as it swung with the momentum garnered in 2021. A healthy number of enquiries continued to push prices up. Some warning voices questioned the sustainability of the run, but not even the Russian invasion of the Ukraine could take the wind out of Buyers' sails.Charter rates climbed until May. Asset prices lagged, and finally peaked in July, after which they weakened steadily until the end of the year.

There was a general lack of liquidity across the summer as the gap between bid and ask widened. In one corner, Buyers would show downward trend lines in the Baltic chartering indices, expecting Sellers to adjust their price ideas in the same direction. In the other, Sellers replied quoting the more attractive prices from deals done weeks (or even months) ago. The market took this stalemate into the summer vacation.

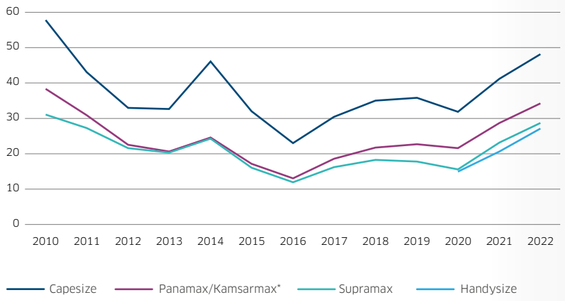
The market improved at the beginning of the seasonally more active September - October period. Sellers now corrected their ask levels and accepted lower prices to see their ships sold. However, Buyers remained cautious given their bearish outlook for 2023 and they accordingly expected further declines in prices in the months ahead. Consequently, liquidity did not rebound to the levels seen in 2021 or early 2022.

As prices came down, the 'bang for the buck' increased, and Buyers' requirements rose. Buyers whose pockets had been filled 18 months of good returns now saw their chance to buy a younger or larger vessel, built at a better yard and with a greener footprint. Those that had previously targeted older vessels – sometimes of inferior specifications – now set their sights on prettier and younger ships. This shift in demand supported prices for modern ships whereas the vintage fleet saw its value decline at a much sharper clip. For example, 5-year old Ultramaxes lost about 15% of their value between May and November, whereas 20-year old Supramaxes were faced with a correction of about 25% across the same period.

Nonetheless, prices were generally expected to weaken, and participants retreated into the holidays, hoping that the post-Chinese New Year markets would bring better rates, and prices, or more realistic sellers.

Dry bulk carrier S&P prices 5 year old ships

Million $



**The Baltic Exchange benchmark was changed in June 2019 from a 74k deadweight tonne(dwt) Panamax to 82k dwt Kamsarmax.*

*Picture: **MOUNT ITA**, Newcastlemax Bulk Carrier (LNG-dual fuel) , 209,800 DWT, built in 2023 by NEW TIMES, owned by Himalaya Shipping.*

Capesize values end-2022 (175,000 - 182,000 dwt)

10 year old: A special survey passed and BWTS retrofitted Capesize, built in Korea or Japan, was worth about $27 - 28 million at end of the year, i.e. 15 - 18% less than end of 2021 where values stood around $33 million.

5 year old: Eco-type (180,000 dwt) Capesize values stood at $41 - 42 million by end-2022, a fall of 10 - 11% from 2021 values of $46 - 47 million.

Newbuilding re-sale: The value of a Capesize re-sale built in Japan posted a decrease of 8 - 9%, ending 2022 at around $54 - 55 million.

Panamax-Kamsarmax values end-2022 (76,000-82,000 dwt)

10 year old: At the end of 2022, Panamax (76,000 dwt) and Kamsarmax (82,000 dwt) values lost ground compared with 2021 with prices finishing 2022 in the region of $19 - 20 million (-11.5%) and $21 - 22 million (-10.5%), respectively.

5 year old: Kamsarmax (eco-type) values closed out the year at about $29 - 30 million which indicates a reduction of 11% versus end 2021 values of $33 – 33.5 million.

Newbuilding re-sale: For prompt (3-6 month) delivery ex-Japanese yards, Kamsarmax re-sales based on NSF contract and 20/80% payment terms were priced at around $37 - 38 million as opposed to 12 months earlier at $40 - 41 million (-7.5%). Similarly, Chinese-built Kamsarmax re-sale values depreciated from $36 - 37 million in 2021 to $33 - 34 million in 2022 (-8.5%).

Supramax-Ultramax values end-2022 (56-58,000/60-64,000 dwt)

10 year old: The price for this type/age of asset (56,000 -58,000 dwt) experienced a drop in 2022, falling by 12% over 12 months and ending the year in the region of $17.5 - 18.5 million.

5 year old: Japanese eco-type Ultramax (60,000 - 63,000 dwt) values ended the year at levels of $ 27 – 28 million recording an average decrease of 6% from the previous year.

Newbuilding re-sale: By the end of 2022, China built Ultramaxes were priced at about $31 - 32 million, whereas Ultramaxes built in Japan were priced at about $35 - 35.5 million, a year-on-year depreciation of 4.5% and 3%, respectively.

Handysize values end-2022 (32,000-43,000 dwt)

10 year old: A Japanese-built Handysize (32,000 - 33,000 dwt) was worth about $15 - 15.5 million at end 2022 which represents a reduction of 9% in the values of this asset class when compared with end-2021 values of $16.5 – 17 million.

5 year old: The larger eco-type units of 37,000 dwt ended the year with values in the region of $23 – 23.5 million, a value loss of 6% in 12-months.

Newbuilding re-sale: At the end of 2022 the values of 38,000 - 42,000 dwt Japanese-built units were in the region of $29 - 30 million, 4% lower than 2021.

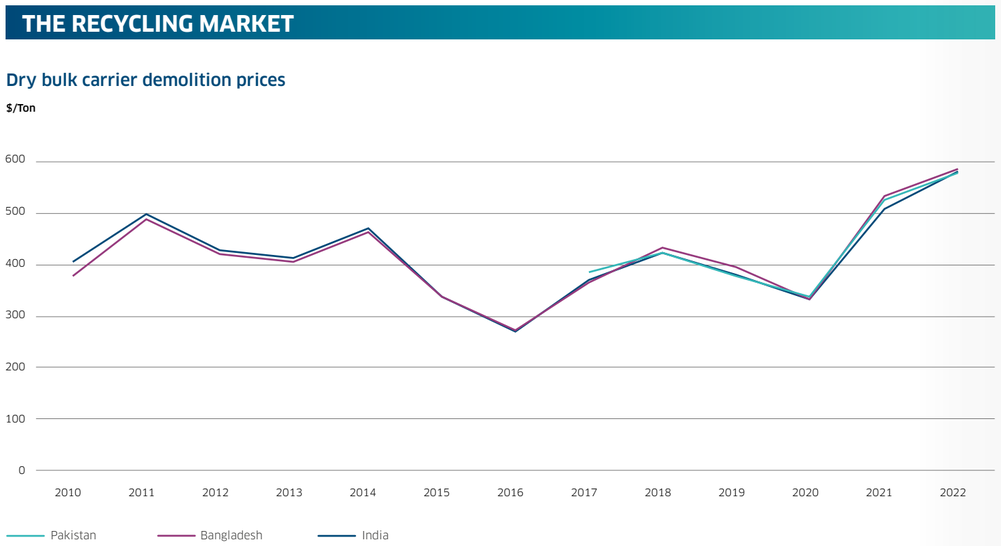
Buyers whose pockets had been filled 18 months of good returns now saw their chance to buy a younger or larger vessel, built at a better yard and with a greener footprint.

Estimated Values are for Japanese, Korean and top tier Chinese yards – for units built at lower quality Chinese yards, a discount of at least 10-15% should be expected.

*Pictures: **BELTRADER**, Ultramax Bulk Carrier , 61,043 Dwt, built in 2021 by DACKS, operated by Lighthouse Navigation;*

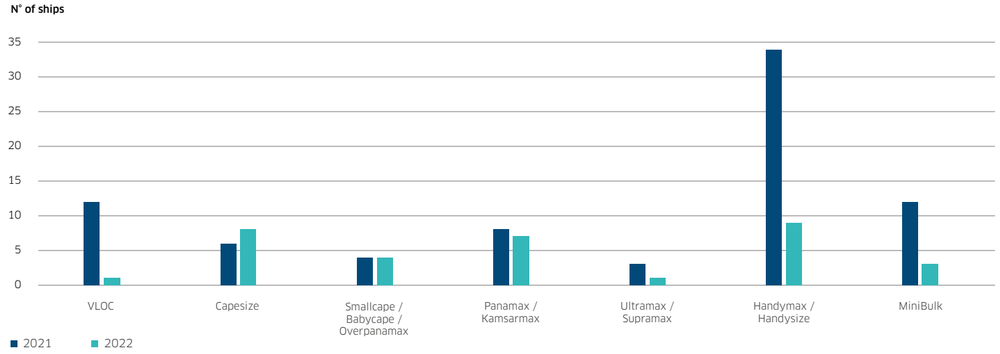
THE RECYCLING MARKET

Dry bulk carrier demolition prices



Picture: ***CIELO D'ITALIA****, Babycape, 117,438mt / 2015 / Sanoyas Mizushima / Head owner = D'Amico / Disponent owner = Oldendorff. Photo: Sea-Trial*

Dry bulk carrier demolition by segment



Picture: ***STAR AYESHA****, Newcastlemax Bulk Carrier, 206,852 DWT, built in 2019 by SWS, owned/operated by Star Bulk.*

Tanker

2022, the start of a new cycle?

The depressed freight environment of 2021 continued into the beginning of 2022. Although, even the most bullish market participants hoped to see a recovery only in the latter part of 2022, in the wake of an anticipated rebound in global oil demand, in retrospect, their expectations were blown out of the water as everything changed after the Russian invasion of Ukraine on 24 February.

FRONT EMPIRE
VLCC, 303,120 Dwt, Built 2018, Operated by Frontline.

MARKET OVERVIEW

Everything changed after the Russian invasion of Ukraine on 24 February

Following the invasion, many Western companies chose to shun Russian oil. The impacts of this on oil and tanker markets were wide reaching, considering that Russia is one of the world's largest exporters of crude oil and petroleum products. Tanker owners became more cautious amid stronger counterparty risks while the shift in oil flows led to significantly longer voyages. Europe, a geographically logical and traditional outlet for Russian petroleum, had to source additional crude oil from the Atlantic basin and also from the Middle East. Meanwhile, oil product imports from East of Suez rose. On the other hand, Russia strived to diversify its exports to non-traditional customers, notably in Asia for crude oil and Asia and the South Atlantic for refined products. Following the events in Ukraine, many owners, insurance companies, brokers and other maritime players avoided Russian oil trades altogether. Indeed, by summer, only a handful of tanker owners were willing or able to lift Russian barrels and received significant premium for doing so compared with non-Russian business.

This contributed to a record high amount of over 600 secondhand tanker (MR1 and above) transactions with many vintage tankers bought at elevated prices to unknown companies based in the Middle East or Asia. Of these, more than 100 tankers were sold and joined the so-called grey/dark fleet, which was already being used for transporting Iranian and Venezuelan oil barrels.

Spot tanker freight for non-Russian business also rose significantly driven by inflated ton-miles. This saw volatility return to the tanker market in abundance. For the first time in living memory, the rally in tanker freight rates wasn't driven by the largest crude tankers, the VLCCs, but by Aframaxes and Suezmaxes, which were directly impacted by the rapid shift in crude flows triggered by the Russia-Ukraine war. These were swiftly followed by clean product tankers which also took some strength from shifting middle distillate flows but also received support from low global inventories and rising end-user product demand which combined to unmask structural shortages of several products in several regions. On the other hand, the VLCC market had to wait until September to see spot earnings rise towards those of the other segments with this being driven by a geographical imbalance in the fleet. Accordingly, by November, average spot tanker earnings rose to their highest level since their Covid-related boom of

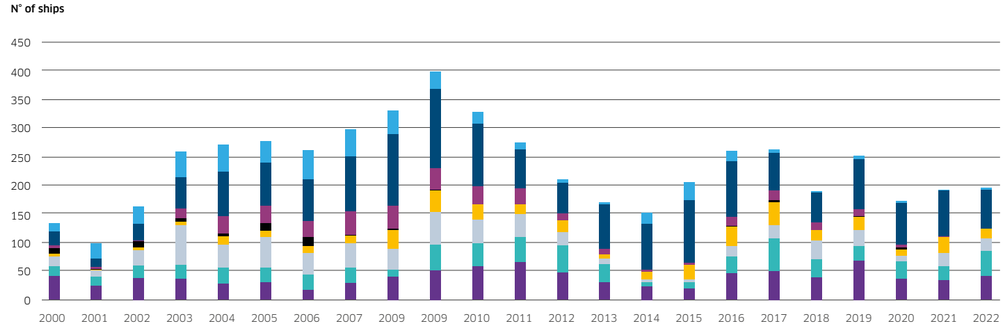
*Picture: **ARACHTHOS I**, Aframax, 115,198 Dwt, Built 2023, Operated by Pleiades Shipping.*

early 2020. However, unlike 2020 when rates were propelled higher by a thirst for floating storage, but the rise was short lived, on the whole, elevated spot earnings persisted throughout 2022 which led to record average TCE earnings over the year for many segments, notably Suezmaxes and Aframaxes. On the other hand, the underperformance of VLCCs resulted in the sector's average earnings ending up below the record high levels of 2008.

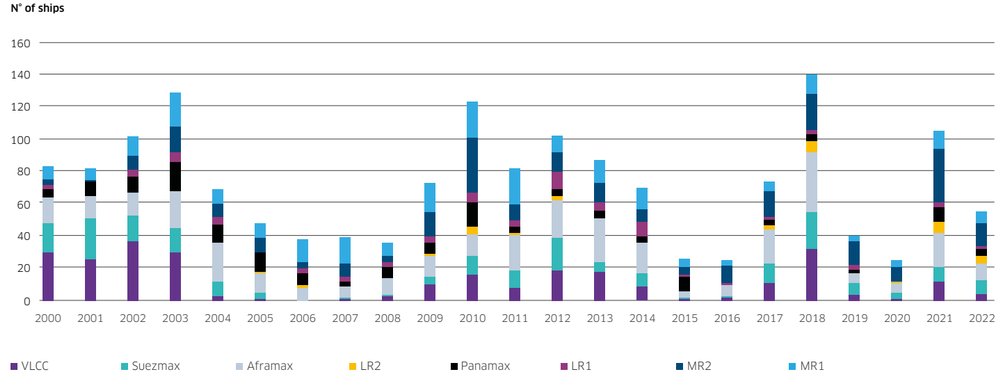
It was interesting to see that the impact of increased ton-miles was greater than the effect of the reduced Chinese oil demand, which was curbed by persistent, localized lockdowns as Beijing pursued its zero-tolerance approach to Covid. Indeed, China's oil demand is estimated to have dropped by 400 kb/d in 2022. Meanwhile, its refinery runs fell by 460 kb/d (3.4% year-on-year). This came in stark contrast with Atlantic Basin refiners which enjoyed record margins and were incentivized to run at as high as possible operating rates above 90%.

While the uncertainties regarding western sanctions against Russia remained a going concern throughout the year, the bullish sentiment in the tanker market was also fueled by the lowest tanker orderbook in over two decades which at end-2022 stood at 4.5% of the active fleet, partly owing to the fact that shipyards orderbooks are full of containers and LNG carriers and these orders aren't easily convertible into tankers. The significant increase in ton-miles implied by the EU-embargo on Russian crude and oil products, the end of the lock downs in China and the inelasticity of the supply side have contributed towards the upbeat expectations of Owners, many of whom believe that elevated tanker freight rates will persist across the medium term. A new tanker cycle has started.

Annual Tanker deliveries



Annual Tanker demolitions*



* includes only those vessels reaching breakers' yards.

CRUDE TANKERS

VLCC

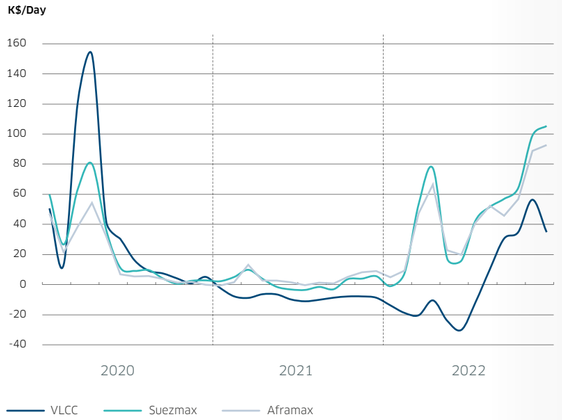
2022 was very much a tale of two halves for the VLCC segment. Although VLCCs were far slower to recover than Aframax and Suezmax, hopeful signs emerged during the latter part of the year with earnings on TD3C (Ras Tanura-Ningbo) based on non-eco, non-scrubber-fitted units rising from -$7,348/day in Q1 up to $61,364/day by Q4. For scrubber-fitted eco units, earnings rose from $9,520/day to $79,192/day across the same period. Supply and demand fundamentals remained relatively weak overall during the year. More specifically, the first few quarters were uneventful despite the induced shock from Russia's invasion in Ukraine, as China's declining crude oil demand and imports in the context of its zero-COVID policy weighed down on the segment's performance with negative daily earnings on the benchmark Baltic vessel (non-eco non-scrubber fitted) persisting. Yet, deep into Q3 there was light seen at the end of the tunnel and Q4 rebounded handsomely; China's crude oil imports picked up to support increased refining processing for fulfilling their fuel export quotas resulting in a spike of oil products exports from the country in Q4. The recovery in VLCC demand during the latter part of the quarter was also supported by increased deployment of VLCCs on the USGC – Europe trade, as the EU rushed to secure supplies ahead of the implementation of the crude oil imports ban from Russia on December 5th.

Supply side fundamentals did their best to stifle any earnings recovery in 2022 with 42 newbuilds hitting the water and a measly 5 ships scrapped meaning that the fleet grew by 4.2%. Therefore, it comes as no real surprise that earnings dipped even lower during the first half of the year than in the same period in 2021. The 2023 supply forecast is much improved with 23 newbuilds due and fleet growth projected at 2%.

On the demand side, OPEC+ has continued its cautious approach with outputs cuts reflecting uncertainties surrounding the global economy and future Russian oil supply. Last year saw the release of US strategic stock reserves as a reaction to OPEC+ perceived inertia which proved to be marginally supportive for VLCCs. However, with large parts of the western world having placed restrictions on imports of Russian crude, there has been a significant change in trade flows with inter-Atlantic trading developing into a staple for the VLCCs in the second half of 2022. Demand from Europe spread rapidly into the larger sizes with new suppliers found in West Africa, Brazil and the US Gulf. Although this has done little to improve ton miles per se it has enabled Owners to become more creative, and triangulate voyages to bolster earnings.

Looking forward, the impact of China scrapping their zero-COVID policy and opening up their borders at the beginning of 2023 on oil demand growth should not be underestimated. Expectations are that this will spark increased oil demand, with China now projected to account for around half of global oil demand growth this year. However, whether this will translate into higher imports from longer haul destinations like the US Gulf or Brazil remains to be seen, as for now Europe still needs to plug a huge hole left by Russian barrels and competition will be fierce. Nonetheless even if China sources barrels from the Arabian Gulf or West Africa there is reason to be positive. On the flip side, US exports may not be as strong on average in 2023 given that strategic reserve releases have ended, and the 26 million barrels release announced recently for April-June is significantly smaller compared to the 180 million barrels released in 2022.

Spot TCE Crude Tankers



*Picture: **FRONT CORAL**, Suezmax, 157,522 Dwt, Built 2017, Operated by Frontline.*

Suezmax

2022 started off at a sluggish pace with a general pessimistic sentiment and relatively bearish expectations, but all that changed with Russia's invasion in Ukraine in the early months of the year. This event dramatically altered expectations, shifting existing oil trade flows before sanctions were even put in place and changing the fleet's trading profile. Suezmax rates exploded immediately after the invasion and remained relatively firm throughout the year with daily average earnings on the Baltic peaking in Q422 at their highest level since 2008. TD20 and TD6 averaged $29,021/day and $68,629/day, respectively.

On the demand side, we saw significant shifts in oil flows throughout the year. With European countries limiting their crude imports from Russia, refineries configurated to process Russian grades had to turn to alternatives from West Africa, the US Gulf, and Latin America. In 2022, 530 million barrels were exported from US Gulf to Europe against 378.0 in 2021, a 41.0% increase. The Atlantic Basin has remained very active and demand for Suezmaxes has increased for USG-UK Continent and Mediterranean voyages that were previously mainly operated on Aframaxes. The market in the East underperformed with Chinese Covid-related measures keeping crude oil imports in check and India importing cheaper Russian oil. The MEG-West enquiries were absorbed by ships willing to return to West of Suez but rates stayed relatively stable as high market revenues maintained a safety net.

On the supply side, the global Suezmax fleet grew by 5.8% y-o-y while very few ships were sent for demolition. At the same time, few Suezmaxes were contracted as other ship types have monopolized shipyard slots. Only 21 Suezmaxes are scheduled to be delivered in the next three years and the fleet is aging fast: 43 ships will be turning 15 years old in 2023, 7.5% of the fleet, while overall units above 15 years of age now make up 30% of the existing fleet in dwt terms. Simultaneously, the global fleet has seen drastic changes with sanctions on Russia. Many shipowners stopped calling at Russian ports, while those that opted to trade there had the opportunity to receive high premiums. Accordingly, 2022 saw the emergence of the so called "dark-fleet" of mainly older units lifting Russia barrels in the Baltic and Black Sea, and thus postponing scrapping. This has created an effective tonnage contraction for non-sanctioned trades for which demand accelerated to compensate for the lost Russian oil supply.

All told, 2022 will go down as one of the best the sector has seen as earnings approached their 2008 records. While ton-miles increased on average last year, it is worth noting that long haul voyages have essentially been performed by the dark-fleet with Russian oil mainly flowing to the East, leading the conventional fleet to serve shorter voyages. As we enter 2023, rates have weakened from their November highs. Nonetheless, they remain elevated and we anticipate that they will remain supported by more intra-Atlantic Basin crude trade and as the Middle East sends more crude to Europe to plug the Russian shaped hole.

2022 will go down as one of the best the sector has seen as earnings approached their 2008 records

*Picture: **PORTO**, Suezmax shuttle tanker, 155,000 Dwt, Built 2022, Operated by Tsakos Energy Navigation (TEN).*

Aframax Northwest Europe and Mediterranean

Aristotle Onassis once ascertained that "We must free ourselves of the hope that the sea will ever rest. We must learn to sail in high winds." Perhaps no other quote encapsulates shipping in 2022 quite as accurately. The talk of the last year was, and remains, the Russian invasion of Ukraine which continues to be the main driver behind Aframax dynamics. Indeed, Aframax average spot earnings broke one record after another last year, reaching a all-time high of $125,722/day in November and TD19 & TD7 averaging $45,470/day and $44,870/day, respectively, across the year, three times higher than the average of the previous three years.

The Aframax market has also seen the creation and expansion of both new and existing trade routes, not least due to the first armed conflict on European soil since the war in Yugoslavia. Indeed, EU Baltic nations cut their Russian imports by more than -40% y-o-y and are now sourcing their crude from a wide range of areas such as the North Sea, the US Gulf and, most notably, from Middle East via Egypt's Sidi Kerir terminal (+58% y-o-y). This has seen the transformation of heretofore 'smaller' players such as PKN into one of the busiest charterers out of the Mediterranean, having to substitute Russian export blend by alternative grades.

Another significant development last year was the sharp increase in ton-miles against the backdrop of Russian crude being shipped into India and China. The increase in ton-miles should persist in 2023 as long as the price cap agreement remains in place and Russia is forced to find new buyers to place its oil.

Looking forward, the Aframax market like every other segment will face a new world order, with new routes and players and continuously shifting trading patterns. The fact that most of the shadow fleet carrying Russia crude consists of Aframaxes (more than 40 units), limiting the tonnage supply that can carry non-sanctioned cargoes, in conjunction with the increase in intra-Atlantic crude trade as the EU embargo on Russian crude is fully introduced make Aframaxes well positioned to outperform the wider crude tanker market.

The increase in ton-miles should persist in 2023 as long as the price cap agreement remains in place and Russia is forced to find new buyers to place its oil.

Aframax USG

Changes in trade flows in the aftermath of the Russian invasion in Ukraine came with unprecedented gains for the Aframax segment and particularly for the USGC/America trading region. The increase in trans-Atlantic flows as Europe increasingly sought to replace Russian crude barrels, subsequently increased Aframax freight with rates in and out of the USG reaching record high levels as the year progressed. Crude oil exports from Latin America soared during the year, while Guyana's two-fold annual increase in crude oil exports, which surpassed 260 kb/d pulled Suezmax tonnage from the area (80% of the Guyana liftings were on Suezmaxes) and thus helped to ease competition from the largest size in the region. More specifically, in the quarter that followed the invasion, US oil imports from Latin America rose significantly to make up for the lost Russian barrels into the US, as Washington imposed an embargo on Russian oil imports. Previously, Russia was supplying approximately 6% of US crude oil imports and 29% of fuel oil imports for a combined 290 kb/d. As a result, crude oil and fuel oil flows from Latin America to the US climbed in April and reached record levels of around 1.6 mb/din July 2022. Accordingly, earnings for units voyaging on TD26 averaged almost $70,000/day during those months, more than three-fold compared to the January-June average.

After taking a breather during September, rates resumed their upward trend thereafter on a series of drivers; a significant portion of the global Aframax fleet entered the so-called dark fleet, US crude exports to Europe hit a record in 4Q, and US refinery utilization climbed above 95% during the quarter increasing import demand. Consequently, Aframax tonnage became structurally tighter in Latin America, and TD9 and TD26 touched record highs of $188,000/day and $232,000/day, respectively, in November. Overall, TD9 and TD26 earnings averaged record highs across the year at $41,144/day and $50,135 /day, respectively.

Aframax East

In tandem with other markets, the Aframax market East of Suez has seen an unprecedented year, with freight levels rising to records highs.

The East of Suez market has historically been where older tonnage has thrived and traded relatively freely. Yet the Russia-Ukraine war created an enormous opportunity for older units to sell at a premium into the so-called 'dark fleet', and as such, tonnage levels East of Suez depleted. Furthermore, Western markets for most of the year outperformed the East, and generally speaking, the remaining owners positioned in the Middle East were incentivized to ballast to the Mediterranean. The net result was a fundamentally tight market for charterers and brokers throughout 2022. And with less tonnage, rates rose to record high levels in Q4.

A big trade shift in the Middle East occurred in 2022, with the dramatic increase in DPP stems heading West. As a vast number of these fuel oil and/or vacuum gas oil stems emerged from LOA-restricted ports including Bahrain, Sikka, Vadinar, and Gizan, Aframax owners found themselves with opportunities and high earnings to return laden to Europe and USA markets.

In the Far East, the Aframaxes have also managed to reach and maintain surprisingly strong earnings. With the collapse of the Kozmino business and backhaul Korea/Singapore runs, many expected owners to struggle finding coverage. Yet Eastern Russia exports were maintained by the 'dark fleet', and non-sanctioned trading routes struggled with options for most of the year. Furthermore, enquiry continued to be bolstered by Thai pipeline issues which are still yet to be resolved. All in all, a usually flat and slow-moving market has developed into a consistently good earner throughout the year.

LR2

2022 turned out to be a big surprise to all. What started off as glum in 1Q22, quickly turned into a rocket propelling freight increases across all sizes, due to the Russia-Ukraine war.

The LR2 segment benefitted greatly from these geopolitical tensions with a significant lengthening of ton-miles due to the self-imposed sanctions on Russian oil and in preparation of the EU embargo on crude and oil products imports from Russia in December 2022 and February 2023, respectively. Refineries in the Middle East and India started supplying the west, thereby increasing the length of voyages drastically. By the end of the second quarter, Owners were looking at returns in excess of $80,000/day and by the end of Q3 and Q4 those earnings topped $100,000/day for TC1 and runs from the Middle East Gulf to the west. More specifically, freight rates exceeded $6 million for Middle East Gulf – UK Continent runs and ws 325 for TC1, whereas, a year ago owners were fixing below $2 m and ws 110, respectively.

Despite VLCC newbuilding deliveries taking volume by undertaking CPP voyages and storage, LR2s benefitted from a strong recovery in the Aframax market with many owners dirtying up to lift fuel oil or crude cargoes, which also drained the available clean tonnage. In the meantime, there was more flexibility from Charterers and Owners to clean or dirty up vessels from one voyage to the next as the clean-up cost was easily absorbed by the high freight margins.

Looking forward, expectations are that freight rates for LR2s will maintain strong levels this year, as the evolving crude oil and oil products EU embargo unfolds with Asia well positioned to cover the middle distillates shortfall from the halt of oil product barrels from Russia to Europe.

LR1

The LR1 segment was probably the best performing clean segment of all, regularly closing the earnings gap with LR2s. Despite an ageing fleet of vessels (approximately 38% of the LR1 fleet are above 15 years old), Owners still managed to keep high deployment rates and Charterers' reluctance to use these older units subsided. The segment was not impacted by the VLCC cannibalisation and continued to offer flexibility to traders looking to sell to restricted destinations.

The end of the year saw Middle East Gulf – Atlantic Basin fixtures concluded at $5.5 million and TC5 runs at ws 380. This produced earnings of $80,000/day for the former and $90,000/day for the latter. As the LR1 tonnage is shrinking and with the current structural shifts in trade flows, the outlook for this segment looks promising.

Refineries in the Middle East and India started supplying the West, thereby increasing the length of voyages drastically

*Picture: **STENA PRO PATRIA**, MR2, 49,990 Dwt, Built 2022, Operated by Proman Stena Bulk Ltd.*

MR

2022 was characterised by huge swings in freight driven by significant imbalances in supply and demand throughout the year. Changing trading patterns and volumes created headaches for Charterers, as traders sought the flexibility that only the MR's can offer. Charterers developed tactics to beat Owners at their own game and the huge spikes we saw early on were not repeated.

The year opened as the previous year finished, without much fanfare. The first quarter offered occasional snippets of activity, but any potential gains were quickly capped by the LR segment which similarly remained in the doldrums and continually snatched up short haul MR cargoes. Accordingly, TCE's stood around the $13,500/day level.

It wasn't until the unthinkable happened and Russia advanced into Ukraine that the market was sent into a tailspin. February saw bunker prices climb rapidly, and with so much of the global MR fleet in the West, there were signs that the market was about to fundamentally change.

As we moved into the second quarter, fortunes really changed for Owners. The Far East market firmed quickly, drying up any potential ballasters and setting the stage for the Middle East to push further. Traders sought to send more product westbound and an unwillingness from owners to end up in the unpredictable Atlantic market drove rates ever higher. Furthermore, a slew of regional delays compounded issues for Charterers. Quarterly earnings averaged approximately $35,000/day. The party wasn't to last and as the Far East softened, and the threat of ballast positions returned, rates quickly came off. Indeed, this kind of volatility was to become a mainstay of the year and swings of 40-50 points were not unusual as the year wore on. Charterers quickly covered at lower levels, thinning out tonnage and setting the stage for what were to become the highest freight levels seen of the year with TC17 (Jubail to Dar es Salaam) freight hitting ws 555 and Middle East Gulf – UK Continent voyages reaching $4.2m.

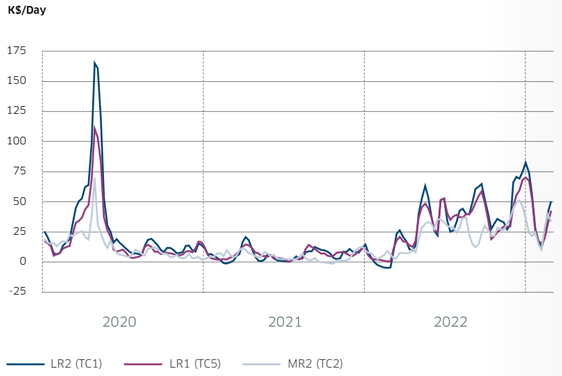
The third quarter began in the same vein, as freight stabilised at high levels and charterers sought to fix forward, which owners were happy to acquiesce, given earnings were hovering around the $40k/day mark.

However, all good things must come to an end, and with a rapidly softening market in the west, we started to see ships ballasting both through the Suez Canal and from West Africa, a move we haven't often seen. This, combined with weaker LR markets (with larger vessels once again on the hunt for stop-gap MR cargoes), led to a considerable oversupply of tonnage, and a crash in freight levels. Ballast patterns changed again, and we started to see the usual South Africa positions change heading, and ballast to Singapore. This offered the market some respite from the endless waves of excess tonnage, and we saw freight rebound, although not quite reaching the peaks of the previous few months.

By the fourth quarter, Charterers had regained their grip on the market and the tactics of drip-feeding cargo into the market had proven successful (if a little risky should a tonnage bottleneck occur). Furthermore, with cargo now in shorter supply, Charterers' offers of private cargoes worked their way back into the fold, and panicked owners who watched rates drop further. Earnings averaged out at around $32,000/day. Whilst we saw more of the volatility that had now become standard in Middle Eastern markets, it was really Charterers' flexibility to resize cargoes as well as their openness to playing a riskier game, that meant that freight never quite recovered to the levels that we saw earlier in the year, despite having seen some opportunities for owners to rally.

2023 is certainly expected to be another bumper year, with ton-mile demand already having increased, with new refinery capacity coming online and with the price cap on Russian oil products coming into play, not to mention new emissions regulations. Charterers have already proved their savviness in managing the market volatility that we have now become accustomed to and whilst we expect to see a positive year, the highs of 2022 are not likely to be repeated.

TCE Earnings Products Tankers



Picture: ***STI LOMBARD****, LR2, 109,999 Dwt, Built 2015, Operated by Scorpio Tankers.*

PRODUCT TANKERS – WEST

At the start of 2022, the most significant risk facing European refiners was the possibility of a fresh wave of travel restrictions and the resulting underperformance in jet fuel demand - a substantial source of revenue for European refiners. However, through the early months of the year, it quickly became apparent that a different story was going to dominate and shake up European product tanker markets. The Russian invasion of Ukraine once more created the 'unexpected', triggering the market to surge to extreme levels and allowing ship owners to obtain exceptional returns from their vessels, especially those willing to call at Russian ports. Although it is logical to presume that this tendency will persist in 2023, the hefty sanctions and the imposed caps on crude and product prices may prove the opposite.

LRs

The European LR markets have reflected the trends we've seen on the smaller sizes; the war in Ukraine has impacted cargo flows here too, triggering an increase in ton-miles and a cargo cascade as Europe shifted to longer haul trades for sourcing its products. For the LR1s, Northwest Europe – West Africa remains the busiest route, although we've seen sporadic transatlantic activity when the arbitrage was open and the MR fleet could not absorb demand. LR2 Northwest Europe – West Africa activity has been more erratic, as most owners, whether opening in WAFR or South America, chose to ballast straight to a more reliable and lucrative Middle Eastern market.

MRs

The first few months of 2022 were relatively uneventful for the European MR markets. However, as the situation in Ukraine escalated, we saw substantial and sustained upward pressure on rates. Between late April and early June, TC2 (ARA-UK Continent) soared by nearly 200 points, as much of the western world began to source their petroleum products away from Russia.

As the broad 'package' of sanctions intensified, a split quickly emerged between those MR owners who could and could not load from Russia. Those who could call Russia increased their profits substantially. After peaking in early June, MR rates dropped off a little over the summer months as demand cooled. However, with the USG market bustling during July, European MR rates regained some lost ground as a wave of ex-USG vessels went short to the Caribs rather than onto Europe.

Despite the Mediterranean being quieter for the MRs, the region has benefited from its proximity to the tight, active AG market. In choosing to ballast further east, Owners have continuously tightened tonnage supply in the Mediterranean, so that Mediterranean -UK Continent voyages have demanded a premium over TC2.

With a fresh wave of sanctions on Russia looming, and a sustained period of decent demand as winter began, the fourth quarter proved a solid end to the year for the European MRs. Looking into 2023, the situation in Ukraine is still far from stable, and it is unlikely that any significant progress will be made soon. With lofty bunker prices and sustained ex-Europe demand continuing to fuel owners' optimism, the outlook for European MR owners remains broadly positive.

Handy

As we also saw in other markets, last year a split emerged between the Northern Handy Owners, who could and could not load from Russia. This quickly constrained the tonnage supply in Northwest Europe, as several key owners would immediately ballast back into the Baltic, especially as Russian Baltic - UK Continent rates approached the ws 1000-mark. Although the Russian premium widened, cross-Continent rates have remained reasonably buoyant for much of the year, and we've seen an uplift in UK Continent - Mediterranean voyages as more players have looked to source product from elsewhere.

After 2021, the year of all the extremes with the lowest and not far from the highest rates ever witnessed in the Mediterranean Handy market, the expectations for 2022 were conservative, if not bearish. The Russia-Ukraine war proved a game changer and splitting the fleet in the Mediterranean into two parts. Russian premiums were as high as ws 1000 in 2022 and, on the back of that, non-premium business and the usual cross-med voyages still achieved and maintained high and stable levels throughout the year.

CPP USG

If we could sum up last year's CPP market in the US Gulf in one word, it would be VOLATILITY. After the Russian invasion, we started to see freight rates never previously heard of. TCE's soared to $70,000/day on average for a few months before coming back down to $7,000/day. Instead of seeing the usual cyclical ups and downs of the connected markets, for example when Europe market goes up, it usually attracts ballasters from other zones, last year, all zones were bullish, which drove an even more volatile global market that would keep the limited tonnage in a single zone. Geopolitical uncertainty was the root cause of those levels. The average number of ships available from week to week barely matched the numbers of cargoes, which drove freight to high levels from the end of February until November. Tonnage was distributed evenly between Europe, the Americas, the MEG and Asia before the Russian invasion. However, post-invasion we observed a strong pull towards Europe, which took a good number of ships away from the USG. The usual benchmark to assess the USG market, TC14 (USG/-Europe), was slowly replaced by TC18 (USG-Brazil), as South America became the main source of demand. The bulk of our products was shipped in ECMEX, CBS, Ecuador, Peru, Chile and Brazil and routes such as USG/EAST and USG/TA that were predominantly NAP routes became extinct.

Although 2022 was one of the best years ever for owners, they experienced a backlash in December when refineries down in the USG experienced another freeze, causing exports levels to drop considerably. As of the beginning of 2023, we are still experiencing the aftermath of the freeze, causing refineries to go into heavy maintenance, following record runs in 2022 to capitalize on high margins. Increased US refinery maintenance rates are expected to extend well into Q1 2023 to also facilitate commercial crude oil inventory builds, as SPR are largely drawn. All in all, uncertainty remains as the EU and G7 countries' sanctions on Russia crude oil and products imports are in full effect as of February 5th, and with the U.S. trying to implement more sanctions on the Russian oil industry, this could create more volatility for the rest of 2023.

Edible Oils

Vegoil

The global vegetable oil market tightened further in 2022, as the Russia-Ukraine war further exacerbated tight supplies stemming from a severe drought in South America that caused a reduction in soybean yields. Soyabean oil exports from Argentina decreased by 20% year-on-year in 2022 to approximately 6.3 million tons. Out of the 182 MR1s or MR2s that were fixed with vegoils during the year, 132 went to India which was again by far the main importer. Biodiesel exports have been similar to last year with about 1.2 million tons of SME (Soya Methyl Esther) imported by Europe, employing a total of 47 MR2s. A total of 231 MR1s or MR2s were chartered from South America with vegoils and/or biodiesel during the year. Freight rates were extremely volatile during the year, starting in the low $40s per ton and finishing in the low $80s per ton. This produced daily returns of around $10,000/day at their lowest to $35,000/day at their highest.

The very low water level in the Parana river in 2022 created logistic issues for the ones willing to optimize their volumes and had to load more from other countries, mostly Brazil.

Regarding the Sunflower oil exports, the situation has been extremely critical due to the war between Russia and Ukraine. There were almost no exports from the end of February until June. Some shipments took place during the second part of the year. The number of Owners able to consider such shipments was very limited and the premiums involved for the ones able to consider were quite substantial.

Palm Oils

Approximately 330 MR1s or MR2s were fixed to carry palm oil and biodiesel from Indonesia, Malaysia into China, the Mediterranean Sea, Europe, USA or West Africa in 2022, a similar number to the previous year. Out of the 67 MR2 newbuildings that were delivered in 2022, 37 were fixed with palm oils or biodiesel on their maiden voyage. Daily returns moved from about $15-20,000/day in the first quarter for an eco-ship but increased exponentially to reach around $65-70,000/day in the second quarter. We expect a maximum 40 MR2s to be delivered in 2023, which is significantly less than in previous years, so this should provide less FOSFA tonnage for palm oil traders.

The high price signal induced from tightening global supplies with edible oil importers looking to diversify imports amid the Russia-Ukraine war at a time when global demand is expected to grow with China leading the way will likely see trade shifts exacerbating, with Malaysia continuing to gain market share into Asia in 2023.

Fuel Oil

It was an unexpected year for all of us with the Russian invasion of Ukraine. The world changed and so did markets which surprised to the upside, reshaping flows and beneficiaries. However, challenges also bring new opportunities, and the fuel oil market was no exception. With high energy prices, initial self-sanctioning and EU restrictions in the first half of the year which evolved into official sanctions against Russian oil imports, the tanker market became one of multiple tiers, notably where lifting Russian barrels gave substantial premiums to Owners. Since the majority were craving for up to additional ws100 on each regional run, the priority for Owners was to lift cargoes from the Black Sea and Baltic and transport these to Europe, mainly with STS discharge at anchorages off Greece, where volumes skyrocketed compared with 2021. This practice created a tight supply of tonnage throughout the year. It is also fair to mention that the first quarter was feverish and volatile with an average TCE of $10,000/day as markets took a while to react to the initial shock. Thereafter it was a take-off for the bull run where Owners were giving a favor to Charterers by just repeating the last done. Rates escalated as the year progressed with Russian fuel oil increasingly flowing into Asia, increasing ton-miles for the trade. The second quarter brought TCEs of $24,000/day while these rose to $38,000/day and $55,000/day, in the third and fourth quarters, respectively. Record high TCE earnings on TD18 were recorded in December 2022, as they soared to over $76,000/day, with Russian liftings commanding around $100,000/day.

During the fourth quarter, we witnessed situations where Charterers had to compete against Russian cargoes to secure tonnage for the usual vanilla runs. Nonetheless, all the madness came to an end during the Christmas period, with market momentum dissipating into the first month of 2023, leaving owners exposed amid tonnage piling up and uncertainty about the short-term outlook. Nonetheless rates have remained stronger compared with the same period last year. This correction could turn out to be positive for adjusting overvalued prices and providing new buying opportunities in what we perceive as a structural market shift, as fuel oil cargoes from Russia are expected to increasingly divert to Asia and Middle East.

*Picture: **CEDAR**, Suezmax, 157,310 Dwt, Built 2022, Operated by Euronav.*

FFA MARKET

The Russia-Ukraine war contributed to increased tanker market volatility and consequently a record year, in terms of volumes, for Tanker FFAs (734,972 lots), up 33% on 2021. Significant for wet FFAs in 2022 were the massive increases in implied FFA TCE levels, and this encouraged additional deferred selling in the form of hedging. These kinds of hedging transactions were far less numerous when the implied forward TCEs were well beneath time charter levels.

Case in Point for VLCC:
On 27/09/2022 the TD3 Cal23 FFA settlement in TCE was $31,470
On 27/09/2021 the TD3 Cal22 FFA settlement in TCE was $14,400

And the same exercise for Clean with MRs.
On 27/09/2022 the TC2 Cal23 FFA settlement in TCE was $25,230
On 27/09/2021 the TC2 Cal22 FFA settlement in TCE was $5,100

What a difference a year makes, which is clearly demonstrated with the same date in September a year apart, where 2022 FFA values often offered good value for those who were looking to sell FFAs. A year earlier, when often the deferred paper was at a heavy discount to the underlying time charter rates, there would be less eagerness to employ paper hedging against vessels. This change in 2022 was one of the major factors behind the record year for tanker FFAs.

In addition to hedging strategies with Tanker FFAs, with the increase in volatility, the appetite for the speculative trading of wet FFAs also increased. Speculative trading can be from the long or short side and can also involve spreads between different time periods as well as spreads between different tanker routes. Last but not least, paper can also be used to create a synthetic time charter, by replicating the vessel size in Wet FFA paper, across any of the benchmark routes for a specific period. A combination of all the above led to a record year for Tanker FFAs.

2022 TD3C spot vs 4Q22 FFA

TIME CHARTER

Following the depressing months of January and early February 2022, TC rates rose along with spot earnings, as western buyers shunned Russian energy, which was the catalyst to a rapid redrawing of global oil flows. TC rates for clean tankers were the first to rise in March, followed by crude tankers in April. The high volatility in clean tanker freight rates propelled TC rates upwards Meanwhile, crude tankers largely lagged due to persistent weakness in the VLCC market. By end-June, one year TC rates had risen from their January torpor by an average of 56% on clean tankers (MR1s to LR2s) and by 13% on average for crude tankers (Aframaxes to VLCCs).

On clean tankers, 6 months and shorter durations accounted for the majority of TC deals done until May 2022 when owners started to focus on longer durations, as they aimed to fix at elevated rates for the longest possible time. Two year and longer period TC deals gained momentum and were seen fixed a record high level during the second half of the year. The number of TC deals on clean tankers rose compared with previous years, especially on longer than 6 month periods due to bullish forward expectations. The high number of long TC deals done for clean tankers compared with crude tankers reflects the more consensual bullish market expectations on the former. Market expectations for product tankers are bullish with ton-miles projected to continue to grow due to the larger oil products deficit in the Atlantic Basin versus a growing surplus East of Suez. Charterers that agreed to commit to long periods at multiyear high freight levels were encouraged to do so not only because of higher spot freight rates and expectations, but also because fleet growth is projected to decelerate on the back of the tiny orderbook and that shipyards are fully booked for the next 2 years. Meanwhile, China's oil demand is projected to rebound sharply in 2023 after the end of the Covid lockdowns.

Crude tanker TC rates followed clean tankers but with a lag and rose significantly in June-July especially on Aframaxes and Suezmaxes. VLCC TC rates had to wait until September, when the VLCC spot market finally improved, to catch up with other segments in relative terms. As was the case for clean tankers, owners started aiming for longer periods by the summer. However, unlike clean tankers, charterers found it more difficult to commit to 3 to 5 years periods on crude tankers, leading to less fixtures of such lengths compared with clean tankers. Nonetheless, this didn't prevent crude tanker TC rates reaching elevated rates on long periods – although not as high relative to clean tankers.

By the end of December, 1 year TC rates were up on average from January 2022 levels by 126% on crude tankers and by 143% on clean tankers. During the same period, rates on 3 years TC rose on average by 39% on crude tankers and by 53% on clean tankers.

SECOND HAND MARKET

‘Man is incapable of choice, and he always acts yielding to the strongest temptation’

- André Gide; French writer (1869/1951) honored with the Nobel Prize in Literature in 1947.

Units sold for scrap per year

N° of Ships	2018	2019	2020	2021	2022
VLCC	32	11	2	20	5
Suezmax	23	8	5	10	11
Aframax & LR2	45	5	11	32	20
Panamax & LR1	10	6	3	12	10

For once, Tanker Owners this year had the king’s choice. There was no wrong decision. Whether one opted to keep his ship to enjoy extra-ordinary spot and TC rates or sell his vessel, both proved to be right. One may argue that the more patient owners selling at year-end did better than the first mover, but the reality is that if money was reinjected in another more modern tanker unit, they did just as good as the late seller.

The bearish sentiment prevailing in the early days of 2022 was a direct continuation of the previous year when Tanker Owners’ hopes solely relied on a rebound of the global economy and improvement the global demand for crude and clean product transportation based on Covid pandemic amelioration, particularly in China. Fast forward two months and the Ukrainian war broke. Overnight, like any citizen of the world, Tanker Owners had to face a new situation and trade disruptions created by the conflict saw tanker earnings and values take a stratospheric trajectory not seen for the last 15 years. Let’s not forget that asset levels were already comfortable at the beginning of 2022 and over the previous twelve months had already seen values increased (in general) due to both stronger newbuilding and scrap prices.

Week after week, starting from early March 2022, Tanker Owners for all sizes had to adapt instantly to new working conditions dictated by the war itself to start with for the safety of their crew and ships. Then Owners had to carefully monitor the war implication in terms of, new trades, the disappearance of counterparties, the appearance of new counterparties, additional ton miles, unexpected high earnings, but also new sanctions risks.

These new conditions pushed the market in Owners’ favour and charterers had to compete and pay higher for the transportation of crude and refined products. To keep it simple, all Tanker sizes saw their values rising from 17% to 112% whatever age they were (when comparing figures between January and December 2022). These new conditions also had a tremendous effect on the volume of transactions and 2022 will be remembered as a very strong year with the Aframax size leading on a number of transactions basis.

*Picture: **MONJASA REFORMER**, M/T 13.702 Dwt, Built 2003 purchased by MONJASA.*

During the first part of the year, Tanker Owners faced a dichotomy crisis and had to choose whether to load Russian cargoes. During its second part, and assuming they opted to do so, then they had to choose until when. This was tough call to make as decisions were not a question of legality or morality (since sanctions were not approved by all countries) but more a question of the image that Owners wanted to portray.

The implementation of sanctions has been the cause of the emergence of new ship owning entities which have sought to position themselves specifically for lifting Russian cargoes. These entities were mainly based in China, UAE and India and were very keen to acquire tonnage on the secondhand market from traditional Tanker owners. The appetite from these Buyers for Ice class tonnage was gargantuan and required in order to ensure uninterrupted loadings from Russia’s oil terminals on its Baltic, Black Sea and Pacific coasts.

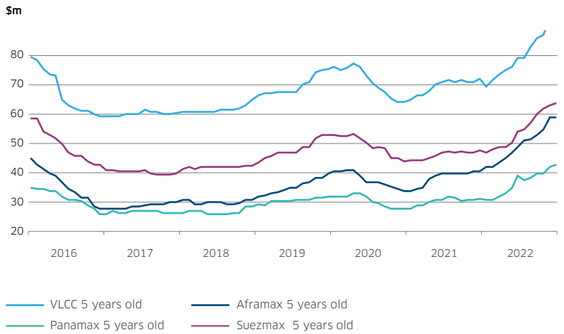
New Orders 2016 to 2022

N° of Ships	2016	2017	2018	2019	2020	2021	2022
VLCC	15	58	44	39	44	31	2
Suezmax	20	28	22	38	39	13	9
Aframax & LR2	19	37	28	56	39	50	30
Panamax & LR1	3	8	8	1	0	0	0

Vessel value changes from January 2022 to December 2022

	Re-sale	5 years	10 years	15 years
VLCC	18.00%	34.53%	59.09%	69.70%
Suezmax	17.39%	36.17%	43.75%	76.19%
Aframax & LR2	25.44%	39.53%	64.15%	112.12%
Panamax & LR1	20.83%	38.71%	47.50%	76.00%

Tanker second hand prices



For the sixth year in a row, the number of transactions for further trading increased, the increase was more than 11% as 34 more transactions were reported than in 2021. The number of transactions was evenly spread over the year with only couple of months deviating significantly from the average number of transactions. The high volume was driven by the chartering market and affected in particular the older units.

Many Buyers saw the opportunities provided by the market and even if prices increased regularly every week, the fundamentals remained strong enough to push them to acquire more tonnage. Accordingly, many Owners decided to take advantage of the situation and began offloading their older units in order to profit from one of the highest markets since 2007/2008.

S&P activity (vessels for further trading)

N° of Ships	2018	2019	2020	2021	2022
VLCC	48	59	105	101	81
Suezmax	28	41	44	38	59
Aframax & LR2	66	76	95	129	142
Panamax & LR1	20	33	24	41	61

VLCC

A total of 81 VLCCs were reported sold for further trading during 2022, although the number was 20% less than 2021, this is still a significant number.

The activity was deeply focused on the older segment, with more than half of all transactions involving vintage tonnage that was more than 15 years old.

Transaction volumes for ships younger than 5 years almost halved, decreasing to 16 units reported sold, against 31 in 2021. Some of these sales were driven by the possibility for Owners to exit from the sector. Prices for very modern tonnage reached levels that were higher than even the previous newbuilding price. By way of example there was the sale from the Hunter group of their 4 scrubber-fitted, 2020-Daewoo-built units which took place with two units being sold at $96m each and two at $95.5m each. Once again there was limited activity in the 6 to 10 years old vessel segment, as 7 units switched hands. Of these, there were two sales from Sovcomflot, which faced with sanctions, had to take various drastic steps to stay afloat. For vessels built 11 to 15 years ago there were 17 transactions, which was in line with the previous year. As initially mentioned, the focus of the activity was for vessels more than 15 years old with 41 transactions profiting from the increased asset values. At the beginning of the year, 50 VLCCs were expected to hit the water, but in the end only 43 units were delivered. According to the orderbook at end-December 2022 which stood at 26 units, 23 ships should theoretically hit the water in 2023. Meanwhile, only 5 units were sold for recycling last year.

Suezmax

The Suezmax market increased significantly with 59 units sold for further trading in 2022 against 38 in 2021. As with VLCCs, appetite was focused on older vessels with more than 60% of the transactions focused on units 15 years old or more.

Prices for modern units once again surpassed their contracting price, as was the case with Ciner's ZEYNEP and AYSE C, both built at Hyundai Heavy in 2020, which were sold for $65m each to SFL. The sales for units less than 5 years old were limited to 4 cases. There was slightly more activity for units built between 2012 and 2017 with 8 units sold. Again, there was a little more activity on 11 to 15 year old Suezmaxes with 10 units sold.

Buyers' attention focused on tonnage older than 15 years old with 37 transactions for further trading taking place during the year. The increase in values and demand created the perfect scenario for more matches between sellers and buyers.

The Suezmax fleet saw 40 units delivered in 2022 (versus an end-2021 forecast for 48 vessels) while 11 units were scrapped. By end-2022, the total Suezmax orderbook stood at 20 units, of which 9 are expected to hit the water in 2022.

Aframax/LR2 and Panamax/LR1

The market was more dynamic than ever for Aframaxes and LR2s with 142 transactions reported against the 129 in 2021. As with the bigger segments, the focus was for units older than 15 years, with these accounting for slightly less than 50% of the total transactions in the segment.

A total of 16 units younger than 5 years old changed ownership, with 4 units being exits from Sovcomflot. A modest 13 transactions were 6 to 10 years old and included some buybacks by Scorpio Tankers from their financiers.

Of the remaining 113 transactions, 45 were for vessels between 10 and 15 years old and 68 were over 15 years old. Several Owners profited from the market, such as Union Maritime which disposed of 7 of their older units. Various Chinese and Middle Eastern buyers focused their attention and were behind the acquisition of the older units, in order to profit from the increased charter market and various opportunities.

Once again, the Aframax and LR2 segment presented the highest increase in assets values, moving from a low 25% for the more modern to more than 110% for the vintage units. This increase was driven by the upward changes in the market and immediate possibility to pocket from the strong chartering market.

Out of the 48 Aframaxes (including LR2s) which were expected to be delivered during 2022, only 42 hit the water. In 2023, we should see another 54 vessels delivered while, as of late December 2022, the total orderbook stood at 96 units.

Panamax tanker sales increased significantly to an astonishing 61 units sold for further trading, against 41 transactions in 2021. No units less than 5 years old were sold. The 6 to 10 years old segment saw a healthy 12 units exchanged but were all part of the same gigantic enbloc transaction between Scorpio as Sellers and Hafnia as Buyers. 26 units were sold between 11 and 15 years old, this represented the most active age segment for the category. Finally, 23 units older than 15 years were sold at prices significantly higher than their recycling value.

In the Panamax (including LR1) fleet, we saw no vessels delivered in 2022. Meanwhile, there were 10 demolitions and once again no new orders were placed. The total orderbook at end-2022 stood at 4 units, with none expected to hit the water in 2023.

MR1 and MR2

As with bigger tankers, MR2 sales and purchase activity once again increased. The focus was concentrated on the 11 to 15 year old units which accounted for slightly more than 45% of the total transactions in the segment. This is where the increase in value was also highest as prices rose by 77% from January to December for 10 years old tankers and by 100% for 15 years olds.

The total number of transactions increased to 176 units compared with 168 in 2021. Only 18 units below 5 years of age were sold, given the preference to keep modern units as the asset play was higher for older units. In the 6 to 10 year old segment, there were 37 transactions reported. The preferred 10-15 year old segment saw a robust total of 72 units sold. Interest was maintained in MR2s older than 15 years as 41 units were reported sold for further trading.

As every sale is a symbolic meeting between a buyer and a seller, the sustained increase in the chartering market brought the demand up to match the potential supply. Even if modern units were sold at record values, this didn't discourage buyers and notable numbers of vessels were sold. Nevertheless, as usual, vessels older than 10 years presented the biggest asset play opportunity which, sustained by the market, represented the most attractive units for Buyers and Sellers.

In the newbuilding market, only 43 MR2s were ordered during 2022, and 74 were delivered against the initial expectation of 87. The total orderbook remains high with 108 units, of which 57 are expected to be delivered in 2023. Only 16 units were reported sold for demolition last year.

Sales and purchase activity in the MR1 segment more than doubled with 78 transactions for further trading. Limited transactions were reported for vessels of 10 or less years as only 13 units changed hands. However, this was also representative of the fleet age profile. There was a significant 29 transactions for units of 11 to 15 years old reported. The vessels older than 15 years were the most active, accounting for 46% of the total transactions.

As of the 31 December 2022, the MR1 orderbook was left with only 1 unit which has been ordered in 2022, and none are expected to be delivered in 2023. Meanwhile only 5 units were reported sold for demolition in 2022.

OBO

During this last year there was no registered activity in the OBO fleet either in second-hand, or in new orders, or in demolition. Nevertheless, the question arises for Owners pondering their future choice of tonnage. Could there be new trades in which it could be possible to combine a mixture of dry bulk and liquid bulk cargoes? This segment could definitively present some renewed opportunities in order to solve the mayor challenge of new environmental regulations and limitations for CO_2 emissions.

Sales and purchase outlook for 2023

It is fair to say that at the end of 2021, the market was basically hoping for China to re-open and for world trade to flourish again in order to enhance energy transportation and bring optimism to Tanker Owners. At the end of 2022, we were granted half of our wishes thanks to Beijing's U-turn on its zero-tolerance covid policy. However, as we saw, this prediction had nothing to do with the extraordinary year Tanker Owners benefited from.

Looking ahead, we have all the reasons to remain confident in Tanker earnings and their values. The war in Ukraine will continue to disrupt oil trade patterns and support ton miles. This extra demand will not only continue until the end of the war, but also until sanctions halt. Indeed, arguably Europe will never again import the volume of oil which it previously did from Russia which implies that ton miles will remain supported above their previous pre-war levels. Since we do not expect drastic change to the fleet, this suggests that ton miles would only shrink if the world economy sank into a severe recession. Never say never, but this seems unlikely.

This brings us to more philosophical questions that Tanker Owners may face in the months to come. While there will be no legal or illegal path, Tanker Owners will have to pick a side as to whether to trade Russian cargoes. One can argue this is not a moral or non-moral issue as this would be too simplistic and very subjective. The question mark relates to "what image" an Owner will want to portray and associate his name with, not only towards the shipping world but also towards its sphere of influence, its national authorities, its clients, its associates and even its family and friends. The fact that some banks are starting to refuse to finance Russian cargoes (whether or not under price caps) might help some of them to choose quickly.

2022 should have been the year when Tanker Owners seriously focused on CII, EEXI and decarbonization rules. It is clear that their technical departments did so, but Tanker Owners (the decision makers) were more mostly concerned in 2022 with market volatility and seizing opportunities. We believe that in 2023 they will have no other choice but to catch up and put in place their strategy to accompany decarbonization. Typically, towards the end of the year HFO consuming vessels will need to start making their choices regarding their trading patterns, and the speed and consumption that they can sustain in order not to end up in the D or E category of the CII.

At the start of 2023, the orderbook is low. Newbuilding prices are historically high and are discouraging many Owners from placing orders. There will be orders placed this year, but these should be driven mainly by necessary and indispensable fleet renewal or by specific employment.

The biggest question for the future and the new orders remains the same: what is the fuel of tomorrow, will it be methanol, LNG, batteries, ammonia, biofuels or hydrogen? The question remains unanswered and there is no global consensus towards the answer and the direction that will be taken. Looking to the past with the failure of Betamax against VHS (for those who remember), we know that the best solution is not automatically the one prevailing.

***Picture: CEDAR**, Suezmax, 157,310 Dwt, Built 2022, Operated by Euronav.*

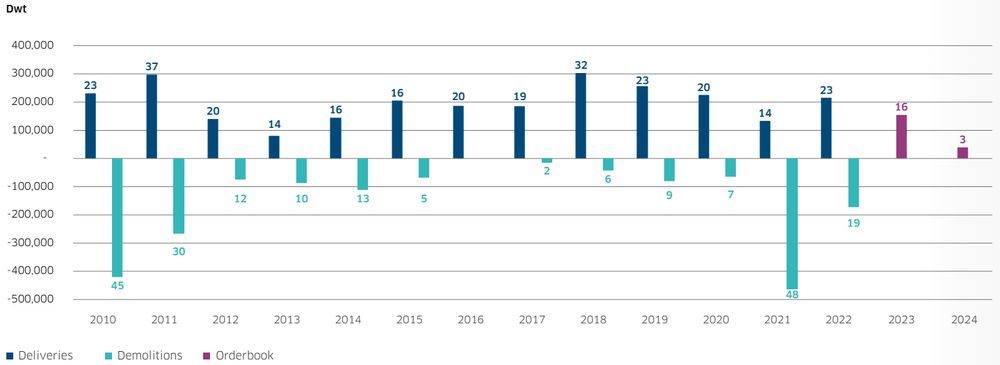
Chemical & Small Tankers

2022: At last tailwinds for chemical Owners

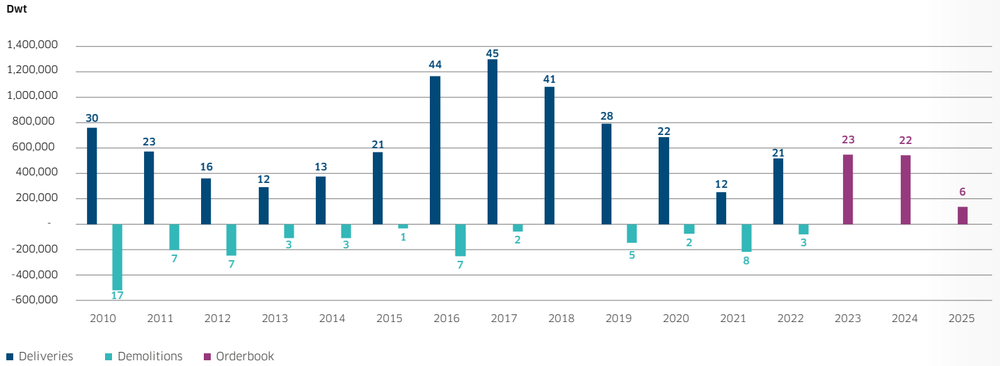
The chemical tanker segment was marked for years by overcapacity, with Owners expecting an improvement against the backdrop of declining deliveries. Finally, 2022 was the year Owners had been waiting for. The main reason for this was related to the Russian attack on Ukraine. Sanctions placed upon Russia by the G7 group of countries, the EU and others led to the modification of some trading patterns, thereby, increasing ton-miles. Accordingly, clean tanker demand was boosted, and swing tonnage moved out of the chemical market, improving opportunities for chemical tanker Owners. Although bunker prices rose, Owners could easily absorb the higher costs through the significant rise in spot freight rates across multiple trade routes.

FURE VINGA
(Chemical / oil tanker, 17,999 Dwt, Built 2018) moored alongside the old Royal Navy ship of the line HMS Belfast on the River Thames near Tower Bridge.

SST & Part SST Chemical Tanker (up to 19,000 dwt)



SST & Part SST Chemical Tanker (19,000 dwt and up)



CHARTERING

Fleet development and chemical demand

After 2016, the strong orderbook threatened a healthy supply-demand balance in the chemical tanker market as a significant number of deliveries hit the fleet. But the growth of the stainless steel chemical fleet finally started to decelerate, going from 1,337 ships in service in 2020, down to 1,307 ships in 2021.

However, this increase remains a reasonable progression and the stainless steel orderbook now stands at 5.2% of the existing stainless steel fleet on a number-of-ships basis, and 6.5% in deadweight tonnage terms. As of today, the stainless steel chemical fleet consists of 1,330 ships in service, which marks a halt to the fleet's growth. Deliveries peaked across 2016-18, as on average 67 ships were delivered each year. In 2023, 38 stainless steel tankers are slated to enter the fleet while another 25 are set to be launched in 2024.

Demolitions stayed at a very low level across 2016-2018 and only boomed in 2021 as 56 ships were sent for scrap. Last year, 22 ships were sent for scrap. This increase in demolition helped to rebalance the fleet.

As per our end-2021 forecast, the fundamentals were favorable for Owners in 2022 as fleet growth was limited. As we move into 2023, the orderbook remains small, yards are mostly full with limited availability until 2024-2025. In terms of demand, the chemical ton-miles grew by 3-4% during 2022. This supported a continued recovery after a few years of soft markets.

The war in Ukraine commenced during 1Q22. This led to sanctions being imposed upon Russia which rapidly shifted crude and clean petroleum flows. It also resulted in longer voyages, increasing ton-mile demand, and strengthening clean tanker demand. This situation absorbed the swing tonnage which focused on CPP trade most of the year and remained out of the chemical business. Consequently, the fleet available for chemical cargoes was reduced and freight rates increased progressively during the year.

European chemical production carried the burden of the soaring energy prices reducing their competitivity against products coming from the US, Middle East or Asia. Meanwhile, the continued zero-tolerance approach to Covid in China created port congestion, and thereby tightened vessel supply in the area.

Owners had to support a sharp increase in bunker prices during 2022 but relief came from the high spot rates. In most COAs, there are bunker adjustment clauses which were triggered to pass additional bunker surcharges onto Charterers.

COA discussions were difficult at the end of 2022. As spot rates were double or more compared with the previous year, Owners felt it necessary for COAs to reflect a substantial part of these increases. When there was a cap range, Owners asked for the maximum increase possible and in the cases where there was no cap, Owners asked for steep increases or they dropped the COA, instead preferring to take the risk of entering the spot market. Indeed, this reflected Owners' sentiment that high rates will persist throughout 2023.

The growth of the stainless steel chemical fleet finally started to decelerate

*Picture: **MORBIHAN**, Product Tanker, 9,150 dwt, twin azimuth thrusters and diesel-electric propulsion. Delivered in 2021 by New Yangzi Shipbuilding. Owned by Rubis Eastern Caribbean Barbados. The vessel services French Guiana.*

The environmental challenge

Starting from 1 January 2023 it became mandatory for all vessels to calculate an EEXI (Energy Efficiency Existing Ship Index) to determine the energy efficiency of their design and to start the collection of data for the report of their annual carbon intensity indicator (CII). As with the EEXI, the CII of ships will be rated: A, B, C, D, E (from best to least performing). Both measures are part of the IMO strategy to reduce CO_2 and GHG ship emissions.

The application of the new rules raises many questions. Some chemical tanker Owners claim that the CII rating is not completely fair as a ship's rating is hit when they spent more time in port. In the case of chemical parcel tankers, they may call at multiple berths to load or discharge for different Charterers which potentially could see vessels on such voyages receive an inferior CII rating than if they were calling one port/berth to load and discharge a sole cargo. Furthermore, port closures, bad weather or force majeure are not considered.

In the EU, shipping will be included in the Emission Trading System (EU ETS) in 2024. This will include all ships above 5,000 GT and will set a cap-and-trade system. The cap will become tighter every year to reach the EU's target of a 55% reduction in GHG emissions by 2030 compared with 1990.

The next question is to know what will be the cost to shipping of such environmental regulation and how the burden will split in the case of a time-chartered vessel.

BIMCO has recently published its CII Operations Clause for Time Charter Parties. This publication appears universally disliked across the shipping industry as, under the clause, the time charterer is obligated to operate and employ the vessel in a manner directly reflecting the CII Regulations. On the other hand, the Owner has only the due diligence (not the obligation) to operate the vessel in a manner minimising its fuel consumption.

Pressure remains strong on Owners to reduce the environmental footprint of their vessels. The current stainless steel orderbook stands at 69 ships, 13 of which are dual fuel with LNG or batteries (combined accounting for 19% of the total orderbook). Of these, Fairfield Chemical Carriers has ordered four 26,300 Dwt LNG dual-fuel ships set for delivery between 2023 and 2025. These will also be equipped with energy-reducing hulls and other technology to reduce their energy use. Meanwhile, four LNG dual fuel ships were ordered by Essberger for delivery in 2023.

Although the chemical tanker market was supportive for Owners last year, it had been challenging during the previous years. Since chemical tankers are expensive due to their sophistication, Owners remain hesitant to commit more capital to equip their newbuildings with energy saving technology. The question of what the fuel of the future will be remains unanswered. Owners are conscious that they need to make a step towards improving the fuel efficiency for their new vessels. However, opting for one particular fuel is very sensitive since it can jeopardize the whole investment if during the ship's lifetime that particular fuel becomes unavailable or is too expensive. The current trend is for new orders to be propelled by an oil-based marine fuel but be equipped with technology to make them alternative fuel 'ready'. This enables the ship to be retrofitted to operate with alternative fuels including LNG, methanol or ammonia, at a later date.

LNG appears the most opted-for solution across the short term. However, it is hazardous to predict the fuel of choice in the future due to the number of unresolved questions. As these include: what will be the global supply of each fuel and, what will be their availability on a port-by-port basis? Furthermore, there remain hurdles regarding their safety and the construction and updating of bunkering infrastructure to permit their delivery onto ships.

*Picture: **FURE VINGA**, Chemical / oil tanker, 17,999 Dwt, Built 2018.*

Northwest Europe: FAME, CPP and DPP

2022; and what a huge change from the year before! Russia's unprovoked invasion of its peaceful neighbour Ukraine threw the world and the markets into enormous turmoil. The result of which saw huge changes in freight levels.

From February, freight rates across the entire spectrum of CPP for Coasters (4-9,000 cbm) and Intermediates (14-22,000 cbm) trading Baltic, UK Continent, Mediterranean and Black Sea went into overdrive. Each new fixture set a new high benchmark; Charterers were seeing one freight one minute, followed by another substantial increase the next; they couldn't keep up. Owners were fully in the driving seat! For instance, at the start of the year, 12,500 tonnes of condensate/naphtha, transported between Braefoot Bay and ARA saw lumpsum levels of around $175,000. This rapidly more than doubled and by early December stood at $430-440,000. Meanwhile, transporting 5,000 tonnes of FAME from ARA to Fawley had been trading at a pitiful $65-70,000 lumpsum and at its height soared to nigh on $185-195,000.

The DPP market also evolved over the course of the year, and not to the benefit of Charterers. Driven by a combination of years of low freight levels and as numerous vessels reached the 15 years age limit, a number of vessels were cleaned up and moved away from this market. Once Putin took his calamitous decision, Charterers were scrambling for tonnage on a "first available" basis and freight levels went into orbit accordingly! For example, in January, one of the benchmark routes for transporting 15,000 tonnes of DPP between Grangemouth and ARA was trading at around $160,000 lumpsum. This quickly passed the $300,000 level and by December stood at $450,000 before the market quietened just before Christmas.

As an aside, the usual orderly and calm process of fixing 5,000mts FAME cargoes in the Mediterranean took on a new twist as the Coasters were drawn by sky high freight rates in the Black Sea, leaving a lack of tonnage in the Mediterranean, and in turn forcing up freight levels there too!

All in all, this left a new world order for Charterers to take in and adjust too.
The main concern now is who will invest in new tonnage and fleet renewal? For the Intermediates the only Owner seemingly willing to take the plunge in emphatic fashion is Furetank of Sweden; they have a large number of new builds on order. Meanwhile, other Owners can only look on in envy. Furetank stands a good chance of almost cornering the market in the future while others dither and sit on the fence! In the Coaster sector, Turkish Owners are the only ones who seem to have taken on the mantle and consistently invest in this sector.

For the future we see some period of re-adjustment in the market with freight levels coming down again to more "reasonable" levels. However, any period of substantial and sustained activity could see this rapidly change.

The main concern now is who will invest in new tonnage and fleet renewal?

Translatlantic market

As with many other markets, the Transatlantic market saw an upturn in 2022. This came in the wake of Russia's invasion of Ukraine which saw a rapid redrawing of oil trade flows.

After a rather calm start to the year, the outbreak of war at end-February led the Transatlantic eastbound market to firm up rapidly across the second quarter with what initially started as a simple compensation for increased bunker costs, rapidly proved to be the spark for a larger fire. As many western firms boycotted Russian-produced chemicals, European players were unable to source their feedstock locally and had to rely on US and Asian imports. This increased the call on tonnage.

Chemical tanker markets were also boosted indirectly by a strong CPP tanker market dragging swing tonnage away from chemical trades, which further limited the availability of chemical tanker tonnage in an already tight market.

After this hectic second quarter, the third quarter seemed more peaceful even if the fundamentals listed above persisted. Accordingly, freight increases decelerated to a more timid pace up until the fourth quarter.

Indeed, as winter approached, the energy crisis loomed large over Europe, production costs rose significantly for the region's chemical producers, thereby opening an arbitrage with US and Asia, not only for feedstock but also for refined products. This strengthened demand which helped to propel freight rates higher.

On westbound transatlantic trades, the start of the fire was not as strong. Accordingly, both Q1 and Q2 only saw moderate increases in freight, and was largely only driven by bunker compensation, and limited tonnage availability as the European market and CPP tanker demand were taking tonnage out of the Transatlantic market. But as the year went on, and European producers managed to claw back momentum, COA volumes rose, and the spot market followed.

Northeast Asian and Chinese domestic market in 2022

Last year proved to be the best year for chemical tanker owners over the last twenty years. There are several reasons for the surge in the chemical tankers market. On the demand side, the total fleet remained relatively stable. While in contrast, it was on the supply side where the main changes occurred. The war in Ukraine triggered a surge in the CPP market and drew some swing tonnage from the chemical tanker market to the CPP market. Notably, MR tankers enjoyed higher earnings in the CPP market and therefore the supply of chemical tankers was reduced. Another reason was port congestion which absorbed certain chemical tanker tonnage and aggravated the supply shortage. Accordingly, spot freight rates increased drastically in the wake of the unbalanced supply and demand picture, so that rates for some trades doubled. Some owners are very confident with the outlook in 2023, but there are still some uncertainties ahead, including the evolution of the war in Ukraine and the possibility that the world economy could enter a recession.

The Northeast Asian (NEA) market in the first quarter was very active, not only intra NEA, but also for southbound and long haul routes to Europe. Heated by the war between Ukraine and Russia, bunker prices strengthened in March. Furthermore, export volumes from China to Europe and US increased in March, and Charterers were very active exporting cargoes including Acetic Acid, SM and Phosphoric acid. The main driver behind the increase in export volumes was the very low price of the chemical products in domestic China compared with international prices.

The market was mixed in the second quarter. Although the market remained stable early in the quarter, the lockdown in Shanghai, which started at the end of March and continued throughout April, led to the very low efficiency both of mid China ports and vessels. As a result, the tonnage remained tight and freight rates stayed at high levels. Even though, the export of chemicals from China continued to boom, mainly driven by the continuing fallout from the Ukrainian conflict. Towards the end of the second quarter, the market calmed down as cargo movements were not as active as in previous months. However, freight rates remained supported due to the high bunker costs and strong Chinese exports to the EU and US.

The third quarter saw the market soften due to weak downstream demand during the summer. China's Zero-covid policy put a lot of downward pressure on its economics and further impacted domestic demand. Some major producers continuously cut their operating rate and some producers shut down their plants entirely for maintenance. This also combined with lower bunker costs to lead freight slightly lower. Indeed, Owners struggled to fill up their tonnage with competitive freight rates.

The market was quite flat during the fourth quarter. COA volumes followed usual patterns, but the spot market was hindered. Due to the prolonged zero-tolerance Covid-19 policy in China, the demand from end users was low and freight rates fell slightly due to a big drop in bunker prices. Some of the Owners shifted their ships to the Southeast Asia-India market in the wake of a robust palm oil market. By the end of the year, the market had recovered its busy status, largely in the wake of improved confidence as Beijing eased its Covid-19 restrictions. Accordingly, freight rates regained their high levels, and all available space was covered very quickly. As the year turned and COA renewal negotiations were concluded, it appears that most of the new COA freight rates have strengthened.

To summarise, 2022 was a fruitful year for all owners of chemical tankers. Looking into 2023, a few optimistic participants, especially owners, are very confident in the market and forecast another bullish year, whereas the market view of most of the owners and charterers is quite the opposite. They expect that the firm market will not persist and will experience a downturn due to a looming global recession. Nonetheless, they expect China's post-Covid bounce to lead to a stable rebound in intra-regional and global trade.

Conclusion

2022 was the year of Owners' momentum as they finally enjoyed positive results after many years of challenges and uncertainty. The question is for how long these market conditions will persist? One of the main drivers was the post-Ukrainian-conflict shift in the CPP market which made the issue of overcapacity almost disappear.

Into 2023 the chemical tanker market will, above all, depend on how geopolitics evolve and whether swing tonnage will remain more interested in the CPP market rather than in chemicals. On the demand side, even if chemical trade is less volatile than oil trade, it could be hit by high inflation and increasing interest rates, which could slow down its growth prospects. Meanwhile, on the supply side, the requirement to reduce the environmental impact of shipping, together with high newbuilding prices are likely to continue to limit shipowners' interest in constructing new vessels.

***Picture: BITU RIVER**, Bitumen Tanker, 16,542 dwt with twin azimuth thrusters and diesel-electric propulsion. Was delivered in October 2022 by CMJL, Yangzhou, for Rubis Asphalt Middle East (RAME).*

SECOND HAND MARKET

Small tankers and chemical carriers (3,000-25,000 dwt)

Stay on the scene.

2022 has been a keeper for small tanker owners of all types.

The number of transactions fell by 38% with only 143 sales recorded (down from 230 transactions in 2021). These included 42 stainless steel tankers and 4 bitumen tankers. The much healthier rates across the board changed the nature of transactions. The price equilibrium used to be dictated by the Buyers with Sellers exhausted by many years of low rates and firm bunker prices, not to mention impatient financiers breathing down their necks to repay loans. But 2022 was much more favorable to the Sellers, finally. At last, it made sense again to invest in second hand product and chemical tankers. Hence a much younger age of vessels sold: 13 years old for coated tankers and 15 years for stainless steel ships. Owners never had it so good since the heydays of 2007. Quite logically, less than 1% of the active fleet has been sent to breakers in 2022. Stay on the scene, like money-making machines, was the chant.

The orderbook has further shrunk to 1.89 m dwt, accounting for 4 % of the active fleet. And for good reasons. Not only have newbuilding prices considerably increased since the draught of 2020, but smaller vessels are disproportionally impacted as the yards, able to compete on containerships or bulk carriers, lost appetite for smaller newbuilding projects overnight. Also, the choice for green propulsion is even more difficult for smaller vessels (of all ship types) as engine makers first develop new products for the larger sizes. As of today, dual fuel LNG or Methanol engines are essentially available for vessels of 15,000 dwt or above. Hydrogen or ammonia are simply not an option in the foreseeable future for this size range. Many owners with the best intentions to renew their fleet can only be extremely cautious not to order the last generation of pure diesel engines. Lest we forget, the pay-back time for retrofitting scrubbers remains prohibitive for small tankers.

The average size of coated tankers sold jumped by almost 40% to 12,000 dwt in 2022 and also increased for stainless steel now reaching 15,500 dwt.

Bunker prices provided the biggest scare: in the immediate aftermath of Russia's invasion of Ukraine, VLSFO prices soared by $300/mt to peak at $1100/mt in June. That's a whopping $18.000 per day for a J19 chemical tanker sailing at 14 knots. However, most owners survived these extra costs thanks to extremely rich spot rates. Notably, from the third quarter onwards, the niche market of IMO 2 coated tankers of 6,000 to 10,000 dwt saw average rates 100% higher than the historic of 1 USD per metric ton in TCE terms.

2023 Outlook

The conflict raging in Ukraine has been the obvious cause of the sudden tightening of the market. Nonetheless, something was written on the wall ever since the 2008 financial crisis put the brakes on the ordering of new vessels, thereby progressively increasing the age of the fleet. Indeed, the fifteenth anniversary of the Lehman Brothers collapse can be seen in its age profile. We therefore expect sale and purchase prices to remain strong well beyond the end of the war in Ukraine. We also foresee fleet renewal starting with the bigger segment -15.000 dwt and upwards, with the smaller units having to wait for appropriate green propulsion solutions.

***Picture: DEMERARA**, chemical / oil tanker, 9,188 Dwt, Built 2022.*

LPG

Moving the Goalposts

There was a sense of cautious optimism at the start of 2022, even with a new variant of Covid-19 becoming prevalent in many areas. However, the War in Ukraine soon took the World's attention away from the virus, followed by inflation concerns as a result of many stimulus packages aimed to counter econimic downturn in previous years.

CRYSTAL OASIS
VLGC (Very Large Gas Carrier), 82,000 cbm, built by Kawasaki Heavy Industries Ltd., Sakaide, Japan, delivered in June 2022 and owned by Kumiai Navigation

At the start of the year,, the World Bank predicted GDP growth for the year to be 4% for the US and Europe, 5% in China, and 9% in India. Although these forecast growth rates were, in most cases, lower than growth in 2021, there was a sense of normalization returning to the markets, and discussions of inflation were not widespread. However, economists underestimated how federal aid, supply shortages, and pent-up demand would conspire to accelerate inflation. But mostly they did not envision that Russia would invade Ukraine in February which injected chaos into global energy and food markets. Superimposed was China's continued zero-Covid policy which, through its efforts to protect health of its citizens, slowed economic growth there.

By the end of 2022, actual GDP growth was a few hundred basis points lower than estimated in January, and the real global GDP growth for the year was 2.1%. Crude oil and natural gas prices soared in the first half of 2022 reflecting supply concerns related to Russia's invasion of Ukraine and as global inventories had, by then, dropped to low levels. However, prices generally decreased in the second half of the year as concerns shifted to whether a looming economic recession would clip demand.

LPG demand and trade increased during 2022 with China's demand increasing due to PDH expansions and as new projects came onstream. Accordingly, China's seaborne LPG imports increased by about 10% from 2021 to 26.32 mn tons with about 7.8 mn tons imported from the US and 7.5 mn tons from Iran. Meanwhile, European demand increased as the region shifted its energy supply away from Russia. All told, global LPG trade increased by 6.96% y-o-y to 130.36 mn tons in 2022 which is more than double the 63.66 mn tons traded in 2014. Notably, Middle Eastern exports rose by 19.2% in 2022 with India and China remaining the main destinations.

2023 should prove to be an interesting year in the VLGC segment, with a large newbuild program scheduled to hit the water.

A total of 46 vessels are on course to be delivered through the year, increasing the global VLGC fleet from 335 to 381

CHARTERING

VLGC

During the early part of the year, in the very large gas carrier (VLGC) segment, we saw freight rates steadily drop on the back of tightening arbitrages and a lack of demand. However, towards the end of the first quarter, rates started to rebound and push up on the back of stronger Indian demand, increasing delays in Panama and widening arbitrages. Despite the increase in rates, Owner's earnings were initially affected by the sharp increase in bunker prices which was primarily driven by the Russian invasion of Ukraine.

Rates continued their upward trajectory in 2Q22 as the US – Far East arbitrage widened in the wake of large builds in US propane inventories. Additionally, delays in Panama started causing serious headaches for owners and charterers, with waiting days reaching double digits in both directions.

As we got into the warmer summer months, there was a correction in rates. BLPG1, the Middle East Gulf to Japan voyage, dropped from $105/mt to $55/mt between the end of May and the middle of August, including one of the largest ever single day falls, of $9.285/mt, at the start of June. BLPG3, US Gulf to Japan, observed a similar fall, from $140/mt to $92/mt over the same period. However, these drops were short lived, as from September onwards the rates went into overdrive.

Builds in US inventories drove a widening of arbitrages in the final quarter of the year. The large stock levels, a lack of vessel availability, and delays in Panama and Indian ports saw spot rates jump to record highs of $148/mt for BLPG1, $132/mt for BLPG2, and $207/mt for BLPG3 at the end of November and start of December. Owners' earnings for the three benchmark routes peaked at around $138,000/day, $160,000/day and $122,000/day, respectively, across the same period.

Delays in Panama reached record levels in November which helped freight rates firm. Waiting days for un-booked vessels transiting the Neo-Panamax locks reached over 3 weeks for both northbound and southbound transits during the month which had a major impact on vessel availability in the US Gulf. Auction slots were bought for over $2.6 mn. This led to some owners deciding to ballast via the Cape or Suez at times.

Vessel availability remained thin both East and West throughout the final months of the year, which allowed Owners to remain bullish and keep rates high. Despite a drop in the final weeks, the year ended with rates still elevated. The geopolitical situation in Ukraine may not have caused as much havoc in the VLGC segment as it did in others, but nonetheless there were some indirect effects. High natural gas prices led to European producers keeping more propane in the NGL stream, or burning it as refinery fuel, which resulted in record transatlantic flows from the US to Northwest Europe and the Mediterranean. Europe imported 9.82 mn tons from the US in 2022, compared with 6.57 mn tons in 2021 and 6.94 mn tons in 2020.

2023 should prove to be an interesting year in the VLGC segment, with a large newbuild program scheduled to hit the water. A total of 46 vessels are on course to be delivered through the year, increasing the global VLGC fleet from 335 to 381, providing that no scrapping takes place. The last time such vast fleet growth over a relatively short period took place was in 2015 and 2016, when a total of 79 VLGC's entered service. From July 2015 and October 2016, 12month time-charter rates dropped from around $73,000/day to $16,000/day and BLPG1 spot rates dropped from $138/mt to a low of $18/mt over a similar period.

However, there are some obvious caveats to the idea that rates will weaken on the back of the new tonnage, as market conditions do not mirror 2015-2016. One being the new IMO carbon regulations, the CII and EEXI which should, in theory, put performance related restrictions on around 50% of the existing fleet.

LGC

The large gas carrier (LGC) fleet continued its impressive utilization levels in 2022, as the small fleet of only 21 vessels globally served their trades in both LPG and ammonia.

The LGC market is strongly influenced by what is happening with their larger VLGC counterparts. However, they generally remain less exposed to market volatility as a larger percentage of the fleet is fixed to term deals compared to their larger brethren. This was evident when VLGC rates dropped in early 2022, and most of the LGC Owners' earnings remained protected.

As the world reacted to the conflict in Ukraine, the LGC segment paused to see which direction it would go. Many assumed that the shutdown of ammonia exports from the Baltic and Black Sea would see more length within the LGC fleet and lead to more trader relets. Alternatively, some felt that the increase in ton-miles required to replace the lost tons would mean more vessel demand in the ammonia segment and drive rates upwards. However, it was ultimately the smaller sizes that were absorbed into this market, and the LGC segment's product split between ammonia and LPG remained steady, with 8 vessels under ammonia and the rest under LPG.

As bunker prices rose sharply after the Ukrainian conflict started, Charterers had less of an appetite to take conventional LGC's on term business. As such, LGC owners were obliged to compete in the spot market and price themselves competitively against VLGC's. Owners were able to exploit weak VLGC availability and take advantage of the high rates that were seen in the second half of the year.

As VLGC availability dwindled, their rates continued to push higher and LGC rates eventually hit what many thought would be their ceiling. LGC spot rates usually keep up with their larger counterparts to a certain level, but then normally struggle to go beyond the circa $40,000/day mark as their size disadvantage becomes more apparent, particularly when bunker prices are high, as they were throughout 2022. The global LGC fleet is largely non-scrubber fitted, with only three units (Clipper Jupiter, Clipper Venus, Clipper Saturn) fitted with scrubbers and none are dual fuel.

As the VLGC sector reached record levels in 4Q22, the LGC owners with spot exposure were able to take full advantage and push rates beyond their normal limits, with reports of fixtures being concluded at circa $75,000/day.

In November, Neopanamax waiting times reached over three weeks which meant LGC units became viable for the transpacific US – Asia trade, as their smaller beams allow them to pass through the Panama Canal's old locks at reduced time and cost.

Ironically, although 2022 saw numerous green and blue ammonia projects announced and discussions about how shipping infrastructure can develop to meet the increase in ammonia demand, the LGC fleet, which as of today is the largest vessel size engaged in the ammonia trade, was tempted away from ammonia in favor of LPG cargoes. This was driven by the aforementioned issues in the VLGC supply which saw rates for carrying LPG soar to levels the ammonia industry could not compete with.

Picture: ***SEATEAM****, 1MGC (Midsize Gas Carrier), 38,000 cbm, built by Hyundai Mipo Dockyard in South Korea, delivered in February 2022 and owned by Thenamaris.*

MGC

The midsize gas carrier (MGC) market, like the LGC market, is influenced by the VLGC sector. As the VLGC market dropped at the beginning of the year, less charterers felt inclined to commit to MGC term coverage.

However, as the VLGC market faced an up and down start to the year, the MGC market managed to remain relatively steady, as open vessels were quickly picked up and a small handful of Owners were able to influence the market.

The conflict in Ukraine caused some turbulence in the MGC ammonia segment, as vessels struggled to cope with the increased ton-mile demand as Europe and North Africa were forced to seek product from further afield after hubs in the Baltic and Black Sea were closed. Prior to the invasion, there were 32 MGC vessels under ammonia and this number fluctuated throughout the year, before increasing to a peak of 37 as the year ended.

As is often the case within the MGC segment, the summer months can see a slow-down of activity, and 2022 was no exception as August saw plenty of prompt availability. However, this did not persist and after a flurry of fixtures the market firmed and balanced once more.

As the VLGC market picked up towards year end, MGC owners were pleased to take advantage of the trickle-down effect starting to come into effect. In the final quarter of the year, with the VLGC spot market reaching records levels and the LGC market essentially being booked out completely, the MGC market was able to take full advantage, securing strong rates on both short-term and long-term deals.

By mid-November, the MGC market was completely sold out, with traders managing to snap up any loose tonnage.

Towards the end of the year, attention turned to the fleet of newbuildings that are scheduled to hit the water in 2023. Charterers initially remained hesitant to fix these newbuilds on long term charters, with most preferring to take a step back to see how the market would develop. However, as the year ended, the first scheduled newbuilds started to find employment at robust levels.

Rates managed to stay strong throughout last year as the influx of new tonnage did not test owners resolve as many players thought it might. 2023 will prove to be an interesting year as Owners' bullishness will be put to the test again.

The MGC segment is growing, both in terms of number and size. Exmar's 45,000 cbm units, scheduled to be delivered in 2024, represent the largest MGC's in the orderbook which at end-2022 totaled 30 vessels for delivery across 2023 - 2025.

Ammonia

2022 saw severe disruption to the ammonia market, mainly due to the conflict in Ukraine. At the end of 2021, the market was tight in all regions and the overall sentiment was that the market would peak in early 2022. However, with exports from Ukraine and Baltic Sea ports halted after the invasion, this was not the case.

Natural gas and crude oil prices skyrocketed after the invasion, pushing ammonia prices in the same direction. The largest price increases were unsurprisingly in the West, but Eastern producers also raised their prices as more demand was seen for their product.

*Picture: **ECLPISE**, Handysized Gas Carrier (LPG/Ethylene), 22,000 cbm, built by Jiangnan Shipyard Group in China, delivered in January 2022 and owned by Petredec.*

Ammonia pricing reached its peak in March as Baltic and Black Sea hubs were shut off. High pricing stifled demand from industrial and fertilizer sectors, causing an overall lull in global export volumes. As a result of the drop in demand, product prices started to drop from their initial spike. However, due to the lack of buying, shortages gradually became evident during summer and demand started to return. This, along with another spike in natural gas prices, drove ammonia prices higher once more, albeit at a more gradual pace. Rising gas prices in Europe led to numerous plant closures and slowdowns in August, prompting players to turn to long-haul imports instead. Accordingly, global ammonia prices strengthened, pricing Asian buyers out as they struggled to match the premiums being paid by the European importers, thereby leading to product shortage in Asia.

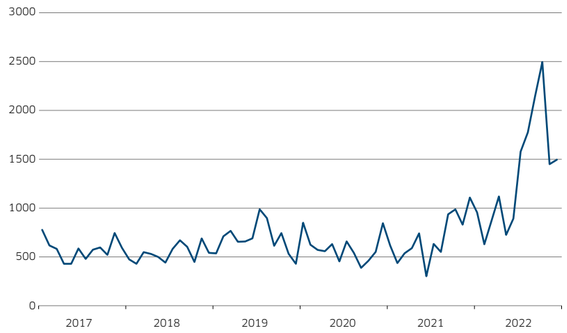
The abrupt halt to exports from the Black Sea and Baltic took a combined total of more than 300,000 mt per month off the market, most of which would have been imported to Europe or North Africa. As a result, ton-miles in the ammonia segment increased significantly, as new longer distance trades were established. North Africa's largest importer, Morocco, satisfied most of its demand by increasing imports from Trinidad, the US, Saudi Arabia, and Egypt amongst others. Whereas Europe continued to import heavily from Algeria, as well as stepping up intake from the US, Trinidad, Indonesia, and domestically from the Netherlands. The increased ton-miles led to the ammonia shipping fleet becoming stretched and unable to meet the new demands. The number of vessels under ammonia, across all size segments, increased by 24% from 70 at the end of 2021 to a peak of 87 in November 2022.

As the year drew towards a close, natural gas prices eased which allowed European producers to turn away from long-haul cargoes. In November, Fertiberia, OCI, BASF increased production at their plants in Huelva, Galeen and Antwerp, respectively, which resulted in a drop in the ton-miles of the global ammonia carrier fleet.

As a chaotic year finally ended, the market had a more balanced look. European producers started scaling up production, meaning that they were not relying as heavily on imports from Asia, the US and Trinidad. Furthermore, winter demand was seasonally low, and natural gas prices were more modest which pressured ammonia prices downwards.

European ammonia imports

Million ton-miles



Petrochemical gasses

The New Year started off firm as Ethylene activity from the US Gulf carried over its strength from 2021. With strict covid protocols in China still in place, demand was slow in Asia creating more opportunities for US-Europe trade instead. Ethylene exports from Enterprise's Houston terminal hit a record of about 112,000 mt in January with majority of volumes heading into Europe, thereby keeping tonnage in the US short, and open in Europe.

In February, following explosions, YNCC in Korea faced two shutdowns to their crackers No.1 & No. 3. Accordingly, product prices for both Ethylene and Propylene increased in the region.

Additionally, naphtha and crude prices hit multi-year highs in the wake of the Ukraine conflict which impacted both shipping and trade. Owners faced higher fuel prices and accordingly pushed for higher freight rates. Meanwhile, traders faced an overall increase in operational costs while the continuous changes in sanction rules eventually led to less product movements.

With the upward trend in oil prices and production costs, we saw most producers having to reduce their volumes or for those that had contracts in place, maximize their COA quantities to avoid Owners' demands for higher spot rates. In Asia, major cracker operators also had to face higher feedstock costs during 1Q22 which eroded their margins. Weak downstream demand pressured olefins prices lower, causing regional producers' operating rates to fall, a trend which persisted throughout the entire year.

US ethane costs were driven higher by soaring natural gas prices, both at home and abroad. Consequently, US ethane prices increased by 95.5% in 1H22, from 34.0625¢/USG to 66.625¢/USG. This doubling in ethane feedstock costs expectedly eroded US cracking margins significantly. Ethylene in the US is tied largely to natural gas and ethane prices, whereas in Europe and Asia it is more tied into crude oil and naphtha costs. However, with ethylene inventories much higher year-on-year, and demand for ethylene weaker from polyethylene producers, ethylene prices in the US did not follow the natural trend in the wake of with Ethane but remained stable throughout the first quarter.

The effects from the war in Ukraine continued in the second quarter, and with uncertainty persisting, trading movements were kept to a minimum with only COA volumes being active. Despite the spot trading being quiet, freight rates remained on a high as Owners focused on lifting volumes for their contract partners. This resulted in tonnage remaining tight on the coasters overall. A few traders tried to develop some spot cargoes, but with high freight and little margin, this generally made deals difficult to conclude.

Ethylene and Ethane movements were the only regular exports keeping the handysize ships busy. US ethylene inventories increased by 28% from the previous quarter to 1.45 mn tons. Furthermore, this reflected soaring US production which hit a record 9.2 mn tons, 31% more than 2021. This build played an important part in keeping spot prices low.

We also saw Middle Eastern ethylene activity more than double in 2Q22 with about 110,000 mt reported to have been exported mainly from Rabigh and Ruwais compared with the previous quarter when only about 45,000 mt was exported. This kept the small 12,000 cbm ships busy with products heading both West and East as we saw more demand with easing of Covid restrictions in China. Meanwhile, Japan and Taiwan suffered from Ethylene supply shortages due to plant outages.

Propylene trade improved in the second quarter as a few new Chinese PDH units achieved on-spec production. For example, Jiangsu Sailboat reach on-spec propylene at their new 700,000 t/yr propane PDH plant, Zibo Xintai achieved on-spec propylene at their 300,000 t/yr PDH unit in Zibo and Tianjin Bohai Chemical achieved on-spec production at their 600,000 t/yr plant in North China. With South America's propylene production reduced due to planned maintenance in Brazil, some product from Asia headed to Mexico and Colombia.

In Q3, the PrefChem facility in Pengerang, Malaysia finally started operations in early July after many on-spec issues and delays during the first half of the year. Consequently, we saw both Propylene and Ethylene exports in the market for intra-Asia trade. However, by end of the month, the plant had to shut down due to operational issues leaving traders with little confidence that more products will be exported from it during later in the year.

Ethylene imports to China increased to a five-month high of 169,594 mt in July, up by 13% from June and 30% more than 2021. Meanwhile, incremental imports were reported mostly from the Middle East, Japan, and South Korea.

In September, Propylene imports to China reached their highest monthly volume since December 2019 as they soared by 75.5% (133,454 mt) compared with the previous month. The spike came as internal supply had largely been affected by plant shutdowns and the launching of new downstream units. South Korea delivered 49% of the imports (153, 021 mt), Taiwan 37% (114,722 mt), and Japan 6% (19,023 mt). Other exporters such as Russia, The Philippines, Malaysia, and Thailand accounted for a combined 7% of the imports.

Chinese petrochemical producer Liaoning Kingfa started their new 600,000mt/yr PDH unit in Panjin City. The unit started running at a maximum utilisation rate of 70% which created demand of around 720,000 mt/yr of propane. The cracker is fed by imports to Liaoning in Northeast China.

In Europe, movements were a little bit slower as operating rates at crackers remained low as water levels along the River Rhine limited the transport of raw materials into central Europe. Furthermore, we saw a decrease in Butadiene volumes shipped from Europe to US in July as only about 30,000 mt was exported compared with 40-45,000 mt over the previous months.

By the beginning of the fourth quarter, Ethylene demand in Europe was low, as cracker operating rates were reduced in the wake of maintenance being undertaken on three facilities across France and Germany. Meanwhile, further downward pressure on demand came from strikes at two TotalEnergies' refineries and a third which reduced its output due to feedstock issues. These strikes persisted for more than three weeks and staff only started returning to work in the second half of October.

Consequently, ethylene movements from Houston shifted to the East which saw the majority of the handysized and 12,000 cbm ethylene fleet doing long-haul voyages. In turn, this kept availability tight until end of the year.

Weak demand for petrochemical products, both domestically and for exports, drove Japanese cracker rates to a nine-year-low in November. The average cracker rate fell 2.6% from October to 82.2%, this was 12.9% lower compared with 2021. A combination of high prices, a decline in car production, the global macroeconomic slowdown, and a weak Yen pressured down demand for petrochemicals.

In Europe and as expected, coaster tonnage remained tight as LPG activity picked up in the winter months. VLGCs saw record high rates which trickled down into the smaller segments and combined with increased spot cargo movements in November and December.

New plants in Asia

- Sinopec Zhenhai Refining and Chemical company achieved on-specification olefins production in early January. The cracker can produce 600,000 mt/yr propylene, 300,000 mt/yr polypropylene and 270,000 mt/yr propylene oxide.
- Qixiang Tengda, a private Chinese company, achieved the on-specification production of propylene in March at their new 700,000 mt/yr PDH plant at Zibo in the east of China.
- Chinese petrochemical producer Jiangsu Sailboat reached on-specification propylene production at their new 700,000 mt/yr propane PDH plant on 4 April.
- Zibo Xintai from the Chinese private sector has achieved on-specification propylene production in May at their new 300,000 mt/yr PDH unit located at Zibo, east of China.
- Tianjin Bohai Chemical achieved on-specification ethylene and propylene production at their new 600,000 mt/yr MTO plant in the north of China. The plant can produce up to 300,000 mt/yr of ethylene and 300,000 t/yr of propylene.
- Malaysia's PRefChem, Pengerang, achieved on-specification propylene and ethylene production from their 1.29 m mt/yr cracker in July.
- Sinopec added a new cracker at their Yangpu refinery in the South of China. The cracker has 1 m mt/yr of ethylene capacity. Other additions include 200,000 mt/yr of low-density polyethylene, 350,000 mt/yr of high-density polyethylene, 800,000 mt/yr of ethylene glycol and propylene downstream units.
- Chinese Zhejiang Petrochemical's (ZPC) started the third naphtha-fed cracker with 1.4 m mt/yr of ethylene production capacity.
- China's Lianyungang Petrochemical have achieved stable operations at their new No. 2 ethane-fed cracker with 1.25 m mt/yr of ethylene capacity. They achieved on-specification ethylene production over 27-28 August.
- In China, the privately owned petrochemical producer Shangdong Huifeng Haiyi Petrochemical commissioned their new 250,000 mt/yr PDH plant in Shandong and achieved on-specification propylene production by late August.
- Wanda Tianhong achieved on-specification propylene production in October at a new 450,000 mt/yr PDH plant.
- Chinese petrochemical producer Liaoning Kingfa started their new 600,000 mt/yr PDH unit in Panjin City.
- In December, Shenghong Petrochemical started a 1.1 m mt/yr cracker in China, and propylene demand was boosted by Zhongjing Petrochemical's new 600,000 mt/yr polypropylene unit in Fujian.

Industry News

- Invista, a Koch-owned company and affiliate of Flint Hills Resources, acquired the Flint Hills Resources propylene business effective 1 January 2022. This includes the 658,000 mt/year PDH plant in Houston and chemical facilities in Houston and Longview, Texas. Ownership of the pipelines that supply these facilities also transferred to Invista and they will continue to be operated by Flint Hills Resources under contract.
- The 50-50 joint venture between Total and Borealis-Baystar (also known as Bayport polymers) - started initial commissioning and startup of their new 1 m mt/yr ethane cracker located in Port Arthur, Texas on 15 April.
- Italian firm Versalis announced the permanently closure of its steam cracker and aromatics units at Porto Marghera.

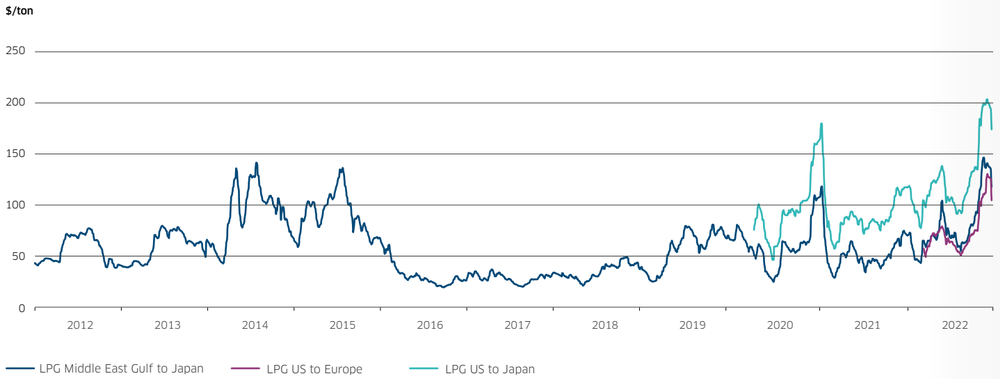
The New Year started off firmly as Ethylene activity from the US Gulf carried over its strength from 2021.

With strict Covid protocols in China still in place, demand was slow in Asia, creating more opportunities for US - Europe trade instead.

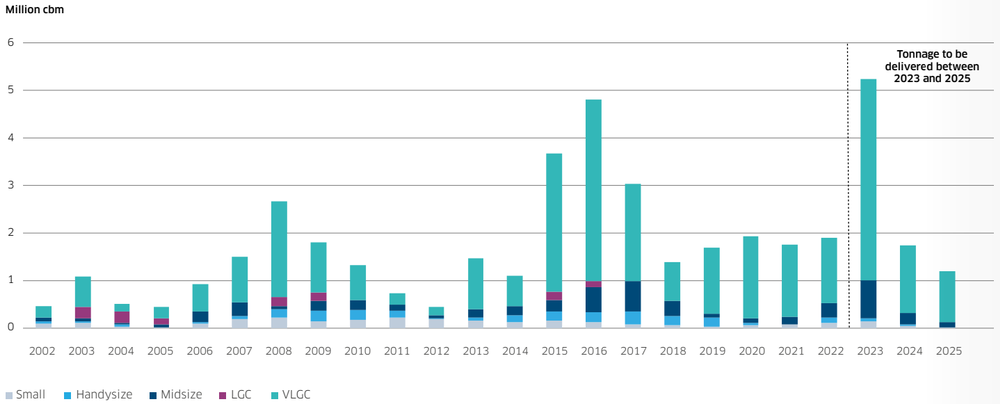
The VLGC fleet stood at 335 vessels at the end of 2022.

All VLGC newbuildings are dual fuel LPG.

Baltic Exchange Liquid Petroleum Gas Index



LPG tonnage delivery and orderbook by vessel type since 2002



THE FLEET

Sixteen VLGG's were delivered in 2022. Of these, AW Shipping received four while Evanlend Shipping, Geogas, and Avance Gas received two each. This compares with 18 VLGC's delivered in 2021. The VLGC fleet stood at 335 vessels at the end of 2022 with 70 units on order, representing 21% of the active fleet. The majority of these vessels, 51 VLGC's, are scheduled to be delivered by the end of 2023. All VLGC newbuildings are dual fuel LPG.

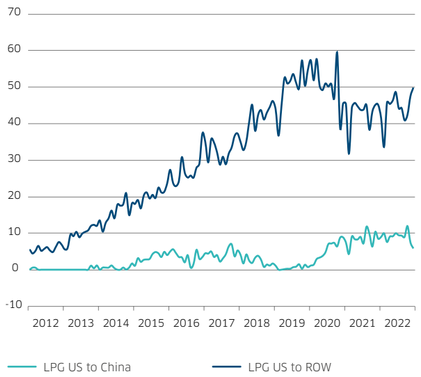
As with recent years, there were no LGC deliveries during 2022, and none were ordered. The last new buildings joined the fleet in 2015 (3 vessels) and 2016 (2 vessels). Therefore, the fleet composition remains unchanged at 21 vessels. The recent trend has been to abandon this segment and to favour the improved economies of scale afforded by larger VLGCs.

At end-2022, the MGC fleet numbered 115 vessels following nine deliveries during the year and no demolitions. There were 30 MGC's on order at end-year, representing 26% of the fleet. Of 2022's new deliveries, four were delivered to Eastern Pacific Shipping, two to Thenamaris, and one each to Trafigura, Evalend Shipping, and Anthony Veder.

The Handysized fleet closed the year at 131 vessels following four deliveries which included two ethylene-capable vessels - the LPG/E/C Electra and the LPG/E/C Eclipse – which were delivered to Fortitude Shipping. One handysized LPG carrier was demolished during the year, and the orderbook stood at five vessels by the end of the year.

The Small Gas Carrier sub-fleet experienced the biggest carrier change following 19 deliveries while 6 units were scrapped during 2022. Almost all of the newbuildings went to different Owners, as only two vessels were delivered to the same Owner, Hartmann Reederei.

LPG US export to China and ROW



Developments among gas carrier owners

A year after Navigator Gas and Ultragas finalised their merger of LPG and ethylene carriers, Navigator Gas formed a joint venture in 2022 with Greater Bay Gas of China. The operation will be owned 60% by Navigator Gas and 40% by Greater Bay Gas. The venture intends to buy five Ethylene carriers by the end of 2023. The first transaction of these took place in December 2022.

Seapeak LLC (Seapeak) announced at end of 2022 that they completed their acquisition of Greenship Gas Trust and Greenship Gas Manager Pte. Ltd. and their subsidiaries (collectively, Evergas) from Jaccar Holdings in an all-cash transaction of approximately $700 million. With the acquisition complete, Evergas will rebrand and operate as a wholly-owned subsidiary of Seapeak.

In March 2022, the Scorpio Group and Kuwait Petroleum Corp. (KPC) announced their alliance in forming the Neptune VLGC Pool. KPC immediately entered its five VLGC vessels in the pool and by the end of the year Neptune VLGC Pool had chartered an additional three vessels to operate in the pool.

Chemgas Shipping has bought four small LPG carriers from Italy's Gas and Heat Shipping, thereby expanding its operation to semi-ref vessels whereby previously they had been operating pressurized vessels exclusively.

Finally, on the last day of 2022, GasChem Services and Gasmare Srl. announced that Gasmare would withdraw from their role as pool manager of the GasChem-Gasmare Pool after more than 20 years of partnership. As from the 1 January 2023 the pool was renamed "GasChemPool."

At end-2022, the MGC fleet numbered 115 vessels following nine deliveries during the year and no demolitions.

There were 30 MGC's on order at end-year, representing 26% of the fleet

LNG

2022: a record year in all aspects.

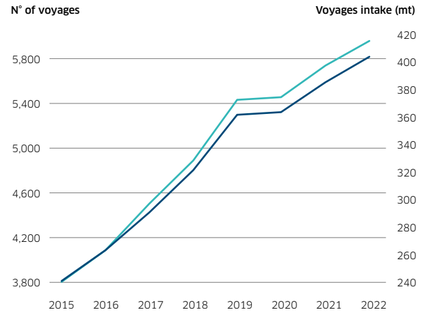
LNG demand continued to grow at a steady pace in 2022 as Europe moved to be the key demand driver after the region saw pipeline gas supplies from Russia largely cut off. Indeed, this was the key driver behind rising natural gas market volatility. Accordingly, today, LNG is more than ever considered as a geopolitical tool as reflected by the signing of several, significant long-term Sale and Purchase Agreements between USA-based LNG projects and European or Chinese buyers.

CAPITAL GAS, ARISTOS I
174,000 cbm LNG carrier delivered in October 2020 and built by HHI.

LNG TRADE

Last year, the number of LNG tanker voyages increased to 5,957 compared with 5,737 in 2021. Consequently, LNG traded volumes have continued to climb, hitting around 405 million tonnes in 2022 compared with 386 million tonnes in 2021, an increase of 4.9% year-on-year.

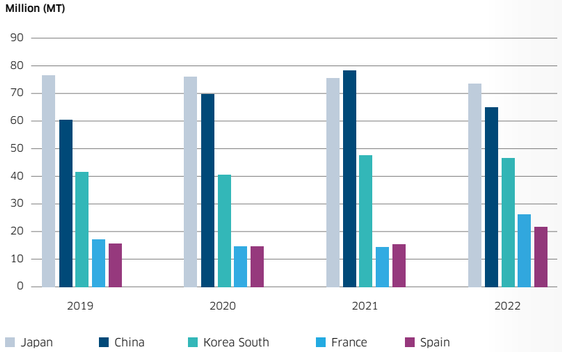
Annual voyage number & LNG intake



Japan overtook China as the world's top LNG buyer even if its imports fell by 2.4%. Across all LNG importers, China posted the largest absolute decline in imports last year, as its volumes decreased by 19%. This sudden fall reflects high prices and sluggish economic growth amid persistent Covid-related lockdowns. Global LNG trade was supported by European demand rising by 60% year-on-year in 2022, an unprecedented increase. On a country-by-country basis, France posted the largest increase in LNG imports as volumes soared by 81.5%. Meanwhile, LNG imports to Spain ballooned by 41%.

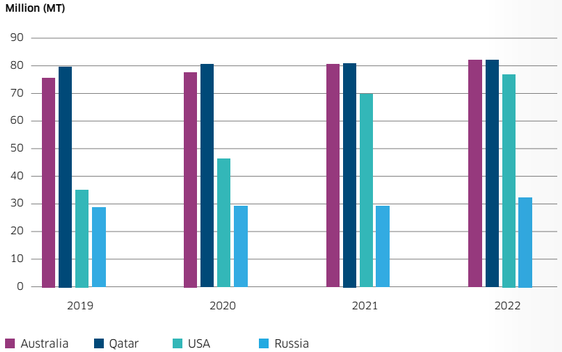
European demand rose by 60% yoy in 2022, while Chinese imports decreased by 19%

Main LNG importers



Global LNG exports have continued to increase in the wake of higher natural gas production in exporting countries. The three major LNG exporters, Qatar, Australia and the USA, which together represent almost 60% of global LNG production have steadily increased their shipments over the last five years. Last year saw Australia overtake Qatar to become the top global exporter with 82.26 mtpa. Meanwhile as in 2021, the US posted the largest annual increase in exports as they rose by 10.5% to 77 mtpa. Indeed, US LNG exports are now more than double their 2019 level. Russian LNG exports also increased in 2022 despite European sanctions.

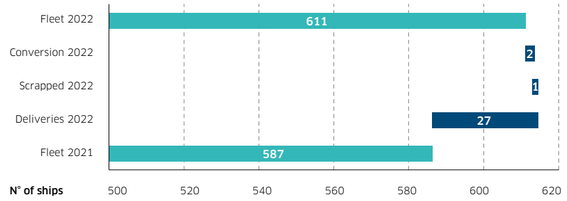
Main LNG exporters



THE FLEET

By end-2022, the fleet of large LNG carriers stood at 611 units representing annual growth of 3.4% as 25 conventional LNG Carriers and 2 Medmax LNG carriers were delivered last year. Only 1 LNG carrier was scrapped in 2022, compared with a record of 7 units in 2021. More demolitions in 2023 are anticipated as shipowners are expected to renew and upgrade their fleets to comply with new emissions regulations.

LNG carrier Fleet evolution in 2022



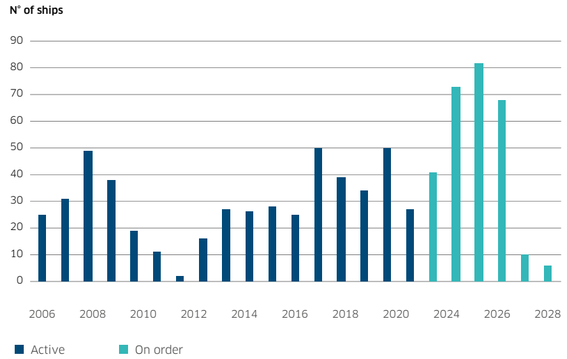
41 units (39 conventional LNG carriers and 2 Medmax LNG carriers) will be delivered in 2023, a direct consequence of a then-record 78 LNG carriers being ordered in 2021.

LNG carrier new orders

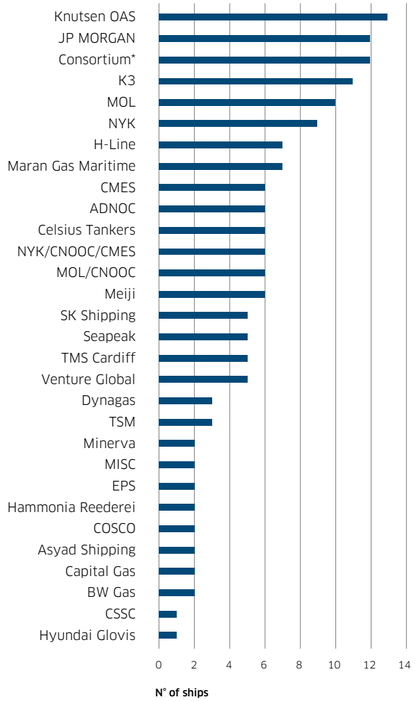
165 large LNG carriers were ordered in 2022, a record for the second consecutive year. The price level for a 174,000 cbm LNG carrier with the latest standards - a slow speed diesel engine-based propulsion, a 0.085% boil-off rate and a reliquefication/subcooling unit - started in the range of $215-220 million at end-2021 and rose to hit $250 million in September 2022, a level it has remained at since. As expected, the Qatari project provoked a bottleneck for deliveries of new LNG carriers which will persist until 2026, as 151 berths were reserved. Qatar Energy has already placed 66 orders in the four main yards, including 60 orders in 2022. TotalEnergies still hold 17 slots reservations at Hyundai Heavy Industries (HHI) and Samsung Heavy Industries (SHI), with the options to be declared in 2023.

165 large LNG carriers were ordered in 2022, an all-time record

Conventional LNG carriers deliveries and orderbook



Owners of 2022 orders



* MISC, NYK, K Line and China LNG Shipping for QatarEnergy project

By 2032, 168 LNG carriers will be required to meet the 5% theoretical annual increase in LNG demand

Terminals	Region	Start up expected	Export capacity mtpa	Gross fleet requirement
Sengkang LNG T1	SEA	2023	0,5	0,3
Tangguh T3	SEA	2023	3,8	2,1
Tortue West Ahmeyim 1 (FLNG)	WAF	2023	2,5	3,2
Arctic 2 LNG T1	Yamal	2024	6,6	8,2
Golden Pass LNG T1	USGC	2024	6,0	9,4
Golden Pass LNG T2	USGC	2024	6,0	9,4
Golden Pass LNG T3	USGC	2024	6,0	9,4
Energia Costa Azul	WCAN	2024	2,5	3,0
NLNG T7	WAF	2024	7,6	9,9
NewAge Congo (FLNG)	WAF	2024	1,0	1,4
LNG Canada	WCAN	2025	14,0	17,0
Arctic 2 LNG T2	Yamal	2026	6,6	8,2
Pluto LNG T2	SEA	2026	4,9	2,8
North Field LNG Expansion T1	ME	2026	8,0	11,1
North Field LNG Expansion T2	ME	2026	8,0	11,1
Plaquemines LNG	USGC	2026	13,3	20,7
Corpus Christi T4	USGC	2026	1,6	2,5
Corpus Christi T5	USGC	2026	1,6	2,5
Corpus Christi T6	USGC	2026	1,6	2,5
Corpus Christi T7	USGC	2026	1,6	2,5
Corpus Christi T8	USGC	2026	1,6	2,5
Corpus Christi T9	USGC	2026	1,6	2,5
Corpus Christi T10	USGC	2026	1,6	2,5
North Field LNG Expansion T3	ME	2027	8,0	11,1
North Field LNG Expansion T4	ME	2027	8,0	11,1
Arctic 2 LNG T3	Yamal	2027	6,6	8,2
TOTAL			132	177

South Korean and Chinese yards have very few available slots. Amongst them, there are the 17 slots held by TotalEnergies for the postponed Mozambique LNG project, as delivery dates have moved back from November 2026 to 2027 and 2028, pending final confirmation of the project. The orderbook extends out to 2028 with 8 deliveries scheduled at Hudong-Zhonghua for MOL.

HHI accounted for more than 28% of the orders taken in 2022 and so remains the yard with the largest orderbook with 86 LNG carriers on order which equates to 31% of the global orderbook. Daewoo Shipbuilding and Marine Engineering (DSME) and SHI have banked 37 and 36 orders respectively. The lack of slots available in Korean shipyards has allowed the emergence of Chinese shipyards with 47 conventional LNG carriers orders taken in 2022. China's share of the global large LNG carrier orderbook jumped from 14% in 2021 to 27.6% in 2022. 29 orders were placed at Hudong-Zhonghua, a record. 4 Chinese yards entered the conventional LNG Sector in 2022, Jiangnan Shipyard took orders for 6 LNG carriers for ADNOC, Dalian Shipbuilding Industries Co (DSIC) which secured orders for 6 LNG carriers from China Merchants Energy (CMES). China Merchants Heavy Industry Jiangsu (CMHI-Jiangsu) took orders for 4 LNG carriers (+4 in options) for Celsius Tankers and Yangzijiang secured orders for 2 LNG carriers from Hammonia Reederei and Peter Dohle.

LNG carriers forecast

We calculate that 168 LNG carriers are required by 2032 to meet the 5% theoretical and observed annual increase in LNG demand. This forecast takes into account:

- the current orderbook
- vessels being scrapped when they reach years of age
- LNG carriers conversions into FSU/FSRU/FLNG

As of 1st January 2023, 132 mtpa of export capacity is under construction, for which 177 standard LNG carriers would be required according to the trade pattern for such liquefaction terminals.

125 mtpa of additional liquefaction capacity is estimated to be built to fulfill the theoretical 5% annual increase in LNG demand across the coming 10 years. This additional liquefaction capacity will require 196 standard LNG carriers.

Today, 280 vessels are already on order, 35 vessels above 35 years old are assumed to be scrapped across the forecast and 40 LNG carriers could be converted into FSU/FSRU/FLNG up to 2032.

We estimate that 168 LNG carriers are required in order to fulfill the forecast increase in LNG capacity across the next 7 years, equivalent to 24 vessels ordered each year.

Floating storage regasification units (FSRUs)

Following the war in Ukraine, the regular flow of gas coming from Russia to Europe was disrupted and had to be replaced quickly. Previous to the war, European pipeline gas imports from Russia totalled 150 Bcm/year, of which 112 mtpa was LNG. Germany's 100 Bcm/year of pipeline gas imports represented 75% of the Russian gas imports to Europe. This 100 Bcm/year is equivalent to 75 mtpa of LNG and represents a requirement of 116 LNG carriers using the current average of shipping intensity.

European governments have moved quickly and expected regasification capacity will be around 100 Bcm/year with most projects set to be commissioned in or before 2025. It clearly shows the ability of the market to shift from pipe gas to LNG and for the regasification process to cover the gap coming from the disruption to Russian gas supply. It is important to note that the growth will come both from the expansion of existing terminals and from new projects. More than 30 Bcm/year of new regasification capacity will come from expanding

the seven existing terminals. The announcement of around 30 new projects in Europe demonstrates the appetite for FSRUs over the coming years. Around one third will be in Germany and there are at least four scheduled in Greece.

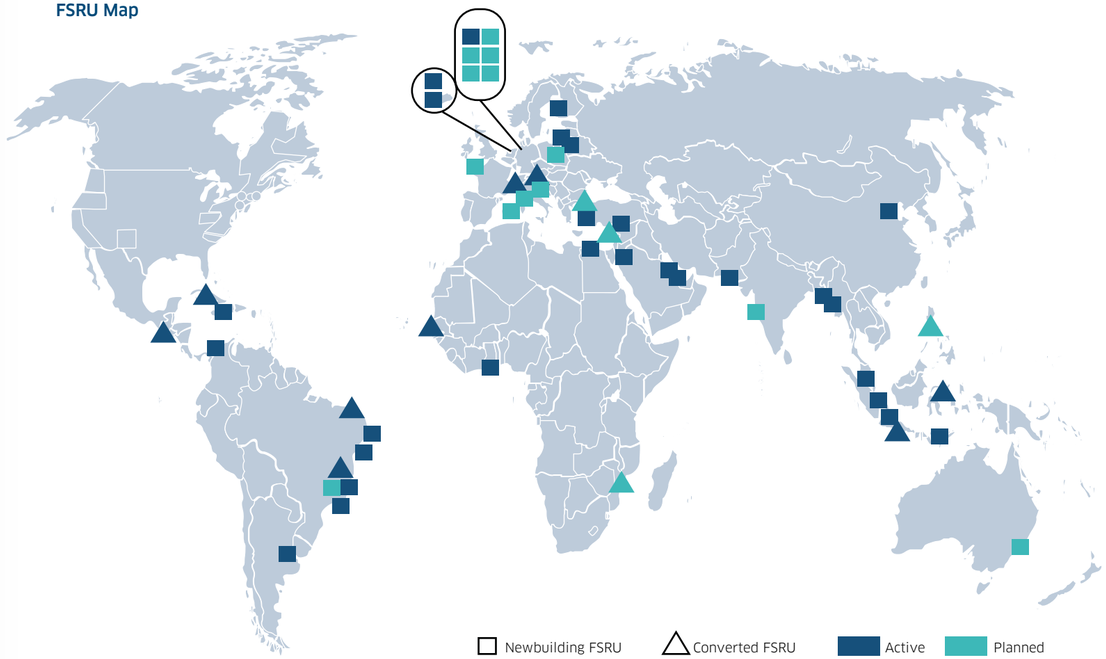
At the end of 2023, five new FSRUs are scheduled to be in service in Northern Europe for a send-out capacity of 28 Bcm/year equivalent to 19 mtpa of LNG. Half of these will be in Germany.

In 2022, The Dutch authorities moved first by chartering two FSRUs, the Golar Igloo (170,000 cbm) and the Eemshaven LNG (25,000 cbm), for their new terminals at Eemshaven port. Both were commissioned in September 2022. Germany will likely become the largest capacity holder in Europe whereas previous to 2022, they had no infrastructure to import LNG. Germany chartered six FSRUs for long time periods. The Transgas Force (174,000 cbm), the Transgas Power (174,000 cbm), the Höegh Esperanza (174,000 cbm) and the Excelsior (138,000 cbm) are expected at Wilhelmsen. The Höegh Giant (170,000 cbm) and the Neptune (145,130 cbm) are expected at the port of Lubmin. Only the Höegh Esperanza was commissioned in 2022. The Exemplar (150,900 cbm) was also commissioned in December 2022 at Inkoo LNG terminal in Finland. SNAM secured two FRSUs in 2022, the Golar Tundra (160,000 cbm), and the Golar Artic (140,000 cbm) for projects in Italy. Greece targets to host up to 4 FSRUs project as it aims to become a hub for Mediterranean LNG imports. For this purpose, Gastrade acquired the Gaslog Chelsea (153,600 cbm) to convert her into a FSRU which will serve the Alexandropoupolis LNG import terminal from end-2023. Finally, France secured the Cape Ann as TotalEnergies will use her in Le Havre from September 2023.

STATUS OF TERMINAL	Export Capacity mtpa	Fleet requirement #
Under construction	132	177
Proposed	125	196
TOTAL U/C & PROPOSED	257	373

FLEET BALANCE	Vessel #
Orderbook *at end Dec 2022*	-280
Expected scrapped vessels	+35
Expected LNG Carriers conversion	+40
Net Fleet Requirement	168

FSRU Map



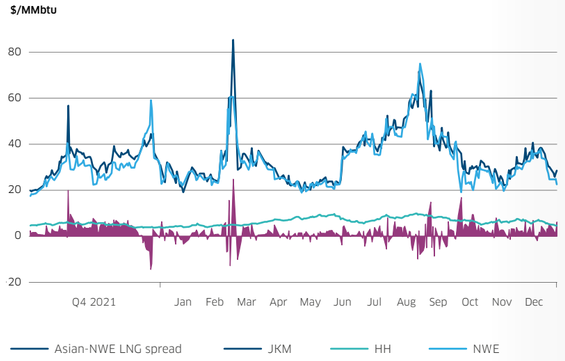
THE CHARTER MARKET

LNG prices

2022 was marked by a significant increase in LNG prices compared with the previous year. Last year, the JKM averaged around $34/MMBtu vs $19/MMBtu in 2021 (+79%). Meanwhile, on the same basis, in Northwest Europe (NWE) prices averaged around $33/MMBtu vs $16.5/MMBtu in 2021 (+100%). Price rises reflected the concomitance between a rise in energy needs and difficulties in increasing the supply. On one hand, the rising energy requirements reflect the competition for supplies between Europe and Asia. Last year, the latter captured a growing share of LNG imports to the detriment of the former as Europe switched from buyer of last resort to aggressive buyer to replace Russian pipeline gas. At the same time, China's LNG imports marked an unprecedented decline (-19% vs 2021) as slow economic growth and Covid controls impacted demand.

On the other hand, Russian gas supplied via pipeline to Europe plummeted to a post-Soviet low as deliveries were drastically reduced due to sanctions, maintenance, and explosions on the Nord Stream 1. In addition, Freeport LNG, the second-largest export facility in the US (15 mtpa), has been shut since the beginning of June because of an explosion on a pipeline. These two major factors and numerous incidents in gas producing and exporting countries such as maintenance, fires, shortages, and electricity production issues led to a squeeze in global LNG supply. Nevertheless, 16 mtpa have been added as Calcasieu Pass (10 mtpa) and the sixth Train of Sabine Pass (4.5 mtpa) came online in February 2022 and were complimented by the start-up of the Portovaya LNG FSU (1.5 mtpa) in September 2022.

LNG Prices



*Picture: **TSAKOS ENERGY NAVIGATION LTD, T.ENERGY**, 174,000 cbm LNG Carrier delivered in January 2022 and built by HHI.*

During the first semester of 2022, LNG prices remained at extremely high levels due to the crisis in Russia and early restocking policies. In June 2022, the Council of the European Union adopted a regulation aiming to ensure that gas storage capacities in the EU must be filled to at least 80% of their capacity before the winter of 2022-23 and to 90% before the following winter. In January and February, the JKM price averaged around $27/MMBtu vs $13/MMBtu in 2021 (+52%). Meanwhile, in Northwest Europe, prices averaged around $26/MMBtu vs $7/MMBtu in 2021 (+73%). We suggest that the main factor driving such high prices was heightened diplomatic tensions between Russia and Europe. The JKM price hit a record high on 7 March at $84.76/MMBtu, a rise of $37.46/MMBtu on the previous day, this was subsequently followed by a record drop of $30.48/MMBtu the next day. Simultaneously, NWE prices also touched record highs from 4 March to 8 March at around $60.5/MMBtu. In addition, the shutdown of Freeport LNG (15 mtpa) due to an explosion in June increased the bullish sentiment on LNG prices.

Prices strengthened steadily from the beginning of the second quarter and by end-August the JKM and NWE prices had reached $61.5/MMBtu and $65/MMBtu, respectively. Nevertheless, prices acted counter-seasonally in the third quarter, as from end-September, JKM and NWE prices sank below $40/MMBtu and remained around that level until the end of the year. Normally this period would see prices increasing due to seasonal demand and restocking patterns, however, this trend can be explained by the already-high level of European gas inventories at the end of the third quarter plus unseasonably mild temperatures.

Charter rates

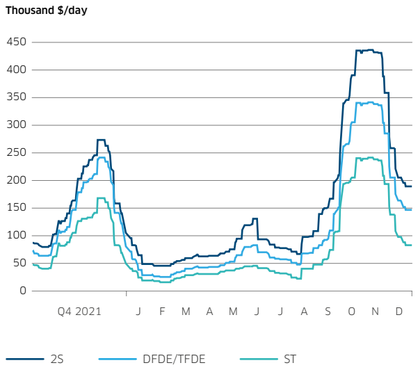
During 1Q22 the LNG spot shipping market showed a similar pattern to 1Q21, as rates fell from an average of $88,000/day for a 174,000 cbm two-stroke (2S), $64,000/day for a 160,000 TFDE and around $38,000/day for a 140,000 cbm steam turbine (ST) at the start of the year toward what turned out to be year-to-date lows of $52,000/day for a 174,000 cbm two-stroke, $32,000/day for a 160,000 cbm TFDE and around $22,000/day for a 140,000 cbm steam turbine across both basins by early-March. Beginning February, the first-ever negative spot LNG freight rates were reported. In addition, charter rates dropped in June due to the shutdown at Freeport LNG, the second largest US LNG export facility, after an explosion and fire.

In 3Q22 rates rose steeply from early July to end-September. Rates for a two-stroke rose from $83,000/day to $248,000/day, Rates for a TDFE rose from $60,000/day to $190,000/day and rates for a steam turbine rose from $35,000/day to $148,000/day.

Despite hitting historical highs in 3Q22, in the fourth quarter rates maintained their upward momentum. Accordingly, between early October and mid-November, rates for a two-stroke rose from $338,000/day to $460,000/day, rates for a TDFE rose from $260,000/day to $341,000/day and rates for a steam turbine rose from $193,000/day to $241,000/day.

Finally, the tide turned at end-November and rates slumped in the wake of falling European shipping demand, in the wake of the aforementioned strong restocking and low demand in the wake of mild temperatures. By the end of December rates had sunk to $188,000/day for a 174,000 cbm two-stroke, around $146,000/day for a 160,000 cbm TFDE and around $82,000/day for a 140,000 cbm steam turbine.

Spot rate for LNG carriers



Conclusion

2022 has been particularly active and might be considered as a "historical year". Major geopolitical changes directly impacted LNG trade patterns with an unprecedent level of LNG imports to Western Europe which increased by more than 50% essentially because of the shortage of pipeline gas from Russia. Meanwhile, less LNG was imported by Asia, especially China. This re-balancing of the LNG trade, and expectations that this new trade map will remain in place for many years to come, had a clear impact on the shipping segment. Accordingly, the expected increase in LNG ton-miles is demonstrated by the historical level orders placed at shipyards, notably in the booming activity of Chinese yards. This historical turning point will have a direct impact on the structure of the LNG shipping activity in the coming years for shipyards, shipowners, and charterers.

Offshore & Renewables

A year of continued growth

The year 2022 was a catalyst for the offshore markets with a steep increase in the overall demand for tonnage and services in all regions of the world.

OLYMPIC ORION
Construction and Service Operations Vessel on Adwen windfarm.

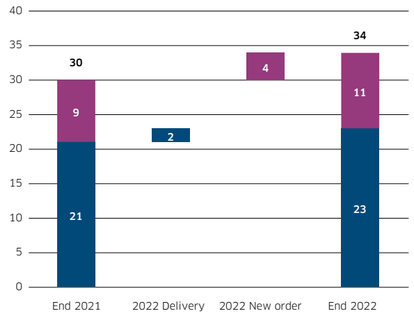
Photo: Olympic.

Whether in the Renewables segment, where scaling fleets to meet the ambitions of developers is key, or in the traditional offshore Oil and Gas (O&G), where access to energy resources is paramount.

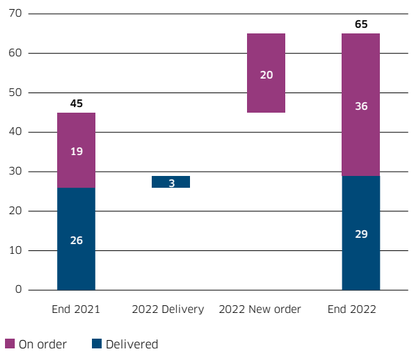
The Oil & Gas sector has taken the stage front and center this year with the drastic developments in the geopolitical sphere. The renewed focus on energy security has created a significant increase in the prices for both oil and gas as political tensions and sanctions triggered a significant shift in trade flows for both commodities. A wave of new investments in major projects means that all the links in the supply chain are now accelerating to full speed and making healthy economic returns. The multi-year downturn is behind us, and the next chapter of the cycle is being written. There is a balance to be struck between the immediate demand for energy, and the future balance of energy diversity. Fears of energy shortages were felt across Europe, and the new projects pushed by Majors were reflective of the urgency.

As a matter of fact, 2022 saw some ongoing dramatic changes in patterns of the post-pandemic offshore markets.

WTIV fleet (>500t crane) - 2022 expansion



Purpose-built CSOV fleet - 2022 expansion



OFFSHORE WIND

This past year has been busy in the renewable market as many industry players are preparing for a global ramp-up in the installation of offshore wind farms from 2024-25 onwards. The market has experienced strong newbuilding activity for specialized assets dedicated to the installation of bottom-fixed offshore wind farms.

Wind Turbines Installation Vessels (WTIVs) - At the beginning of 2022, the WTIV global fleet with crane capacity above 500t stood at 30 units, 9 of which were under construction. Three units were delivered in 2022, namely the 2,500t Blue Wind owned by Shimizu and the 3,200t crane Voltaire owned by Jan de Nul.

During the same period, four new vessels were ordered – equating to over 10% of the existing fleet. The market leader Cadeler ordered another two large Gusto NG-20000X units at Cosco Heavy Industries, bringing their fleet to a total of 4 vessels.

Maersk Supply Service, the first of two new entrants in the market, ordered a 2,500t crane asset designed to comply with the US Jones Act regulation. At delivery, the unit will go into a long-term employment contract with BP and Equinor to install the Empire 1 and 2 wind farms on the US East Coast. Havfram Wind's spinoff Havram AS was the second new entrant. Following the arrival of Sandbrook Capital as a new majority investor, and in partnership with PSP Investments, it placed an order for a WTIV of NG-200000X design with a 3,250t crane at CIMC Raffles.

On the second-hand market, Germany's Harren & Partners acquired the 2010-built 500t crane WTIV Thor from DEME with the aim of using the unit alongside their existing Wind Lift 1 unit in the offshore wind maintenance market.

Foundation installation vessels (FIVs) - FIVs combine a large deck, to transport foundations for offshore wind turbines, and a high-capacity crane (2,000t – 5,000t). In contrast to a WTIV that has jacking legs – many of which can install foundations - the foundation installation vessel is a floating asset that will remain on Dynamic Positioning (DP) during installation operations. They are less expensive to build and can work faster, but their station-keeping capabilities prevent them from installing the turbine itself. Vessels dedicated and built for (or converted for) foundation installation are a recent type of asset owned and operated by the major Transportation and Installation (T&I) contractors. By the end of 2022, four FIVs were delivered, namely the newbuild 4,000t crane Orion for DEME, the 3,000t crane conversion Bokalift 2 for Boskalis, the 5,000t les Alizés for Jan de Nul, and the 4,000t Qin Hang Gong for Jiangsu Longsheng Marine Engineering. Another three other units are in their final construction stage and are expected to be delivered in 2023, namely the 4,000t crane Green Jade jointly owned by CSBC and DEME, to be deployed in Taiwan, the delayed 3,000t crane, and Seaway 7's 3,000t crane Seaway Alfa Lift.

Construction and Service Operations Vessels (CSOVs) - The expansions of the CSOV fleet over the last 12 months has been even more impressive. The fleet and orderbook stood at 45 purpose-built units on 1 January 2022 – 19 of which were under construction. Furthermore, 20 units (a staggering 44% of total units) were ordered over the course of the year, while 3 were delivered.

25% of the 2022 orderbook (5 assets) were secured by the existing operators Esvagt, Edda Wind and Acta Marine, leaving 15 vessels ordered by newcomers – i.e. companies without an operational track record as of January 2022. Edison Chouest ordered 2 Jones Act compliant vessels against long-term employment in the US while IWS and Norwind, with an existing orderbook, booked 2 extra vessels each for delivery in 2024 and 2025. On the newcomer side, 3 companies, namely Norwegian Olympic, GC Rieber, and Singapore-based Marco Polo Marine have a long experience with operating offshore assets while 2 others, namely Pelagic, and CMB-backed Windcat, have a strong presence in the traditional shipping markets (tanker and dry bulk).

In parallel to the newbuilding spree, several owners converted PSVs into CSOVs during the period. Norwegian owner Norside Wind acquired a PX 121 PSV from Ulstein and converted her into a 90 accommodation CSOV.

Norwind Offshore and REM Offshore, both from Norway, took delivery of their first SOVs, respectively Norwind Breeze and REM Energy.

(Power) Cable Laying Vessels - The global fleet in charge of the installation of power cable has also increased this year, supported by the offshore wind market's need for installation of inter-array cables (connecting wind turbines within a wind farm), export cables (connecting an offshore wind farm to shore) and interconnector cables (connecting grids between islands/countries).

In January, Belgian contractor DEME acquired the heavy construction vessel Viking Neptun from Eidesvik for conversion into cable laying. On top of the 4,400t under-deck carousel already in place, DEME plans to install a 7,000t carousel on-deck, bringing her among the largest cable laying vessels in the fleet once fully converted. On the newbuilding side, Italian cable manufacturer Prysmian ordered a very large cable laying vessel able to carry up to 17,000t of cables. This is only 1 year after taking delivery of the Leonardo da Vinci, one of the largest cable laying vessels in the world. At the same time, on the other side of the fleet spectrum, Norwegian CECON Contracting ordered its first vessel: an environmentally friendly 100m LOA vessel with 2,800t carousel, targeting the inter-array cable market from 2025 onwards.

Transportation vessels – With the installation of offshore wind farms in new countries and regions, wind turbine manufacturers bear the responsibility of transporting components on new routes and over longer distances. Consequently, high newbuilding activities have been observed on the Heavy Lift Vessel (HLV) market, with German United Heavy Lift ordering 2 additional 150 LOA, 2x450t crane Eco Lifter HLV units and the Jumbo-SAL Alliance ordering 4 x 150m LOA, 2 x 400t crane hybrid propulsion HLV units + 2 options. The latter were designed in cooperation with the leading turbine manufacturer Siemens Gamesa which will also charter two of these assets on a long-term commitment upon their deliveries.

As the bottom-fixed offshore wind farm installation market continues to grow and expand into new countries, the demand for specialized assets should remain strong., As such, further new orders are expected to be placed in 2023 for the segments listed above, either from existing players expanding their fleet (backed by medium or long term contracts from developers or on speculation) or newcomers (in protected markets – such as the US or Taiwan, or in the wider international market).

The multi-year downturn is behind us, and the next chapter of the cycle is being written

*Pictures: **BOLD TERN** and **BLUE TERN** performing Wind Park Construction work at Moray East in Scotland. Photo: Henrik Dahl, Fred. Olsen Windcarriers AS,Oslo; Medium Construction Vessel **NORMAND JARL** (built 2013) working as a Service Operations Vessel. Photo: Solstad.*

SUBSEA MARKETS

2022 continued to see subsea vessels leaving the conventional O&G markets, presumed permanently, to work in offshore wind installation

The offshore construction market experienced a high level of activity in 2022 supported by strengthening day rates.

The supply of fully equipped (i.e., with WROVs on-board) subsea vessels continued to decrease in 2022. Over 2022, the availability of subsea construction vessels has been low, and at some points in June and July, virtually no subsea construction units (with WROVs mobilized on board) were available in the North Sea for spot work, a situation not experienced in several years. Consequently, Charterers became worried about securing qualified tonnage for short durations at short notice. The Norwegian survey/ IMR specialist Reach Subsea for example had been one of the most active companies in chartering high-end subsea construction tonnage for short-term projects with a pay-as-you-go structure. In 2022, they drastically changed their method of securing subsea vessel tonnage by firstly, acquiring Light Construction Vessel (LCV) Edda Sun and secondly, securing long charter for LCVs Deep Cygnus for 4 years, and Go Electra for 3 years.

2022 continued to see subsea vessels leaving the conventional O&G markets, presumed permanently, to work in offshore wind installation. This lower supply increased the tightness of the subsea construction market. Amongst the most significant transactions were the sales of the Heavy Construction Vessel (HCV) Viking Neptun to DEME and of the Medium Construction Vessels (MCV) Paul Candies mentioned earlier, and the Global Symphony acquired by Jan de Nul.

In a similar trend, survey companies like Reach Subsea or Geoquip – who acquired the LCV Global Orion in 2022 are now working as much for renewables clients as for O&G ones. Navies and Coast Guards around the world have also shown interest in subsea tonnage. The Australian navy purchased the 2017-built LCV Horizon Star (renamed ADV Reliant) and the UK Ministry of Defense has confirmed the purchases of the 2019-built 150t LCV Topaz Tangaroa and 50t LCV Island Crown.

*Picture: **OLYMPIC TRITON**, on Saint-Nazaire windfarm with inter-array cable installation spread mobilized on deck.*

In a move seen rarely over recent years, two high specification LCVs joined the market in 2022. Both SALT-designed vessels, originally ordered by now-defunct Toisa Offshore, and under control of the Chinese yard were sold to SeaTankers who appointed Norwegian owner Østensjø for their commercial and technical management. They have been renamed Edda Sphinx and Edda Savanah and recently relocated to the North Sea.

In 2022, several owners actively built up their construction fleet by acquiring second hand tonnage. Abu Dhabi Ports-controlled Safeen Group acquired the S-lay vessel crane Sapura 3000 and LCV Nordic Prince, now renamed Safeen Surveyor.

Dutch contractor Boskalis has continued to build its construction fleet by taking ownership of the former well intervention vessel crane Norshore Atlantic (now Boka Atlantic), and the McDermott reel-lay vessel Lay Vessel North Ocean 105 with a 400t subsea crane (now Boka Northern Ocean). These vessels were stripped of their specialized deck equipment and are now trading with large flat decks for standard construction work.

Several transactions were driven by financial motives. HCV Normand Maximus, controlled by Solstad, was sold to American Shipping Company allegedly under pressure from the vessel's creditors. Interestingly, American Shipping Company is controlled by Norwegian conglomerate Aker Group, that is also the main owner of Solstad. Upon securing the sale, American Shipping Company and Solstad signed a bareboat charter agreement and Normand Maximus is now back in Solstad's fleet.

The recent increase in second-hand prices for subsea construction vessels may somewhat limit the number of sales. That said, in 2023, the second-hand market will be fueled by transactions driven and coordinated on behalf of syndicate creditors as a consequence of the final restructuring of owners including Vroon and DOF.

On the new building front, the real question for subsea contractors as well as for specialized owners is what comes next? What to build?

On one hand a new pipelay vessel project seems to be questionable, on the other hand, the emergence of floating wind is about to drive and boost the demand for large versatile subsea installation and construction tonnage also equipped with AHT spread.

Diving Supply Vessels (DSVs) – the market was rather active in 2022. From having no DSVs at the beginning of the year, German diversified shipowner Harren & Partners built up a fleet of 3 DSVs in a few months. The acquisition of Rever Sapphire and Crest Odyssey 1 and 2 from Pacific Radiance (renamed Trapiche Emerald and Fire Opal), put the new owner solidly on the map. Indian Owner Seamec took over DSV Subtech Swordfish from UK-based James Fisher following its 2021 purchase of the DSV Subtech Paladin from the same owner. This means James Fisher is exiting the saturation diving market. Mermaid from Thailand is increasing its DSV fleet with the charter of 2019-built Van Gogh which was until recently controlled by direct competitor Ultra Deep Solutions.

Another two DP3 DSCV units are yet to be finally certified as DSVs and to find a new home: the Norsok compliant ZPMC Pelagic and the Hai Long Ming.

Despite O&G activity firming, we do not expect many newbuild orders of subsea construction units this year as creditors will first want to make sure they can be repaid. The increase in secondhand prices may however limit the number of vessels leaving the market as well as opportunistic acquisitions.

*Pictures: Heavy Construction Vessel **NORMAND MAXIMUS** (built 2016). Photo: Solstad, ©Magnus LA.*

LOGISTICS AND MOBILITIES (OSV)

After a strong, multiple year, downturn, the OSV segment continued to rebound in 2022 on the back of rising demand due to the record profits of major energy companies, and tighter vessel supply. Most Owners completed their financial restructuring, parting with their non-core assets by selling them outside of the offshore industry or by recycling them. This positive trend resulted overall in much improved utilization and, in turn, charter rates.

Average global day rates jumped by 20% last year. Indeed, the highest spot rate reported in 15 years was received for a very large AHTS during the North Sea summer season.

The regional scaling up of investments in offshore oil and gas (Middle East, West Africa, and Asia-Pacific) led to major market consolidation. Tidewater concluded the acquisition of Swire Pacific Offshore, creating the world's leading OSV operator. As part of its strategic growth program, ADNOC L&S strengthened its local leading position with the purchase of Zakher Marine International which also own a large fleet of shallow water well platforms servicing liftboats.

Rawabi, in Saudi Arabia, increased its fleet with several purchases of Chinese resale units - leaving fewer of these hulls to be completed - in line with the expansion plans of Saudi Aramco. China consolidated its fleet of powerful AHTS units to service its local supply and growing renewables market with, for instance, the purchase at auction of the Go Pegasus unit.

With the industry facing pressures to enhance efficiency and reduce emissions and costs, Owners have been asked to make significant investments to close the gap and revitalize their fleets. Barely surviving the downturn, many Owners are not yet in a position to order new vessels. Hybrid-battery retrofitting has gained more and more traction as a first step to reach this target and meet Charterers' tender requirements.

The outlook for the OSV industry remains positive and should continue to improve in 2023. Newbuilding orders should accelerate as energy companies are requiring modern assets, especially in a tight secondhand market where there is a current lack of available, modern tonnage.

In the W2W segment, energy companies have increased their demand for such types of vessels to carry out inspection and maintenance work on offshore platforms. With motion-compensated gangways and cranes, these vessels bring logistical, environmental, and efficiency advantages when compared with helicopter flights. The increasing demand from the O&G sector for subsea tonnages has reduced the number of available W2W units. Owners have converted modern PSVs into dedicated W2W vessels to serve both the O&G and Offshore Wind sectors.

DRILLING AND PRODUCTION

In the conventional O&G sector, the geopolitical turmoil and the on-going emphasis on energy security have further boosted exploration and development programs.

Multiple new projects were approved in 2022 by Majors and independents. Furthermore, NOCs including Petrobras, Pemex, and Saudi Aramco announced projects as they aimed to maximise national output against the backdrop of a global energy crisis.

For the drilling contractors, 2022 was a year of recovery with better economics and more work being awarded. Drillships led the way with utilization approaching 90% by year-end, and contracting prices above $400,000/day. This trend was supported by work in the Golden Triangle. Jackups fared very well as rising demand from the Middle East absorbed a majority of the modern tonnage that until then was sidelined. This has set the foundations for a robust cycle going forward.

Semisubmersibles have lagged in this recovery but that segment remained stable throughout the year. After several years of the supply of drilling units falling (due to their retirement or conversion for alternative uses), their charterers are now finding that their supply is tightening, thereby prompting a genuine recovery in the sector.

In the drilling landscape, COSL holds the tops spot with nearly 60 units under their banner. The makeup of the other major players has changed following consolidation that is now slowing down. Valaris is the second largest driller thanks to several acquisitions and mergers that were completed in previous years. This year saw Noble drilling significantly increase in size following their merger with Maersk Drilling. Transocean remains the largest floating rig contractor with 39 units. The newcomer to the scene was ADES who purchased more than 20 units last year, doubling their fleet.

It was a busy year for rig transactions with a total of 56 rigs sold, most of these being driven by Middle Eastern contractors in the Jackup space (ADES 20 units, ANDOC 11 units, and Arabian Drilling 3 units). A major change from previous years was that very few units were retired or sold for alternative use, as most were sold for further use in the drilling space. Accordingly, the prices of units increased dramatically. By year-end, yards that had been struggling to find buyers for units that had been undelivered, saw a flurry of activity and committed most of these units to buyers, albeit at a discount to newbuild prices.

The leased FPSO market remained strong in 2022 after it rebounded in 2021. Market leaders such as SBM, MODEC, MISC and BW fared well. Meanwhile, outsiders such as Yinson also benefitted. There were more than five new deployments in the year, three redeployments, three units under construction,

*Picture: **VOS ARES**, Anchor-handling tug supply vessel, built 2012, managed by Vroon.*

these numbers had not been seen since 2017. This upcoming year should see a surge in deployment with 12 FPSOs set to be delivered, while 15 more are scheduled for the following three years. The concern of cost escalation due to supply chain constraints and yard capacity remain despite 2022 seeing the biggest floating production storage throughput capacity addition since the previous cycle peak in 2010.

The medium-term future looks broadly bright as there were 15 projects sanctioned in 2022 (11 FPSOs and 4 semis). The Golden Triangle (Brazil/ Guyana, GOM, West Africa) remains robust. Brazil still accounts by far for the most proactive production development campaign although the rate of award was down from 2021's peak.

Worthy of note is that Keppel Offshore and Marine will build the FPSO P-80 for the Busios field (Brazil), under a contract worth just shy of $3 billion. The unit will be one of the largest in the world with a production capacity of 225 thousand barrels per day (kb/d) of oil, the ability to process 12 million cubic metres of gas per day (MMcm/d) and a storage capacity of 2 million barrels. First production is expected in 2026.

ExxonMobil continues its development in Guyana, 2022 saw the start of Liza Phase 2 as a second FPSO (Liza Unity) started operation in February. The Yellowtail project is progressing with the One Guyana FPSO set to begin production in 2025.

ExxonMobil is also expected to contract in 2023 for a large FLNG to service their Mozambique acreage.

Conclusion

2023 should see stronger demand and positive economics in all segments of the offshore Renewable and traditional offshore Oil and Gas sectors.

Utilisation rates are expected to remain high, hence supporting higher rates, profitable margins and cash flows.

In the short term the constraining factors will be supply and cost control as every aspect of the supply chain grapples with the sudden increase in demand.

Across the medium term, and in a revitalised environment, traditional Oil and Gas contractors will have to adapt to these new perspectives and to figure out what tonnage to order, while renewable players are yet to address the demand for more capacity but also for equipment and technologies adapted to the forthcoming installation and maintenance challenges of floating windmills.

*Picture: **SONANGOL LIBONGOS**, a unit owned by Sonadrill - a 50:50 JV between Seadrill and Sonangol Sonadrill, she secured a 12-well extension in Angola for ENI at a rate of $402,500 per day.*

Cruise

Back in Business

2022 was a year of transition. Most operators could look back at the year with satisfaction and look forward to 2023 with great anticipation and optimism with record-breaking future bookings. However, 2022 also saw operators winding down and slimming their fleet, notably Genting Hong Kong, who kicked off the year filing for insolvency. Meanwhile, other operators faced complex sanction-related issues.

EVRIMA
25,401 GT, delivered to Ritz-Carlton Yacht Collection by Hijos de J. Barreras in October 2022. *Photo: Ritz-Carlton Yacht Collection.*

We finally saw the cruise industry start to recover from the impact of the Covid-19 pandemic. Accordingly, most of the global fleet was back on the water.

DELIVERIES

In our book, 21 units above 8,000 gt were delivered in 2022

Name	Builder	GT	Company
EVRIMA	Barreras	25,401	Ritz-Carlton Hotel Co
NORWEGIAN PRIMA	Fincantieri Breda	140,000	NCL
VIKING MARS	Fincantieri Ancona	47,000	Viking Ocean Cruises
DISNEY WISH	Meyer Papenburg	140,000	Disney Cruise Line
CARNIVAL CELEBRATION	Meyer Turku	180,000	Carnival Cruise Line
CELEBRITY BEYOND	Atlantique	140,600	Celebrity Cruises
VIKING NEPTUNE	Fincantieri Ancona	47,000	Viking Ocean Cruises
SEABOURN VENTURE	Mariotti	23,615	Seabourn Cruise Line
VIKING POLARIS	Fincantieri Vard Soviknes	10,000	Viking Ocean Cruises
HAVILA CASTOR	Tersan Tersanecilik Tuzla	15,519	Havila Kystruten
SH VEGA	Helsinki Sy	10,000	Vodohod
WORLD TRAVELLER	West Sea	9,300	Atlas Ocean Voyages
MSC SEASCAPE	Fincantieri Monfalcone	170,412	Msc Crociere
ARVIA	Meyer Papenburg	185,581	P&O Cruises Uk
SYLVIA EARLE	Cmhi Jiangsu	8,076	Sunstone Ships
OCEAN ODYSSEY	Cmhi Jiangsu	8,228	Sunstone Ships
EMERALD AZZURA	Halong	23,000	Emerald Yacht Cruises
RESILIENT LADY	Fincantieri Castellammare	108,232	Virgin Voyages
MSC WORLD EUROPA	Atlantique	215,863	Msc Crociere
DISCOVERY PRINCESS	Fincantieri Monfalcone	145,281	Princess Cruise Lines
WONDER OF THE SEAS	Atlantique	225,282	Royal Caribbean Group

SECOND HAND SALES

The collapse of Genting Hong Kong sent waves through the industry, and the traditional Crystal Cruises was picked up by the Manfredi Lefebvre d'Ovidio-led A&K Travel Group. We also saw start-ups such as the French-based Compagnie Française de Croisières (CFC) who acquired the former Holland America Line Maasdam, now renamed the Renaissance.

Some of the deals reported in 2022:

Name	Blt	Builder	Gt	Seller	Buyer
SILVER ENDEAVOUR	2021	MV Werften Stralsund	20,449	Genting	Royal Caribbean Group
nb-LLOYD WERFT 125	2025	MV Werften Wismar	201,000	Genting	Disney
CRYSTAL SERENITY	2003	Atlantique	68,870	Genting	Abercrombie & Kent
AIDAMIRA	1999	Atlantique	47,276	Carnival Corp	Ambassador Cruise Line
CRYSTAL SYMPHONY	1995	Kvaerner Masa Turku	51,044	Genting	Abercrombie & Kent
TSM SINGAPORE	1992	Meyer Papenburg	47,413	Peace Boat	UAE Buyers
DREAM	1998	Fincantieri Monfalcone	77,499	Consorcium*	Tangshan Donfang Shipping
RESORTS WORLD ONE	1999	Meyer Papenburg	753,38	NCL Holdings	Resort World Cruises
RENAISSANCE	1993	Fincantieri Monfalcone	555,75	Iliopoulos	Francaise De Croisieres
DOULOS HOPE	1991	Flender	3,370	Genting	GBA Ships

*China Cosco Shipping & China National Travel & BTP China Communications

*Picture: **RENAISSANCE**, 55,575 GT, built by Fincantieri, Compagnie Française de Croisières, 1993. Photo: Compagnie Française de Croisières*

DEMOLITION

When no reliable trading buyer was to be found, the only alternative was for the vessels to be scrapped.

In 2022, the below deals were reported:

Name	Blt	Builder	Gt	Seller	Recycling Country
ORIENTAL DRAGON	1972	Wartsila Helsinki	18,455	Machtrans SM	Pakistan
GOLD CLUB	1977	B&W	16,852	Mano Maritime	Turkey
TITAN	1975	Wartsila Turku	15,402	Machtrans SM	Pakistan
PEARL II	1981	Hdw Hamburg	18,627	Dido Steel Corp	Turkey
MARELLA CELEBRATION	1984	Atlantique	33,933	Rota Shipping Inc	Turkey
MARELLA DREAM	1986	Meyer Papenburg	54,763	Rota Shipping Inc	Turkey
SUPERSTAR LIBRA	1988	Wartsila Turku	42,285	Flash Maritime Ltd	Turkey
FUJI MARU	1989	Mitsubishi Kobe	23,235	Machtrans Sm	Pakistan
CARNIVAL ECSTASY	1991	Kvaerner Masa Helsinki	70,367	Carnival Cruise Line	Turkey
CARNIVAL SENSATION	1993	Kvaerner Masa Helsinki	70,367	Carnival Cruise Line	Turkey
TSM SINGAPORE	1992	Meyer Papenburg	47,255	Machtrans SM	India
GEM	1992	Atlantique	50,764	Silver Star SM	India
ARIUS	1993	Atlantique	51,309	Silver Star SM	India
STAR PISCES	1991	Masa-Yards Turku	40,053	Silver Star SM	India
HORIZON	1990	Meyer Papenburg	47,427	Pullmantur Cruises	Turkey
DELPHIN	1975	Wartsila Turku	16,214	Passat Kreuzfahrten GMBH	Turkey

MARKET DEVELOPMENTS AND PERSPECTIVES

We finally saw the cruise industry start to recover from the impact of the Covid-19 pandemic. Accordingly, most of the global fleet was back on the water.

Cruise operators reported record-breaking bookings for future sailings. MSC Cruises stated in October 2022 that it had reached a new milestone with more bookings in October than it ever had for one month in its history with nearly 400,000 passenger bookings. Norwegian Cruise Line reported similar record bookings, with November being the best-booked month in the history of the company.

However, for some, the recovery came too late, such as Genting Hong Kong which went bankrupt, and their assets auctioned. This saw the traditional luxury brand Crystal Cruises acquired by A&K Travel Group Ltd. Additionally, the 2021-built Crystal Endeavor was sold to the Royal Caribbean Group luxury brand Silversea Cruises. At the end of the year, Disney announced their acquisition of the unfinished Global Dream laid up at the MV Werften.

With a wave of optimism throughout the industry, we also saw newcomers entering the cruise space, such as the French startups Exploris and Compagnie Française de Croisières (CFC). Clément Mousset and Cédric Rivoire Perrocha-led CFC are scheduled to commence their operations early in 2023 with the former Holland America Line vessel Maasdam, now renamed the Renaissance.

Ritz-Carlton Yacht Collection finally saw its first vessel, the ultra-luxury ship Evrima, which started operating in October. The Douglas Prothero-led cruise operator had suffered more than two years of delays from the Spanish builder Barreras. With Ritz-Carlton Yacht Collection ordering two larger LNG-fueled ships from Chantiers de l'Atlantique and becoming the pioneer of breaking the barriers for hotel brands to enter the cruise business, we also saw Four Seasons ordering a 95-suite yacht at Fincantieri, and Aman Resorts launching their long-anticipated Project Sama in corporation with Cruise Saudi.

During the pandemic years, we noted a relatively high number of scrappings and the average age of demolition vessels decreased to 38 years, compared with 42 years in 2021. Although optimism prevailed in the cruise industry in 2022, the industry was not unaffected by the war in Ukraine. Swan Hellenic, with two newbuildings under construction financed with Russian-owned GTLK, had to overcome sanctions and purchase the newbuildings from Helsinki Shipyard after an open auction. Meanwhile, Havila Kystruten also had to face issues of similar complexity with their 2021-built and Russian-financed Havila Capella.

Following the general trend in the shipping industry, cruise operators are also moving in the direction of green fuels. Viking Cruises reported in November that they had taken delivery of their ocean ship, the Viking Neptune, equipped with a small hydrogen fuel system, making it the first ship in the cruise industry to test the use of hydrogen propulsion.

With the pandemic behind us, and China re-opening after three years of closure, we expect the industry to continue to recover, with a gradual return to pre-pandemic passenger levels. Interestingly we may see the first large cruise ship to be built in China enter service in 2023.

Fleet renewal is expected to continue. Consequently, the second-hand market is expected to remain relatively active in 2023. Carnival Corporation has already announced that it will sell ships, including some of its Costa-branded vessels.

With a stronger focus on green fuels and higher expectations from passengers on low-emission travel we expect to see more operators test alternative fuels.

Cruise operators reported record-breaking bookings for future sailings

*Picture: **MSC SEASCAPE**, 169,400 GT, delivered to MSC Crociere by Fincantieri In November 2022. Photo: MSC Cruises.*

Containerships

2022: a boom and bust year for container shipping

The extraordinary trading conditions enjoyed in 2021 by Non-Operating Owners (NOOs), liner operators and freight forwarders on the back of the unprecedented Covid-related demand bonanza continued in the first half of 2022. However, a gradual normalization of cargo flows, the return of capacities previously held up by congestion, skyrocketing energy prices caused by the war in Ukraine, and galloping inflation biting into consumers' spending power, dramatically reversed the fortunes of the market's stakeholders in the second half of the year. The reduced cargo demand on many key routes translated into fast-falling cargo rates, with charter rates following suit in the last quarter of the year.

The 15,052 teu CMA CGM MEXICO.
Photo: Piet Sinke www.maasmondmaritime.com

2022 was off to a strong start for liner shipping, but conditions started to change drastically in the second half of the year

2022 off to a strong start, but cargo rates fall

2022 was off to a strong start for liner shipping, but conditions started to change drastically in the second half of the year.

The first six months provided an exceptionally good trading environment for NOOs, liner operators and freight forwarders with all stakeholders generating record revenues. Tonnage remained in short supply across all sizes, forcing carriers to charter other ship types such as multi-purpose cargo vessels and bulkers to meet continued record cargo demand. Swedish tanker owner Concordia Maritime even studied the possibility to transform 'P-Max' tankers into cellular ships to address the shortage of containerships, but the project did not materialize. Meanwhile, more liner shipping newcomers, including supermarket chain Lidl hit the market with their own shipping services.

However, despite the continued optimism among market players, the writing was already on the wall for the container trades, with cracks having started to appear on the cargo front as early as January. After reaching an all-time high of 5,109 points on 7 January, the Shanghai Containerized Freight Index (SCFI), which assesses spot container rates out of China started to fall from the middle of the month onwards. Apart from a short rally in May, the SCFI was never to pick up again, and fell continuously throughout the year, dropping in mid-December towards its pre-Covid level. This descent, which some carriers initially described as a 'soft landing' or 'normalisation' actually turned out to be a proper rate 'crash' that took many by surprise.

Newbies retrenching

The handful of freight forwarders and regional carriers who had improvised themselves as East-West carriers during the cargo boom in 2021 faced a reality check. Their business model, based on small ships chartered at extremely high rates, was simply no longer sustainable in the face of plummeting container freight rates. In a sign that the tide was clearly turning, Chinese East-West newcomers BAL Container Line and CULines closed their opportunistic services on the Pacific in June. In September, problems started to surface at UK-based newbie Allseas Shipping which was forced to stop its Asia-UK service after struggling to honour hefty charter commitments. In December, ambitious Chinese carrier CULines axed the China-Europe service it was running jointly with T.S. lines and more casualties are likely to follow. In November, US wholesaler Costco, who had chartered seven containerships through US carrier Pasha Hawaii took a $93 million charge for the early termination of its charter commitments.

Charter rates nosedive, with a longer time lag

After an extraordinarily strong first half of 2022, which saw a raft of record high fixtures propelling the Alphaliner Charter Rate Index to an all-time high of 563 points in March, the container charter market showed its first signs of weakness in May, with rates gently softening for the smaller sizes. This was the first time in months that the market was no longer going 'up'. The mood in the market meanwhile changed, due to the quickly deteriorating macroeconomic environment. Galloping inflation across the globe, driven by soaring food and energy prices, increasingly restricted consumer spending power. It began to have an impact on container shipping demand and would worsen as the year passed as more capacity was being freed up by easing port congestion.

In June, import cargoes from China into the US were down by 40% month-on-month, as major American shippers had too much inventory. Meanwhile, container spot rates continued to rapidly fall and dropped below long-term cargo rates for the first time, suggesting that shippers might start to re-negotiate their long-term contracts.

Stocks of the leading container lines plunged on fears that carriers would fail to stem the cargo rate collapse. Most in the industry agreed that the container shipping bull run was over, while the spike in cargo demand was now 'a thing of the past'.

In June, Rolf Habben Jansen, the CEO of Hapag-Lloyd spoke of the 'risks of overcapacity' for the first time, which highlighted a clear change of market sentiment. The container charter market remained remarkably resilient until July. From that point onwards carriers gradually gave up fixing ships for long periods, preferring shorter employments of maximum 12 months. As demand and sentiment weakened, NOOs had no other choice but to bite the bullet, although they took comfort in the continuously strong charter rates. In September, the market nevertheless abruptly took a turn for the worse with charter rates suddenly nosediving. The Alphaliner Charter Rate Index lost nearly 100 points over the course of four weeks. Meanwhile, fixtures were being concluded at levels two to three times lower than in August. The free fall in charter rates followed, as expected, that of cargo rates with a lag of a few months.

Continued fall in cargo volumes

In the meantime, cargo volumes and freight rates continued to retrench on most routes with the SCFI falling back to its pre-pandemic level in mid-December. Only the transatlantic market was doing better, but prospects on this trade were threatened by the influx of capacity which shifted from oversupplied routes. Meanwhile, the usual peak cargo season did not materialise, forcing carriers to accelerate the removal of capacity through service closures, speed reductions and blank sailings. The idle fleet meanwhile rose by a staggering 154% to 261 ships totaling 1.4 M teu in December. Meanwhile, In December, pictures of very lightly loaded ships leaving Asia for Europe showed the magnitude of the overcapacity problem while 13 vessels were identified as returning to Asia via South Africa to save the cost of the Suez Canal transit.

Most market players took a bearish view on the business. Soren Skou, CEO of Maersk spoke of 'plenty of dark clouds on the horizon' alluding to rampant inflation across the globe, the risks of recession and the geopolitical instability denting world commerce and demand for container shipping. A record high orderbook could also be added to the things to worry about, with 2.4 M teu of newbuild capacity due to hit the market in 2023, and a further 2.8 M teu in 2024. These units will struggle to find their place unless cargo demand picks up strongly and a massive wave of ship demolition takes place.

Covid-related cargo bonanza: it had to end at some point

The bonanza created by the Covid-cargo-related boom lasted about two years, from July 2020 to July 2022. Many in the market got carried away by chartering, buying and ordering large numbers of ships at record high prices during this period, believing that these extraordinary conditions would be there to stay. However, this underestimated a potential fast return of cargo flows to their pre-pandemic levels and that port congestion would ultimately disappear. As a matter of fact, global container volumes are believed to have been around 4% lower in 2022 than in 2021 and on 1 December 2022 were estimated to be only marginally above their 2019 level. Illustrating this trend, a survey of liftings showed that over the first nine months of 2022, Maersk, CMA CGM, COSCO, Hapag-Lloyd, OOCL, Yang Ming, HMM and ZIM carried a total of 71 M teu, versus 74.5 M teu, or 4.6% less than during the same period in 2021.

Other issues related to the war in Ukraine, soaring inflation plaguing consumer spending power around the world as well as high inventory levels and a looming recession in many countries, have made matters worse. The brutal collapse in cargo rates in the second half of the year was therefore a painful reality check for a lot of market participants, particularly for all the newcomers but also for some established carriers who aggressively (unwisely?) expanded their fleet at the peak of the market.

The end of port congestion

Port congestion gradually eased throughout 2022, although some regional bottlenecks persisted, especially on the US East Coast, in certain European ports and in China. The latter in the wake of the localised lockdowns imposed by Beijing. Congestion on the US West Coast, once the global hotspot as up to 110 ships waited for a berth, finally ended, with the ports of Los Angeles and Long Beach officially declaring in November that the problem was over. Congestion was the most visible sign of the global supply chain issues which plagued world commerce from the onset of the Covid-related cargo boom. With up to 12% of the world fleet held up at some point, congestion restrained tonnage supply in an already tonnage-tight market, sending both cargo and charter rates skyrocketing. Its easing has paradoxically contributed to the market meltdown observed since September with transport capacities returning to a market that does not need them.

Covid: still numerous lockdowns

The zero-tolerance approach to Covid of the the Chinese president Xi Jinping continued to take its toll on the Chinese economy and its port systems throughout 2022, with series of local lockdowns badly affecting one after another several major cities and ports such as Shenzhen, Shanghai or Ningbo. At some point in May, up to 100 container vessels were waiting for a berth off the Chinese coast. While the congestion has had some positive effects on container shipping demand, it impacted again the global supply chain just as it was slowly emerging from nearly two years of chaos. However, fierce anti-lockdown protests forced the Beijing authorities to relax the Covid restrictions from December.

Picture: *Chinese operator CULines was forced to terminate its Far East-Europe service due to the collapse in freight rates. Here, one of their chartered vessels, the 4,132 teu* ***REN JIAN 19****. Photo C.H Mercier*

Carriers on course to smash 2021 profits

The top ten liner shipping companies recorded a total operating profit of $115 billion in 2021, an all-time record. Carriers continued to benefit from an exceptionally good trading environment in the first half of 2022, with results exceeding those of last year for the same period. The figures are staggering: CMA CGM made a net profit of just under $15 billion, ONE raked in $10.6 billion, Hapag-Lloyd registered a net gain of USD $9.5 billion and so on. Although the container market has taken a dive from the second half of 2022, with the last quarter of the year expected to be significantly weaker, carriers remain on track to smash their exceptional 2021 results. However, the fast deteriorating environment has seen the eleven publicly listed companies seeing about $90 billion wiped off their market capitalizations between the beginning and the end of the year. However, they remain two to three times higher than their pre-pandemic levels.

Geopolitics: an unprecedented instability

Last year saw extreme geopolitical instability across the globe, which took its toll on container shipping to various degrees. The attack on Ukraine by Russia on 24 February sent energy prices skyrocketing, affecting both consumers and manufacturers as well as shipping lines. The suspension of container trades with Russia and Ukraine also led to service closures, capacity redeployment and contributed to aggravating congestion in certain ports. In Asia, the war of words between China and the US over Taiwan reached its peak in June, raising fears of a large-scale conflict with possible global implications. Tensions otherwise continued to rise with Iran and North Korea, the latter multiplying its test launches of rockets.

The NOO fleet continues to lose ships to liner operators

The NOO fleet has lost an unprecedented 600 cellular vessels to liner operators since August 2020, when carriers started raiding the sale and purchase market. This buying frenzy was meant to beat an increasingly expensive charter market and secure ever scarcer tonnage. NOOs in turn could hardly ignore increasingly attractive purchase offers for their ships. The fleet exodus continued in 2022, especially in the first half of the year, but gradually slowed down when the market started to turn in the summer. The most popular ships sold were 1,500-1,900 teu ships, 'classic panamaxes' of 4,000-5,299 teu and ships of 2,000-2,600 teu, followed by tonnage of 1,000-1,200 teu.

MSC was by far the most active buyer, having purchased a mind blowing 253 second-hand ships since August 2020 (including 96 units in 2022 alone), followed by CMA CGM with 85 units.

MSC become the world's largest carrier

In the early days of 2022, MSC overtook Maersk and became the world's largest container carrier, 52 years after its creation in 1970 by Capt. Gianluigi Aponte. With a fleet capacity of 4,284,000 teu and 645 vessels, the Switzerland-based Italian carrier bumped the Danish company, long time number one, from its top position by a few thousands teu only. Today, the capacity gap between the two carriers has grown significantly: MSC deployed in excess of 4.5 M teu of capacity as at mid-December, while Maersk was still stuck at 4.2 M teu, the Danish carrier having decided not to grow any further on the container shipping side. In the future, MSC will hugely distance itself from Maersk (and from most other carriers) with its colossal orderbook currently numbering 123 vessels for 1.7 M teu.

Decarbonation: multiple initiatives

With global shipping emissions estimated to have increased by 5% in 2021, there is no time to waste to decarbonize the industry. Last year saw LNG remain a popular option for fuel propulsion, with a total of 106 orders for LNG-propelled vessels placed in various yards in Asia. Methanol also gained more and more attention as CMA CGM, COSCO, Danaos and MPC placed newbuilding orders, following in the steps of Maersk who meanwhile raised the tally of its 16,000 teu, methanol-powered ship orders to a total of 18 units. Ammonia also became an increasingly coveted alternative, with a total of 26 ammonia-ready containerships ordered during the year, of which 16 units of 16,000 teu were for MSC. While hydrogen has so far not been retained by any owner or carrier for any newbuilding projects, sail power could soon appear on series of ten feeder vessels of 1,000 teu to be ordered by French owner Zephyr & Boree. Meanwhile, the use of biofuels is growing with carriers such as CMA CGM, MSC and OOCL increasingly sourcing it for their fleets. Other technologies helping to reduce carbon footprints are also being used, including batteries, carbon capture devices or wind deflectors, such as that installed on the 20,170 teu ONE TRUST.

 *Pictures: The NOO fleet keeps shrinking. Here the 4,253 teu **GENOVA**, sold in October by Israeli NOO XT Shipping to MSC; The 9,411 teu **MSC SASHA**. Photos C.H Mercier.*

New carbon regulations: many questions, few answers

The new EEXI and CII regulations coming into force in 2023 are raising a lot of questions among owners and operators of container tonnage. The complexity of the CII rule, and its difficult enforcement raise fears of a pick-up in legal disputes between owners and charterers. The regulation's tendency to put at a disadvantage ships engaged in shorter voyages or spending long times in ports or at anchor is raising incomprehension among market participants especially those involved in feedering and regional trades. Several carriers have voiced their concern about this, pointing to the unsuitability of the regulation as it currently stands. NOOs are also worried their ships could see reduced charter options and lose value if they obtain unfavorable CII ratings.

On the brighter side, these new rules will force ships to go slower, which will reduce supply and help address the looming overcapacity. Carriers estimate that they might need an extra 5-15% of tonnage to compensate for the slower running of ships. Meanwhile, older, less efficient vessels that struggle to comply might have no other option but to head for demolition.

Charter rates collapse in line with freight rates

Just as in 2021, the Shanghai Shipping Exchange (SEE) freight index Shanghai Containerized Freight Index (SCFI) covering box rates out of Shanghai and the Alphaliner Charter Rate Index (ACI) covering containership charter rates evolved in 2022, similarly, but at different speeds. After rising strongly in 2021, the box and charter indices both collapsed in 2022, albeit the charter index adjusted to the market downturn with a longer time lag.

Whilst the SCFI reached its peak of 5,109 points on 7 January, the ACI was at its historic high a little later in March, at 563 points.

The SCFI then started to fall until June, when it gently picked up again. However, this was to be a short-lived rally with the index resuming its descent in July. From that point onwards, it would fall at an uninterrupted and much faster pace, crashing to 2,800 points by September, just over half its January peak.

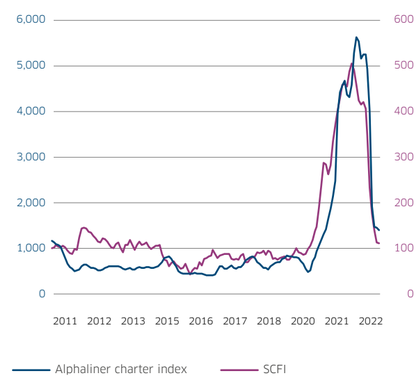
While cargo rates, especially for spot freight, lost up to about 45% of their value in the January-September period, charter rates only moderately softened during this time, remaining fairly resilient to what was already a clear market downturn. It was only in September that charter rates suddenly fell off a cliff, catching up with the cargo rate meltdown, albeit with a longer time lag.

Since then, charter rates have systematically declined, with the ACI falling to only 144 points in December, a near 75% decline from its March peak. Despite this crash, the ACI is still nearly twice as high as at the onset of the Covid pandemic. It is also much higher than during the decade pre-Covid: the last time the ACI reached 144 points was in July 2008.

Standing at 1,107 points at mid-December, and despite a spectacular drop from its peak of January-February, the SCFI was, still a little above its pre-Covid, December 2019, level of 904 points.

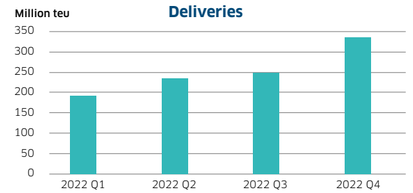
SCFI vs Alphaliner charter index 2011-2022

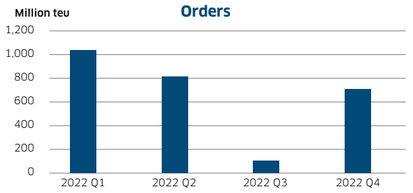
Comparative evolution of both indices

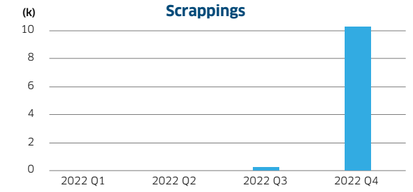


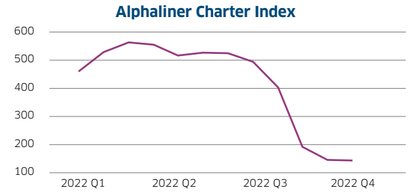
New environmental regulations will force ships to go slower, which will reduce supply and help address the looming overcapacity

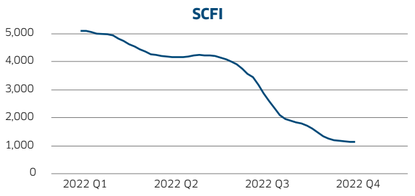
*Picture: The 20,170 teu **ONE TRUST**, fitted with a wind deflector. Photo: Andrew McAlpine.*

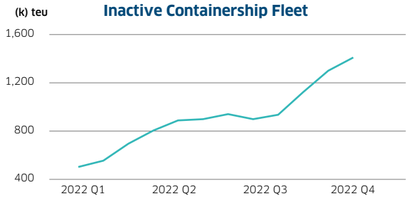












CHARTER MARKET

After the bubble burst, an uncertain outlook

The container charter market started 2022 in a euphoric mood, following on from an extraordinary 2021. After the new year break, demand for container tonnage quickly picked up for all sizes of ships. Charterers were not only (still) willing to fix tonnage for periods of three or four years like in 2021 at sky-high rates but were also interested in offering similar period employments for forward positions in 2023 and even 2024.

Meanwhile, US carrier Pasha Hawaii raided the market on behalf of US wholesale giant Costco, fixing ships of 2,700-3,500 teu for periods of 36 months and even 42 months, with some rates reaching the astronomical level of $62,000/day. In February, Pasha established an all-time record in fixing the 4,308 teu, Greek-controlled IONIKOS for a period of 45-55 days at a mind-blowing $235,000/day, the highest charter rate ever obtained by a containership.

From March, the market became quieter, mainly as a result of an increasingly acute shortage of ships across all sizes. The Alphaliner Charter Rate Index meanwhile reached its highest ever level at 563 points. At the time, 8,500 teu ships were estimated to be worth around $155,000/day for periods of 12 months. Tonnage of 5,500 and 4,250 teu would obtain around $130,000/day and $110,000/day for the same duration. Ships of 2,500, 1,700 and 1,000 teu would command $80,000/day, $62,500/day and $47,500/day, respectively.

From July, the market became shorter term, with carriers no longer embarking on multi-year commitments, against a backdrop of falling cargo rates and growing economic and geopolitical uncertainty. Most fixtures were typically concluded for 12 months only but charter rates continued to move to historic highs. However, the sentiment in the market was slowly changing, with the euphoria of the previous months gradually replaced by doubt among charterers.

In September, the market abruptly collapsed. In only a couple of weeks, fixtures suddenly were concluded at levels 35-40% below last done, an unprecedented volatility in container shipping. With a longer time lag, charter rates actually 'caught up' with cargo rates, which had started falling already in January. October and November would see a continued weakening of charter rates.

At the beginning of December, the Alphaliner Charter Index was hovering around 144 points, its lowest level since February 2021. Ships of 8,500 teu ships were estimated to be worth only around $52,000/day for periods of 12 months. Tonnage of 5,500 and 4,250 teu would obtain around $35,000/day and $25,000/day for the same duration. Vessels of 2,500, 1,700 and 1,000 teu would meanwhile command $18,000/day, $14,000/day and $12,000/day, respectively.

What's in store for 2023?

With the bonanza of the Covid-related cargo boom now clearly behind us, the charter market outlook for 2023 is very uncertain, with multiple threats on the horizon.

On the supply side, even with potentially delayed or cancelled orders, the avalanche of newbuildings expected in 2023 and 2024, will be hard to absorb if demand does not pick up substantially and scrapping rises sharply. Also, the numerous orders placed by carriers in 2021 and 2022 will be detrimental to many NOO vessels which risk losing their employments from the second half of 2023 onwards.

On the demand side, the prospects of a recession in many countries, persistent, soaring inflation and continued geopolitical instability supporting energy prices at strong levels will keep a lid on commerce and container seaborne trade. These negative factors will inevitably impact demand for container tonnage, with charter vessels first in line to bear the brunt of any fleet rationalisations by carriers.

VLCS 7,500-11,000 teu

2022 review
The 'handy' VLCS segment (7,500-11,000 teu) was in high demand and short supply during the whole year. Charter rates continued to extend records until peaking in April, when a 12-month charter for a standard 8,500 teu was estimated at around $155,000/day. Meanwhile, five year charter rates were estimated in the region of $65,000/day. In the summer, Costamare and Seaspan agreed on significant, long term package deals involving tonnage of 8,000 teu-11,000 teu with several major charterers including MSC, Hapag-Lloyd and ONE. These deals would be the most significant of the year, the market being otherwise quiet due to a continued shortage of ships.

In September, the market fell abruptly, with the estimated 12 months charter rate for a 8,500 teu unit crashing to only half of its April peak. The rate drop would continue throughout 4Q22 albeit it gradually decelerated. In December, two 8,000 teu, Japan-built newbuildings were reported fixed for 10 years at only $27,000/day.

2023 outlook
Around thirty vessels in this segment will see their charters expire in 2023. However, this does not mean that all the ships will lose their employment. There are also sixteen newbuild vessels, mostly compact units of 7,500-7,800 teu, expected to be delivered during the year. Most of this tonnage has already an employment in place. These newbuildings, mainly ordered by carriers themselves, will therefore not directly inflate the pool of charter market ships but could indirectly impact the NOO fleet, especially ageing units of 5-6,500 teu, some of which might be replaced by these more modern and energy-efficient units.

Otherwise, interest by carriers in compact 7,500-7,800 teu newbuildings or modern fuel-efficient units is expected to continue given the versatility and adaptability of this tonnage for numerous North-South or regional routes. Their flexibility should make them more resilient to any further downturn in cargo demand.

LCS 5,300-7,499 teu

2022 review
The 'LCS' segment (5,300-7,499 teu) was in high demand for the most part of 2022, although the last quarter saw a reduced interest from carriers. The supply of prompt tonnage remained extremely tight during the whole year. Charter rates strengthened to historic highs in April, when a standard 5,600 teu unit was estimated to be worth around $130,000/day for 12 months employment. Long-term employments of three to five years that were then the 'norm' in the market were in the meantime being concluded at $55-60,000/day, depending on the exact vessel size.

However, in September, the market suddenly took a turn for the worse, with rates nosediving. In October, a 5,600 teu vessel was estimated to be worth only $50,000/day for a 12 month charter. Rates have fallen further since to hover around $35,000/day by mid-December.

2023 outlook
Around thirty eight vessels in this segment will have their charters expire in 2023. Twenty-four newbuildings are also expected to hit the market, of which 11 ships are 5,500 teu, eight are 7,000 teu and five are 6,000 teu. The majority of this tonnage already has employment lined up but Alphaliner believes that a couple of 7,100 teu units, as well as three vessels of 5,500 teu remain charter free. Ratewise, prospects for this segment remain fair for the first half of the year, due to a continued shortage of ships. However, the direct and indirect impact of these newbuilding deliveries, that will be felt more acutely in the second half of the year, is darkening the longer-term outlook for this segment, especially for the less efficient ships.

Classic Panamax 4,000-5,299 teu

2022 review
Classic Panamaxes (4,000-5,299 teu) continued to be highly sought after during most of 2022, with only a continued shortage of ships keeping the fixing activity at low levels. Charter rates saw historic highs in the first half of the year, and reached stratospheric levels in February, when US carrier Pasha fixed the 4,308 teu IONIKOS for 3-5 months at $235,000/day, an absolute all-time-high rate in the history of container shipping. In April, handy units could get fixed for 60 months at $42,500/day, or 48 months at $52,000/day or 36 months at $55,000/day.

In June though, the sentiment started to change, on the back of mounting macro-economic and geopolitical uncertainties. Spot ships made their come back and rates started softening. In September the market abruptly fell with 'handy' units being fixed at only $45,000/day for 6-12 months, down from just over $100,000/day for similar periods at the peak of the market in April. Charter rates continued to falter in October and November, to finally stabilise at about $25,000/day in December.

2023 outlook
Around sixty vessels will see their charter expire in 2023. There are only a dozen newbuildings, all of which are for Chinese domestic owner Zhonggu Shipping which is likely to operate them on its intra-China network. Classic Panamaxes are expected to remain popular among carriers, especially at current lower charter rates. However, some units on high volume routes might be replaced by younger and more energy efficient tonnage, especially newbuilding units of 7,000 teu. Like for many vessels, the second half of 2023 could prove more challenging than the first half due to a more acute domino effect of the newbuild deliveries of larger tonnage.

The avalanche of newbuildings expected in 2023 and 2024, will be hard to absorb

3,000-3,500 teu

2022 review
The 3,000-3,500 teu segment had a stellar start to the year, with standard 3,500 teu obtaining in January $40,000/dayday, for period employments of 36 months. In February rates shot up to a staggering $61,000/day for similar employments, boosted by a market raid of US carrier Pasha Hawaii. Records continued to be beaten afterwards, with the 3,834 teu ZHONG GU LIAO NING obtaining in late February a mind-blowing $200,000/day for a 3 month charter.

The market thereafter entered a long period of low activity, essentially due to a chronic shortage of ships. From the summer, terms became shorter with most deals concluded for periods of maximum 12 months. However, rates remained historically high, with a geared 3,000 teu vessel securing in July a 12 month employment at a whopping $80,000/day.

From August, the 'mood' started to slowly change, against growing uncertainties and in September the market crashed. In October, six month charters were fixed at $20,000/day, a fraction of the rates obtainable at April's peak. Charter rates thereafter continue to fall, to finally stabilize at $20,000/day in December.

2023 outlook
Around thirty-five vessels will see their charters expire in 2023. There will be also twenty-nine newbuild deliveries, but the vast majority of these ships have already an employment secured. Only two vessels of 3,000 teu are believed to be charter free.

Ships of 3,000-3,500 teu remain popular with carriers for certain North-South routes. However, they are increasingly forming a niche market, with the best vessels (geared, high reefers or 'wide beam') remaining relatively insulated from any downturn.

2,700-2,900 teu

2022 review
Vessels of 2,700-2,900 teu are very popular with charterers and 2022 was no exception. The extraordinary trading environment in the first half of the year saw charter rates reaching unimaginable levels for these ships. In February, standard 2,800 teu tonnage was obtaining $48,000/day for employments of 36 months, or $41,000/day for 48 months. Modern, fuel-efficient 'Chittagongmax' tonnage was meanwhile fixed in excess of $60,000/day for charters of 42 months and short employments would be concluded at staggering six-digit figures of $150-175,000/day. These astronomical levels continued unchanged until August. From the end of the summer, some rate weakness started to appear while periods became shorter. September saw the market falling off a cliff, with both rates and periods dropping sharply. In November, the going charter rate for standard tonnage was around $22,000/day, falling further to$18,000/day in December.

2023 outlook
Around thirty vessels will see their charters expire in 2023. There will also be twenty-eight newbuildings hitting the market, a dozen of which are believed charter free. Asia will continue to be the main market for this tonnage, except for the high reefer and geared units which will continue to trade on high-reefer routes in the Atlantic. The overall prospects are mixed and will very much depend on how cargo demand develops, especially in intra-Asia.

2,000-2,699 teu

2022 review
Last year, and especially 1H22, was the best on record for the 2,000-2,699 teu segment. The Covid-cargo bonanza pushed charter rates to record levels, with 2,500 teu units getting fixed at $45,000/day for employments of 36 months, or $80,000/day for 12 months at the peak of the market in April. From July though, rates started to soften while periods became shorter from August. In September the market nosedived, with rates crashing to $25,000 per day. The downward spiral continued in the fourth quarter, with standard 2,500 teu tonnage getting fixed at $20,000/day in November and $17-18,000/day in December.

2023 outlook
Around fifty vessels will see their charters expire in 2023.although not all the vessels might end up looking for a new employment. There will also be thirty-two newbuildings, five of which are believed charter-free. Vessels of 2,000-2,699 teu are increasingly being used on feeder or regional routes, where they often replace much smaller units. The introduction of the CII regulation could benefit these sizes which will stimulate the consolidation of some feeder services currently using smaller, older, less efficient units.

1,500-1,999 teu

2022 review
The 1,500-1,999 teu segment was among the busiest in 2022, with a constant flow of demand keeping the volume of fixing relatively high, with the exception of a slightly quieter period in March-April.
Charter rates reached all-time highs on the back of a limited supply of ships. At the peak of the market in April, standard 1,700 teu tonnage was being fixed at $40,000/day for periods of 60 months while 12 month deals were valued in excess of $60,000/day. Modern 'Bangkokmax' tonnage could meanwhile be obtained at $45,000/day for periods of 36 months. From August, rates started to weaken while periods became shorter. In September the market crashed, with fixtures being concluded at 'only' $30,000/day for 12 months. Charter rates continued to falter afterwards, dropping to$20,000/day in October and $14,000/day in November for standard tonnage, and $14,500-15,000/day for 'Bangkokmax' units. The market has meanwhile stabilized.

2023 outlook
Alphaliner counts around a hundred vessels with charters expiring in 2023, which is a high number. It does not mean though that all these vessels will become unemployed with many ships expected to extend their charters. In addition, seventy-eight newbuildings will hit the market, 35 of which are believed to be assignment-free, an equally high number. Although vessels of 1,500-1,999 teu remain extremely popular, particularly in Asia where 'Bangkokmax' units remain highly coveted, it will take a strong cargo demand to absorb the available and new capacities.

1,250-1,499 teu

2022 review
The 1,250-1,499 teu segment saw mind-blowing fixtures concluded when the market was boiling hot. Illustrating this, a 1,440 teu 'Hegemann 1400' was fixed in March for a period of 12 months at an astronomical $70,000/day, while a slightly smaller, 1,341 teu 'MRC 1100' obtained an equally breathtaking $60,000/day for the same duration.
However, after the market crashed in September, the rates suffered a massive correction and steadily fell during the fourth quarter. By December, they had stabilized at around $14,000/day for the 'Hegemann 1400' type, a level five times below the spring peak.

2023 outlook
Around fifty vessels will see their charters expire in 2023, which is a lot for such a niche segment. Although not all the ships will end up looking for new employment, some carriers might be tempted to upgrade certain services using the numerous 1,700 teu units becoming available next year. On the newbuilding front meanwhile, there are only six ships coming, all of which already have employment secured.

Vessels of 1,250-1,499 teu, especially the high-reefer units, remain popular on many regional routes, particularly in the Americas. These ships should continue to be relatively insulated from any market downturn, especially in the first half of 2023. However, the more basic units could find their trading environment becoming more challenging as we move into the second half of the year.

1,000-1,249 teu

2022 review
Last year was the best ever for this segment, with charter rates for standard, 1,118 teu 'CV 1100' vessels peaking at $40,000 in March for employments of 12 months, against the backdrop of tight tonnage. Two-year deals were concluded at $34,000/day. However, from May, the segment experienced a downturn, an unexpected development in an otherwise continuously record-high market. Nonetheless, rates remained extremely high, with the standard 'CV1100' type still fixable at around $34,000/day for 12 months by the end of August. September saw the market suddenly nosedive, with rates falling to $20,000/day while supply started to increase. Thereafter, charter rates weakened steadily to finally stabilise in December at around $12,000/day for standard tonnage.

2023 outlook
There are around 125 vessels with charters expiring in 2023. Although a substantial proportion of ships will see their employments extended, a significant number of vessels might end up looking for new employment. The orderbook, with 40 vessels due for delivery, including a dozen employment-free, will not help. The influx of fuel-efficient newbuildings, as well as the new carbon regulations could therefore push many older, less efficient, units to the demolition yards.

Sub-1,000 teu

2022 review
The sub-1,000 teu sizes had an extraordinary year, even better than 2021, with charter rates reaching unimaginable levels. At the market peak in April, vessels of 600 teu could be fixed at $19,000/day for employments of 12 months. Units of 850 teu could meanwhile be fixed for 12 months at $25,000/day or 36 months at $20,000/day.

From May, the euphoria started to wane, with charter periods becoming shorter, and no longer exceeding 12 months. Nonetheless, charter rates remained high, ranging from $20,000 to $30,000/day for vessels of 700-850 teu. From September, charter rates started to fall steeply after weeks of gentle softening. In November, tonnage of 850 teu could be fixed at $9,500/day, 2.5 times lower than at the market peak. The market has since stabilised, with tonnage remaining in short supply across most regions.

2023 outlook
Around 150 vessels will see their charters expire in 2023, a high number although a significant proportion of this tonnage might see their contracts extended. Meanwhile, there are hardly any newbuildings expected, with only ten ships due to hit the water, mainly for Chinese accounts. The absence of newbuildings continues to raise serious concern on the future of these sizes.

Alphaliner Top 25 Operators as of 31st December 2022

		Total existing		Orderbook	
#	Operator	teu	ships	teu	ships
1	MSC	4,600,851	715	1,727,210	124
2	APM-Maersk	4,228,174	706	376,413	31
3	CMA CGM Group	3,393,190	595	664,378	79
4	COSCO Group	2,871,859	468	884,272	46
5	Hapag-Lloyd	1,782,791	248	377,656	20
6	Evergreen Line	1,661,865	209	465,918	50
7	ONE	1,528,921	204	418,430	30
8	HMM	816,365	75	184,027	17
9	Yang Ming	707,354	94		
10	Zim	533,823	138	378,034	43
11	Wan Hai Lines	436,844	145	276,838	38
12	PIL	297,163	91	88,000	8
13	SITC	162,418	108	43,769	26

		Total existing		Orderbook	
#	Operator	teu	ships	teu	ships
14	KMTC	148,517	65		
15	IRISL Group	143,468	32		
16	Zhonggu Logistics	136,126	103	64,904	14
17	UniFeeder	132,297	84		
18	X-Press Feeders	130,191	83	112,520	25
19	TS Lines	109,716	50	99,520	24
20	Antong Holdings (QASC)	101,696	93	4,888	2
21	Sinokor	95,268	75	91,582	26
22	Sea Lead Shipping	85,593	22		
23	Global Feeder Shipping LLC	72,370	26		
24	China United Lines	71,572	28	25,300	6
25	Emirates Shipping Line	70,569	15	1,781	1

Alphaliner - Cellular fleet as of 31st December 2022

- **The cellular fleet counts 5,706 ships of 26 million teu - of which 45.3% is chartered from non-operating owners**
- **The cellular fleet represents 98.5% of the total capacity deployed on liner trades in teu terms**
  > Total capacity active on the liner trades is 6,512 ships of 26.39 million teu and 315.9 million dwt
- **The orderbook counts 938 ships of 7.48 million teu representing 28.8% of the existing fleet (firm orders only)**
- **The orderbook includes 380 ships for 2.78 million teu with charter status representing 37.2% of the total orderbook**

31st December 2022 - Existing						31st December 2022 - Orderbook					
Size ranges	All		Of which chartered from NOO			All		Of which chartered from NOO			
teu	ships	teu	ships	teu	% Cht	ships	teu	ships	teu	% Cht	O / E
18,000-24,000	153	3,210,603	51	1,052,626	32.8%	68	1,620,500	20	478,084	29.5%	**50.5%**
15,200-17,999	77	1,245,930	24	380,404	30.5%	120	1,906,721	64	1,006,077	52.8%	**153.0%**
12,500-15,199	276	3,807,456	142	1,964,608	51.6%	109	1,542,308	18	262,624	17.0%	**40.5%**
10,000-12,499	206	2,262,213	137	1,492,973	66.0%	13	149,550	0	0	0.0%	**6.6%**
7,500-9,999	478	4,242,952	219	1,957,303	46.1%	103	801,868	41	317,868	39.6%	**19%**
5,100-7,499	437	2,727,053	199	1,231,867	45.2%	75	454,597	57	342,617	75.4%	**16.7%**
4,000-5,099	630	2,855,687	265	1,189,015	41.6%	18	82,176	0	0		**2.9%**
3,000-3,999	271	937,424	130	455,968	48.6%	80	261,718	24	80,800	30.9%	**27.9%**
2,000-2,999	793	2,014,608	338	852,094	42.3%	121	315,760	48	133,358	42.2%	**15.7%**
1,500-1,999	698	1,213,914	278	490,560	40.4%	133	239,611	61	109,591	45.7%	**19.7%**
1,000-1,499	738	848,266	355	418,355	49.3%	81	94,617	41	49,764	52.6%	**11.2%**
500-999	771	571,590	352	269,964	47.2%	11	7,310	3	1,950	26.7%	**1.3%**
100-499	178	58,309	55	18,456	31.7%	6	1,295	3	640	49.4%	**2.2%**
Total	5,706	25,996,005	2,545	11,774,193	45.3%	938	7,478,031	380	2,783,373	37.2%	28.8%

Note: *The existing chartered fleet takes into account ships chartered out by non-operating owners to operators, thus it does not take into account 233 ships for 489,250 teu which are normally owned by an owner-operator but chartered out to another operator, either for operational reasons (operational exchanges within alliances or partnerships) or because they are surplus to their owners' requirements.*

Picture: *The 24,004 teu* ***EVER ALOT*** *became the world's largest container vessel upon delivery in June 2022. Photo: Teun Put.*

FLEET AND ORDERBOOK

As of 1 January 2023, the world cellular containership fleet stood at 5,706 ships, totaling 25.9 M teu. The fleet grew by 1 M teu compared with 1 January 2022, as 182 new ships hit the water including the 24,004 teu EVER ALOT which became in June the world's largest container vessel.

Scrapping meanwhile stood at historic lows, with only three ships totaling 8.144 teu sold for recycling. Despite attractive demolition prices hitting $700/ldt on the Indian Sub-Continent, and $470/ ldt in Turkey, owners had little incentive to get rid of their ships in 2022, especially in the first half of the year, considering the massive profits they could achieve by trading their vessels in a historically strong charter market.

Meanwhile, newbuilding orders totaled 363 vessels for 2.6 M teu, versus a record 556 ships for 4.2 M teu in 2021. MSC alone ordered 60 vessels for 627,400 teu, a staggering figure. The orderbook now stands at a whopping 7.4 M teu representing 28.8% of the existing fleet.

2023 will see the fleet growing much faster than in 2022, with over 2.4 M teu expected to be delivered. Unless demand rallies strongly, this huge influx of capacity will trigger a return of overcapacity, which will become more acute in the second half of the year.

Consequently, scrapping is expected to pick up strongly, with 350,000 teu projected to reach the beaches on the back of weak trading conditions and tougher environmental regulations impacting some of the older, least efficient, ships.

Alphaliner - 2021-2022 - Cellular ships - Essential figures

	Ships	TEU	% Change YoY
Fleet as at 31 Dec 2022	**5,706**	**25,996,005**	**4.11%**
Orderbook as at 31 Dec 2022	**938**	**7,478,031**	**28.6%**
Orderbook as % of fleet		28.8%	
2022 - Containerships activity			
Ordered 2022	**363**	**2,654,940**	**-37.5%**
Value of new orders (Est.)			
Delivered 2022	**182**	**1,009,923**	**-6.0%**
Deleted 2022	**5**	**10,379**	**-37.1%**
Breakdown			
Scrapped	*3*	*8,144*	*-40.8%*
De-celled			
Lost	*2*	*2,235*	*-18.5%*
Average idle fleet 2022		**893,002**	**47.2%**
Idle fleet at end Dec	*261*	*1,436,698*	*154.7%*
Average SCFI 2022		**3,410**	**-9.9%**
SCFI end Dec		*1,108*	*-78.0%*
Av. Alphaliner charter index 2022		**421.2**	**35.8%**
Index at end Dec		*144.8*	*-66.5%*
Average FO $/ton 2022 (Rtm/Sin)		**514**	**25.3%**
FO $/ton end Dec		*379*	*-10.6%*
Average VLSFO $/ton 2022 (Rtm/Sin)		**762**	**44.6%**
VLSFO $/ton end Dec		*575*	*-0.3%*

	Ships	TEU
Fleet as at 31 Dec 2021	**5,515**	**24,970,022**
Orderbook as at 31 Dec 2021	**718**	**5,814,080**
Orderbook as % of fleet	23.3%	
2021 - Containerships activity		
Ordered 2021	**556**	**4,249,796**
Value of new orders (Est.)		
Delivered 2021	**153**	**1,075,290**
Deleted 2021	**19**	**16,521**
Breakdown		
Scrapped	*18*	*13,778*
De-celled		
Lost	*1*	*2,743*
Average idle fleet 2021		**606,410**
Idle fleet at end Dec	*165*	*564,021*
Average SCFI 2021		**3,785**
SCFI end Dec		*5,047*
Av. Alphaliner charter index 2021		**310.1**
Index at end Dec		*432.8*
Average FO $/ton 2021 (Rtm/Sin)		**410**
FO $/ton end Dec		*424*
Average VLSFO $/ton 2021 (Rtm/Sin)		**527**
VLSFO $/ton end Dec		*402*

SECOND HAND MARKET

End of the Bonanza

The number of cellular container vessels changing hands on the sale and purchase market dropped sharply in 2022, falling back in line with averages seen over the previous decade, and driven by a near total collapse in deals in the last quarter of the year.

A total of 295 container ships equivalent to 950,300 teu were sold in 2022, a decline of 49% by number and 53% by capacity compared with the records set in 2021, when a final breath-taking tally of 2.04 m teu was sold.

Most purchases were again in favour end users, and MSC continued its buying spree into the second half of the year. In total the world's largest container line purchased 44% of the total teu capacity sold during 2022, with 92 vessels for 420,000 teu. CMA CGM was the next most active carrier, snapping up 31 ships for 102,500 teu. By contrast, non-operating owners were conspicuously absent from the buying market. SFL Corp's September purchase of two 2,500 teu eco-design feeder container newbuildings from Goto Shipping was the only deal to emerge during the year involving a top-10 non-operating owner.

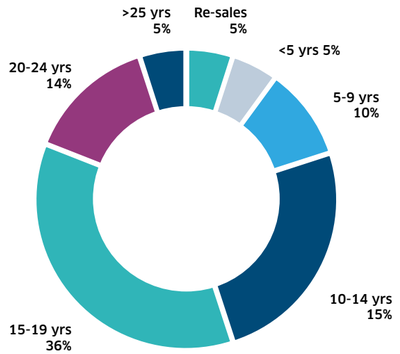
The majority of the sales were concluded in the first half of year. Deal volumes slowed dramatically in the second half of the year, and a collapse was also evident in prices. The sale of the 8,814 teu NORTHERN JUPITER (built 2010) to Maersk in June for a reported $133 M gave way to the sale of the sister ship NORTHERN JASPER to MSC in October for $85 M as reported by brokers, a drop of 36% (see table below). Similarly, the 4,253 teu 'classic Panamax' GENOVA, built in 2007 was also sold in October for a reported $45 M. Comparable tonnage was being sold in May for in excess of $70 M and is now fetching only between $20 M and $25 M.

The 2,826 teu IRENES RAINBOW (built 2006) was also purchased by CMA CGM in May for $45 M, with the French line additionally picking up the 2,592 teu, high-reefer and ice class '1A' MAERSK NIAGARA* (built 2008) the same month for $50M. In contrast, in December, MSC is believed to have paid $21 M for the 2,824 teu CARPATHIA (built 2003), while the 2,553 teu G.ACE (built 2007) was sold also in December for a reported $13.5 M.

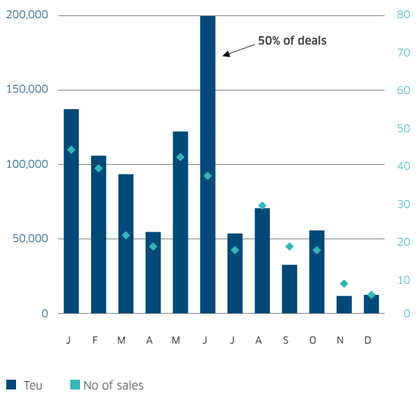
Sale and purchase price prospects are unlikely to improve anytime soon, due to the looming overcapacity triggered by the monumental orderbook. As such, the market could hold interesting opportunities for buyers that have so far been excluded from the market due to the prohibitive cost of tonnage. Among them are smaller regional carriers and some NOOs, which could become more active in the next few months. At the same time, the largest buyers such as MSC are also expected to remain present in the market with selective acquisitions. On a bright note, the uncertainties created by the new carbon regulations are expected to convince owners to get rid of their older, less energy-efficient ships, that would otherwise continue to appear on the second-hand market for further trading.

Overall, sales of units in the 1,500-1,999 teu segment proved the most popular in 2022, representing 20% of all deals concluded. Meanwhile, the largest number of sales were made in the 15-19 year age bracket as buyers were pushed towards older tonnage in the absence of younger sales candidates. Overall, more than 55% of all sales involved ships of 15 years and over, while units in the 15-19 year bracket comprised 36% of transactions by number, up from 25% in 2021.

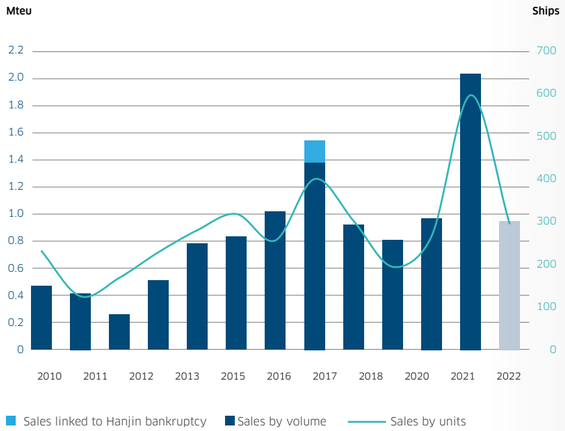
Sales by age segment in 2022 by number of ships



Breakdown of 2022 sales by month



Container ships sales by year since 2010



Source: Alphaliner

Top operators second-hand appetite

Operator	Units	Average Size / Age
1 **MSC**	98 units Q4:13 | Q3:16 | Q2: 39 | Q1:30	4,540 teu / 17.5 years
2 **CMA CGM**	33 units Q4:3 | Q3:4 | Q2:14 | Q1:12	3,3353 teu / 10.7 years
3 **Wan Hai Lines**	9 units Q4:0 | Q3:5 | Q2:1 | Q1:3	2,807 teu / 5.7 years
4 **MAERSK**	6 units Q4:0 | Q3:0 | Q2:1 | Q1:5	3,755 teu / 13.5 years
5 **Transfar Shipping**	5 units Q4:0 | Q3:0 | Q2:1 | Q1:4	1,982 teu / 4.8 years

Top of NOO second hand purchases

Tonnage Providers	Units	Average Size / Age
1 **Sea Consortium**	6 units Q4:0 | Q3:2 | Q2:2 | Q1:2	1,426 teu / 4.7 years
2 **Contships Management**	5 units Q4:4 | Q3:0 | Q2:0 | Q1:1	1,105 teu / 8.6 years
3 **Conbulk**	5 units Q4:1 | Q3:2 | Q2:1 | Q1:1	2,896 teu / 18.2 years
4 **Pacific Int'l Lines (PIL)**	4 units Q4:0 | Q3:1 | Q2:0 | Q1:3	3,740 teu / 10.8 years
5 **Mount Street Capital Investment**	4 units Q4:0 | Q3:0 | Q2:1 | Q1:3	1,945 teu / 21.0 years

Top sellers by units

Sellers	Units	Average Size / Age
1 **Goto Shipping**	15 units Q4:1 | Q3:4 | Q2: 5 | Q1:5	1,674 teu / 7.7 years
2 **Lomar**	11 units Q4:4 | Q3:1 | Q2:1 | Q1:5	2,243 teu / 11.4 years
3 **MPC**	10 units Q4:2 | Q3:3 | Q2:3 | Q1:2	3,388 teu / 11.6 years
4 **Borealis**	10 units Q4:2 | Q3:0 | Q2:2 | Q1:6	2,740 teu / 15.5 years
5 **Capital Ship Management**	8 units Q4:0 | Q3:0 | Q2:5 | Q1:3	8,228 teu / 8.1 years

Picture: *Bangkokmax tonnage (typically of 1,700-1,900 teu) continues to be very popular with carriers, with no fewer than fifty newbuildings joining the fleet in 2022. Among them, the 1,781 teu* ***SITC SHENGDE****, delivered in October to Chinese Intra Asia specialist SITC. The ship is seen here passing another 'Bangkokmax', the 1,952 teu* ***CNC MARS*** *on Bangkok's Chao Phraya river. Photo: Teachers.*

Analysis of 2022 transactions by size

Containers in short supply

Size	N° of transactions 2022 vs 2021	Variation
>10,000 teu	7 vs 25	-72%
Over Panamax	45 vs 77	-42%
3,000 – 5,100 teu	52 vs 135	-61%
2,000 – 3,000 teu	62 vs 123	-49%
900 – 2,000 teu	111 vs 185	-40%
< 900 teu	31 vs 48	-35%

Over-Panamax: 45 sales (77 in 2021)

Average age 15.5 years.
Total teu capacity: 326,357.
Unit breakdown per quarter:
Q1: 20 I Q2: 20 I Q3: 4 I Q4: 1

Largest Buyers	Units
MSC	29
CMA CGM Group	4
OOCL	2
Hapag-Lloyd	2
Ocean Yield AS	2
Largest Sellers	**Units**
Seamax Capital Management	5
NSB Niederelbe	4
Costamare Shg	4
Eastern Pacific Shipping (EPS)	4
Schulte Group	2
Navigare Capital Partners	2
Danaos Shg	2
V. Ships (Hamburg) GmbH & Co. KG	2
Shoei Kisen	2
Zeaborn Ship Management GmbH & Cie. KG	2
MPC Group	2
Capital Ship Management Corp.	2

Ships over 10,000 teu: 7 Sales (22 in 2021)

Average age 4 years.
Total teu capacity: 91,856.
Unit breakdown per quarter:
Q1: 1 I Q2: 4 I Q3: 0 I Q4: 2

Largest Buyers	Units
Capital Product Part-ners	3
MSC	3
Evergreen Group	1
Largest Sellers	**Units**
Capital Ship Management Corp.	3
Seaspan	1
Zeaborn Ship Management GmbH & Cie.	1
Doun Kisen	1
Navigare Capital Partners	1

3,000-5,100 teu: 52 sales (126 in 2021)

Average age 15.2 years.
Total teu capacity: 216,133.
Unit breakdown per quarter:
Q1: 16 I Q2: 20 I Q3: 13 I Q4: 3

Largest Buyers	Units
MSC	25
CMA CGM Group	9
Pacific Int'l Lines (PIL)	3
Largest Sellers	**Units**
Seaspan	4
Sinokor Merchant Marine	3
V. Ships (Hamburg) GmbH & Co. KG	3
MPC Group	3
Seaspan Corp.	2
Borealis Maritime Ltd	2
Trawind Shipping Co Ltd	2
Eastern Pacific Shipping (EPS)	2
Sea Consortium	2

Lomar Corp.	2
Sinokor	2
Minsheng Financial Leasing Co Ltd	2
TRF Ship Management AS	2
XT Shipping Ltd (c/o XT Management Ltd)	2
Capital Ship Management Corp.	2
A.P. Moller-Maersk	2

2,000-3,000 teu: 62 sales (108 in 2021)

Average age 14.3 years.
Total teu capacity: 161,717.
Unit breakdown per quarter:
Q1: 26 I Q2: 13 I Q3: 12 I Q4: 11

Largest Buyers	Units
MSC	21
CMA CGM Group	6
Wan Hai Lines	5
Largest Sellers	**Units**
Tufton Oceanic Ltd	8
Borealis Maritime Ltd	5
SITC	4
CSBC	4
Lomar Corp.	4

900-2,000 teu: 111 sales (180 in 2021)

Average age 13.0 years.
Total teu capacity: 161,864.
Unit breakdown per quarter:
Q1: 35 I Q2: 34 I Q3: 26 I Q4: 16

Largest Buyers	Units
MSC	19
CMA CGM Group	14
Sea Consortium	6
Largest Sellers	**Units**
Goto Shipping (Starocean Marine Co Ltd)	11
Lomar Corp.	5
Mandarin Shipping Ltd	4
Briese Schiffahrts.	4
Songa Box As	4
Vega Reederei	4

900 teu and less: 31 sales (40 in 2021)

Average age 20.4 years.
Total teu capacity: 20,926.
Unit breakdown per quarter:
Q1: 7 I Q2: 7 I Q3: 9 I Q4: 8

Largest Buyers	Units
Boluda Corp.	3
Fonway Shipping Co Pte Ltd	2
Fujian Shipping Group	2
Medkon Lines	2
Transit LLC	2
Largest Sellers	**Units**
Yong Yue Ocean Shg Co	2
RCL (Regional Container Line)	2
HS Schiffahrts	2
Qingdao Pengteng Int'l Ship Management	2
Goto Shipping (Starocean Marine Co Ltd)	2

Some analysts bet on a market recovery as early as 2024 provided enough tonnage reaches the recycling beaches and slower speeds have been adopted by operators forced to comply with IMO Carbon Intensity Indicator (CII) rules.

One has to notice that European scrapping is controlled by a very limited number of small yards. While yards in Turkey, which offer the largest recycling sites, are already full for the next 9 months. With this in mind, we consider that one of the keys to a market recovery is, partly, in the hands of the policy makers behind the EU Ship Recycling Regulation (EUSRR) and whether they decide to include the "greenest" Indian demo yards in their white list.

Some analysts bet on a market recovery as early as 2024 provided enough tonnage reaches the recycling beaches and slower speeds have been adopted by operators

MPP

Enthusiasm and Corrections – The Multipurpose Market in 2022

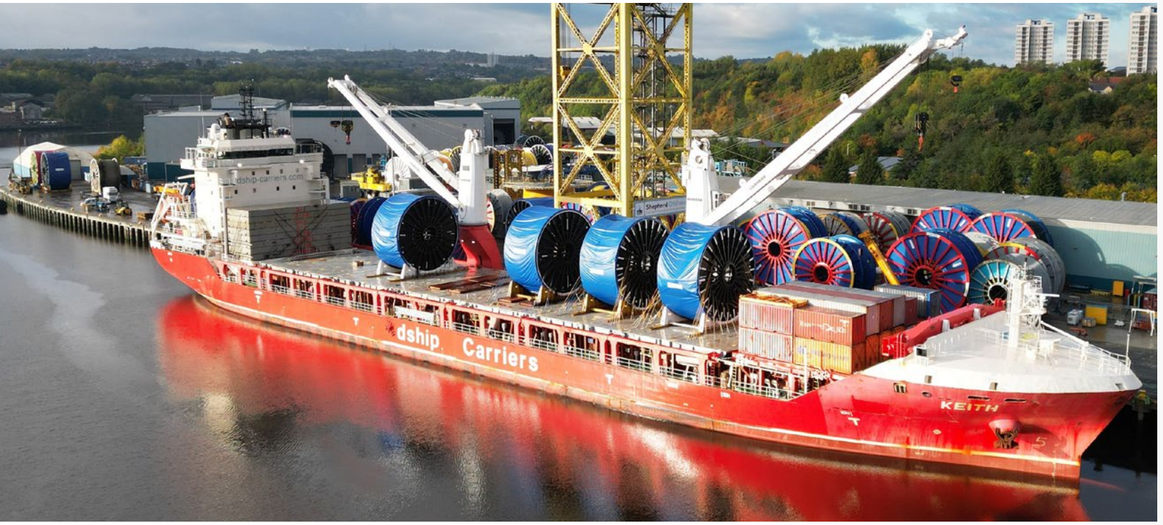
In 2022, the multipurpose market exhibited a variety of emotional highlights. From extraordinary, exciting levels down to reality with more reasonable but still positive results for Owners and Charterers.

RONNIE
F500 design, about 12, 234 mts dwat, built 2021, Loading part cargo at Hamburg's south west terminal direction Chittagong and Mongla.

MARKET OVERVIEW

At the beginning of 2022 we saw Owners celebrating very firm timecharter rates supported by a substantial freight market which persisted until the end of the summer. Multipurpose Owners had the liberty to choose between container business, project and breakbulk cargoes. Since container freight rates were extremely high, container lines could not accept additional volumes. The container cargo side still did not see any alternatives apart from looking at any suitable and available shipping capacity in the market. The MPP Owners were in the luxurious position to be in driving seat and accordingly generated very healthy returns.

The market in 2022 started in much the same way that 2021 ended. Despite a slight drop in activity, the market remained stable and consequently reported fixtures saw rate levels in the low $30,000s for mainly medium period charters. Charterers were even fixing larger MPP's out of the Atlantic (notably the Continent and the Mediterranean) in order to ballast them to the Far East, for picking up mainly container cargoes to ship them back to the Continent. Furthermore, the Pacific market paid very well, resulting in Dry Bulk and MPP carriers taking containerized cargoes to ship them from Far East, especially China, to US East, West and Gulf Coasts. On these trade lanes, Charterers and Operators ballasted their vessels back to Far East since the freight rates were firm and the bunker prices low enough. Obviously the MPP market was propelled by both firm container and bulk markets. During the peaks, some of the usual MPP Charterers even decided to focus on containers, instead of the windmill cargoes. Usually, in a "normal" MPP market, wind energy cargoes pay fairly well. However, in this exceptionally high market, not only did the larger MPPs benefit, but also the compact MPPs (10,000 – 12,000 dwat) participated in container feedering services and managed rates of around low $20,000/day for medium periods.



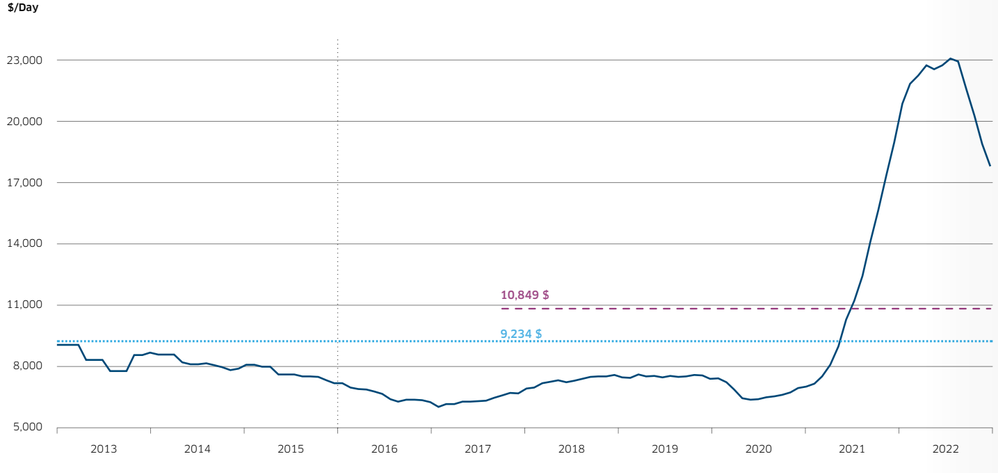
Pictures: ***ESL AFRICA****, loading in Hamburg South West Terminal bagged cargoes and general cargoes direction West Africa, managing owners: Euroafrica Shipping Lines, built December 2007;* ***KEITH****, F500 design, about 12,234 mts dwat, built 2019, loading cable reels from Newcastle upon Tyne.*

Starting from the third quarter all the way until the end of the year, the MPP market saw a well anticipated correction. The Atlantic market became very quiet, and vessels started having trouble to find suitable employment, consequently being forced to accept lower rate levels. One of the main reasons for this was the depressed dry bulk market with lower freight rates and a high volume of open tonnage. Furthermore, higher bunker prices and a collapsing container market had a direct influence on the MPP sector. On top of that, we saw the first negative impacts from the war in Ukraine, influencing the corrections dramatically, resulting in lower time charter rates after the summer break. For example, in summer we saw employments for larger MPP's in the region $25-30,000 /day levels and by September, these had dropped to the $20,000/day level and even lower. That being said, premiums were still paid for Owners who remained willing to call at Russian ports. Two of the main countries which have continued to import from and export to Russia are China and India. With the ongoing war in Ukraine and the imposition of further restrictions and sanctions, Russian connected operators became more active and purchased various larger MPP units of 28,000 dwat for exceptionally high prices, in the range of $26-28 million. Unfortunately, the aforementioned sales of various MPP sizes had no significant influence on timecharter rates. The main reason for this was the ongoing downward correction of the container and dry bulker markets.

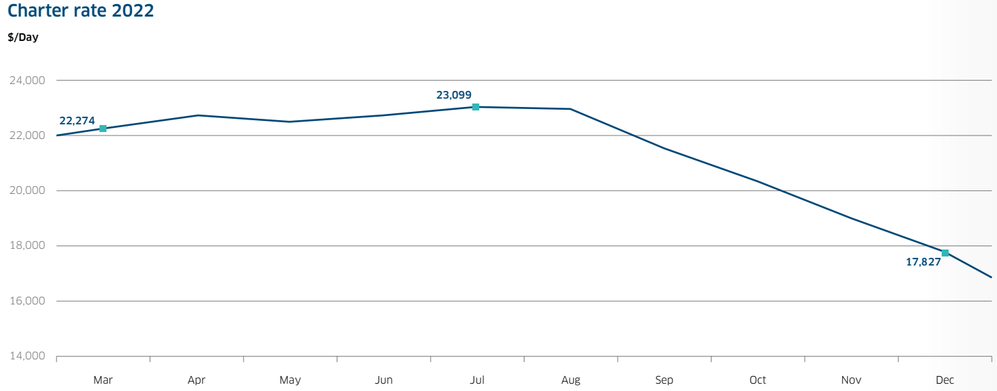
The MPP market remains a niche and the outlook is sunny but also partly cloudy

Pictures: ***BBC ARKHANGELSK****, Sdari Ecotrader 12500 design, about 12,325 mts dwat, built 2020, geared with 2x 250 cranes which are combinable, with windmill equipment on her way to Vaasa, Finland. Photo: Esa Siltaloppi, Media Ltd;* ***LILA MUMBAI****, Superflex MPP design, about 29,912 mts dwat, built 2003 – vessel during her stay in Hamburg, February 2023 loading for account Chipolbrok steel products and project cargo like propeller for MSC container newbuildings direction feast.*

Multipurpose Time Charter rate development



Charter rate 2022



Sources: Toepfer Transport GmbH

PERSPECTIVES FOR 2023

Where do we stand at the end of the year 2022 and what is the outlook? The MPP market remains a niche and the outlook is sunny but also partly cloudy. Existing tonnage is getting older, and traditional MPP tramp owners are disappearing from the scene either due to the sale of their fleets or retirement. Meanwhile, prices from shipyards remain strong, thereby capping orders for MPP newbuildings. Indeed, there have only been orders for a very limited number of newbuildings, and these have been placed mainly by lines and operators but not from tramp owners. Consequently, and following this period of sustained profitability, some tramp owners decided to drydock older tonnage of 20 years and to continue trading them. This has seen Charterers' requests that brokers only offer younger tonnage become unrealistic as the MPP fleet already has an average age of about 16 years. Moreover, the cargo side needs to realise that the MPP market will mainly offer "experienced" tonnage during the coming years. Only 30% of the present MPP fleet is under 10 years of age! This could mean possible higher earnings for younger tonnage.

The question remains: Is the total volume of MPP tonnage sufficient to cover the upcoming volumes of cargoes and projects? We doubt that this is the case. Thinking ahead, and hoping for a quick end of the war between Russia and Ukraine, we expect a number of additional projects and requirements in the market. As a result, we expect older MPP vessels will go for another drydock and life cycle. Under the scenario that the container and or bulk markets firms, the outlook for MPP's is positive but the fleet needs a renewal as soon as possible. The difficulty is the willingness of shipyards to build highly sophisticated MPP / heavy lift tonnage and for Charterers & investors to be patient and wait 4-5 years before the delivery of their vessels.

The question remains: Is the total volume of MPP tonnage sufficient to cover the upcoming volumes of cargoes and projects?

*Picture: **AAL PULSAN**, A-Class, Managing Owners: Schöller Group, about 32279 mts dwat, built 2012, loading Rubber tried Gantries (RTG).*

Ro-Ro

New Heights

After a strong initial start to the year, uncertainty soon set in, brought on by talk of high inflation and rising interest rates leading to a general economic downturn. Russia's invasion of Ukraine cemented this uncertainty, with the ensuing jump in energy prices boosting inflation and causing interest rates to climb further. The optimism of the previous nine months of post-Covid-19 recovery evaporated and by Q2 cargo volumes in the lower Baltic Sea trades were noticeably down. Despite these legitimate macro-economic and invasion related concerns, market activity remained at a high tempo overall due to the simple mismatch in demand for RoRo tonnage and corresponding supply. The increase in bunker prices, while problematic for the RoPax and Ferry segments, failed to curb the effects of the supply and demand imbalance in the RoRo segment which witnessed new highs for sales and purchase transaction prices and charter rates through the course of the year.

MISANA
One of the two sisters 2200 LM RoRos on long terms TC to Sea-Cargo, Bergen. She sails between Norway's west-coast and the North Continent. Seen here loading at Norsk Hydro's aluminium plant in Høyanger, Norway.

Photo: courtesy Godby Shipping Ab

CHARTERING ACTIVITY

Apart from the lower Baltic Sea, cargo volumes in 1Q22 were surprisingly firm, up 3-4% year-on-year (y-o-y), bucking the usual trend of a dip in Q1 after the Q4 rush to secure freight. This was in contrast to general sentiment which was understandably impacted by the effects of the war in Ukraine, particularly increasing energy prices. By the third quarter it was clear that general sentiment was grounded in the developing macroeconomic reality of rampant inflation, and cargo volumes dipped 5-6% y-o-y. Volumes fell most notably in the Lower Baltic and English Channel. Meanwhile, North Sea volumes flattened. In line with the coaster shortsea segment, RoRo volumes in the Mediterranean increased, with Turkey maintaining strong export volumes and operators on France/Italy/Spain to North Africa trades increasing capacity to cater for demand.

Cargo volumes for the year overall were down by an estimated 2% y-o-y. Weakening volumes in Q3 and in particular Q4 detracted from the more stellar Q1 volumes, leading to the closure of some new services which had started in 2021. Hansa Destination trading Rostock, Nynähavn and Visby which started operating in the Spring of 2021, supported by subsidies from the Swedish government, was closed due to high fuel costs and insufficient cargo volumes. Prior to its closure, the route was operated using one RoPax of 1800 LM and one RoRo of 2500 LM. Scandic Line trading between Riga and Södertalje with a 1000 LM roro was also closed for the same reasons.

The taut demand / supply situation for RoRo tonnage that existed at the end of 2021 tightened further in 2022 as volumes overall continued to increase and operators secured vessels in response. Hire rates followed an upwards trajectory even with soaring fuel prices. Ships were in short supply across the board. In the 1000-2000 LM segment a little more availability was seen, but Owners did not have to wait long to find employment.

Charter market

The rhythm of chartering activity was considerably slower in 1Q22 than in 1Q21. The number of fixtures concluded in the quarter was about 40% down y-o-y, proceeded by a similarly lacklustre 2Q22. Demand for ships eventually increased in Q3 marking a quarter-on-quarter rise of 25%. Fixtures increased in Q4, up about 45% on Q3, but still 25% down on what was a very active 1Q21. Overall, the number of fixtures concluded in 2022 was close to 30% lower than 2021. Despite this, more long period deals were concluded, with a considerable number of ships secured for 12 to 24 months and 3-year periods at rates around 10-25% higher than the previous year, depending on the segment and whether the ships were scrubber fitted or not. Soaring oil and bunker prices driven by Russia's invasion of Ukraine naturally pushed up demand for scrubber fitted vessels by Charterers keen to cut their fuel costs. Fuel cost savings of around 50% could be achieved when sailing in SECA (0.1% sulphur) zones with a scrubber fitted vessel burning 380 Cst fuel. Meanwhile, savings of around 75% were possible when burning 380 Cst outside SECA zones.

The very hot PCC/PCTC market led to several RoRos with car decks being chartered by car carrier operators, with this 'spill over' trend strengthening as the year progressed.

Looking forward, and a general scarcity of tonnage will remain the defining feature of the market for 2023 and in all likelihood hire rates will continue on their upward trajectory. In 2022 a good number of newbuildings were delivered, relieving some demand pressure. However, a limited number of newbuldings will be delivered in 2023.

*Picture: The sisters **CORONA SEA** and **HAFNIA SEA** are on long terms TC to Transfennica sailing in the Baltic Sea. The ships are built in 2008, have Ice Class 1A, scrubber fitted, 20 knots and 3350 LM over four cargo decks. Here they are seen in the port of Hanko, Finland. Photo: courtesy Leamar RoRo AB.*

Sale and purchase activity

Sale and purchase volumes were considerably higher in 2022 than 2021, as 34 ships changed hands compared with 21 in 2021. This marked a sustained increase compared with 2020 when only 8 transactions in the segment were recorded.

The average age of the ships sold was 25.7 years compared with 27.5 years in 2021 and the average size was just above 1860 LM versus 1,590 LM in 2021. This increase in average LM capacity was achieved through the sale of some very large ships. The large 6030 LM, quarter-ramp equipped Con-Ro vessel Jolly Diamante was sold and renamed Liberty Power. Built in 2011 at Daewoo Shipbuilding in South Korea, she was sold by Messina/MSC joint-owned company to Liberty Maritime based in the USA for a reported price of USD 72 million. Several large 4076 LM Flensburger built ships also found new Owners; Gardenia Seaways was renamed Ulusoy 16 when she was purchased from Siem Group by Ulusoy in Tukey via a BBHP deal. Her sister ship Tulipa Seaways was sold by Siem Group to DFDS when DFDS declared their purchase option after 5 years of BB charter. Another sister ship, Fadiq, was sold to a Danish pension fund who in turn bareboat chartered her to DFDS.

The Odense built Eurocargo Sicilia with 3663 LM was sold by Grimaldi to Baja Ferries at a reported price of about €30 million. The last done sale of a sister vessel was the POL Stella sold in 2021 for a reported price of €25.5 million. The difference in price serves as a good example of the general second-hand price increase of 15-20% experienced during 2022, depending on size, age and whether vessels are scrubber fitted or not.

CLdN RoRo S.A. based in Luxembourg bought Seatruck Ferries from Denmark based Clipper Group. The deal was formalised last autumn after a tender process involving several bidders. Seatruck owns and operates 8 RoRo ships of 1850 LM – 2150 LM built between 2008-2012, purposefully designed for their services between Warrenpoint-Heysham, Dublin-Heysham, and Dublin-Liverpool. CLdN RoRo S.A. has been building up a substantial portfolio of services from the Benelux countries, Spain and Portugal to Ireland. They now also have a strong service offering for west coast UK-Ireland.

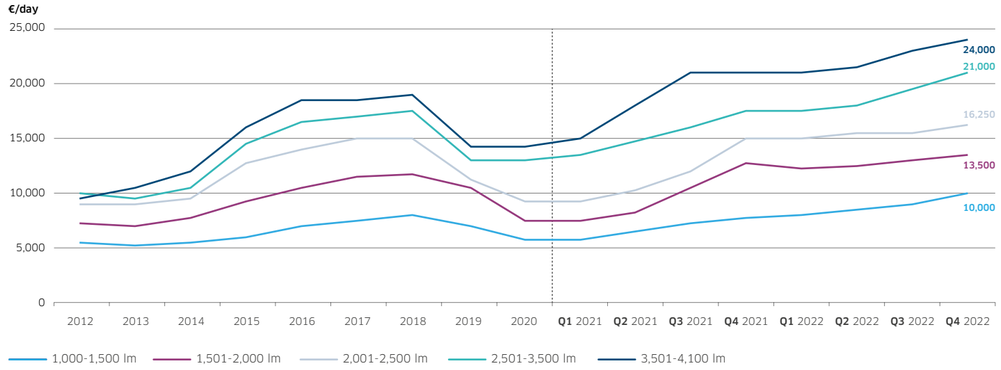
Smaller, older ships of up to 1200 LM were sold at around €4 million, compared with prices of €2.5-3.5 million in 2021. Slightly larger 90s built ships of 1200-1600 LM were sold for about €5-7 million, a handsome increase on the previous year. In the smaller segment there are fewer and fewer good candidates left, meaning that prices ought to stay strong. End-90s built ships of 1600-2500 LM were sold for prices in the region of €11-13.5 million.

At the end of 2022 many operators withdrew ships from the S&P market in order to 'sit and wait' with the view that cargo volumes will further increase as 2023 progresses, and in particular that demand from the PCC/PCTC sector will continue to spill-over into the RoRo sector, with operators willing to charter at very healthy rates for periods of a few weeks up to 12 months.

We expect the secondhand market for RoRos to remain firm in 2023.

Rates are averages including ships with and without fitted with scrubbers

Average Charter Rates from 2012 to 2022 (including ships with and without fitted with scrubbers)



THE FLEET

Newbuilding deliveries in 2022

15 newbuildings were delivered into the global RoRo fleet in 2022 with a combined total capacity of 74,500 LM. Mainly these were large vessels with, on average, 4950 LM. In 2021, 10 ships were delivered with a combined total of 50,000 LM. Newbuilding deliveries are set to decrease in 2023, with 8 ships totaling approximately 30,000 LM scheduled, averaging 3,750 LM. Currently only 4 ships are scheduled for delivery in 2024, with a total approximate capacity of just under 20,000 LM.

Wallenius SOL, the joint venture between Wallenius and Swedish Orient Line took delivery of two newbuildings from CIMC Raffles. The ships are 6,442 LM, with high a capacity of 28'000 dwt each. They are also classed as Ice Class Super 1A, enabling them to call at ports in the Gulf of Bothnia all year round.

Grimaldi took delivery of seven ships, of which four were the last in their initial series of nine "GG5G" 7,800 LM vessels, and the other three slightly smaller ice classed Finneco ships with 5,800 LM which will be trading in the Baltic Sea. All seven ships were built at Jingling Shipyard.

CLdN Group took delivery of Seraphine, their sixth and final ship from a series of 5,400 LM RoRos. Seraphine and its 2021-built sister – Faustine – have been fitted with dual-fuel LNG propulsion.

Four ships were delivered from Japanese shipyards to domestic Japanese operators. These ships are between 700 – 2,870 LM with quarter stern ramps.

Only 6 ships were sold for recycling in 2022

Orderbook and new orders

The number of newbuilding orders placed in 2022 stood at a record low of 5 ships. It is worth noting however that the ships ordered are large ones with a combined total of 34,000 LM and an average of 6,800 LM. In comparison, 2021 saw 11 orders totalling 37,000 LM with an average capacity of 3,360 LM.

One new order was placed in Japan for domestic trading, with 2,500 LM capacity and a quarter stern ramp. CLdN RoRo ordered two large vessels again at Hyundai Mipo, these will be sisters to Celine and Delphine which were delivered in 2017 and 2018, respectively, with 8,000 LM capacity. The new sisters will be delivered in 2024 and 2025 and will sport a number of fuel saving features including Rotor sails.

Grimaldi ordered two more of their GG5G series of 7,800 LM at Jingling, to be delivered in 2025, bringing the total number of vessels in the series to 11.

The orderbook decreased to 18 ships in 2022 compared with 27 in 2021, and now totals 76,500 LM versus 114,500 LM, a reduction of about 33% year-on-year. 6 of the 18 ships on order are between 1,150-2,500 LM and the remaining 12 ships between 4,000-8,000 LM.

The limited orderbook will keep supply low and rates under pressure, while persistently high newbuilding prices should maintain a cap on new orders in 2023.

Recycling activity

Only 6 ships were sold for recycling in 2022, down from 10 ships in both 2021 and 2020. Accordingly, 13,400 LM was erased from the RoRo fleet versus 17,350 LM in 2021, an annual decrease of 23%. The average age of ships scrapped was 35,2 years, slightly more than the 2021 average of 33.4 years.

The market was surprised to see the Blue Origin owned Jacklyn (ex-Stena Freighter) sold for recycling in the USA . Built in 2004, she was only 18 years old.

With regard to future recycling in the RoRo segment, there are about 68 ships aged 30 years or more and about 43 ships of over 35 years with more than 1,000 LM capacity. All of these are recycling candidates. There are only 12 ships aged over 35 with more than 2,000 LM. Based on these figures it is reasonable to expect that the number of ships recycled in the coming years should slightly increase, but that ships recycled will be of a smaller capacity.

FORECAST

Cargo volumes are expected to trend downwards in the first half of 2023, but with the small number of newbuilding deliveries anticipated, totaling less than half the LM capacity that was delivered in 2022, a tight tonnage situation should come across all size segments. Several large RoPax vessels will be delivered over the course of the year with notable freight capacity. Nonetheless, the RoPax orderbook is currently shrinking and the effect of the deliveries on the RoRo market is not expected to be significant.

We are likely in the middle of an economic downturn and improvements in cargo volumes will likely only to be seen from the 2nd half of 2023. In general, we expect an increasingly strong market with respect to charter rates and 2nd hand prices. We expect about the same number of charter deals, but maybe less 2nd hand sales than in 2022. Demand will be outperforming supply and the second half of 2023 is expected to show improvements in the hire rates. In addition, if the PCC/PCTC market continues on its current trajectory, this will simply add to the dearth of RoRos.

Only 5 new orders were placed in 2022 compared with 11 orders in 2021

Pictures (top): ***BALTIC ENABLER****. One of Wallenius SOL's two large RoRo ships delivered in 2022 and built at CIMC Raffles, China. She has 6,442 LM and is 28,000 dwt and Ice Class 1A SUPER. She will carry heavy forestry product and RoRo cargos from the Gulf of Bothnia to the Continent. Photo: with courtesy from Wallenius SOL.* ***(left): SEVERINE*** *one of the two sisters sailing for the Italian MOD. She is 1756 LM and built in 2012 at Kyokuyo, Japan. She is owned by Cadena RoRo S.A., Switzerland. Photo: courtesy Cadena RoRo S.A.*

Car Carrier

The Sky is the Limit

Buoyed by continued logistical and supply chain inefficiencies, including port congestions, combined with a surge in Chinese vehicle exports (+54% year-on-year with approximately 3.1 million vehicles), particularly of electric vehicles (approximately 680,000 units, +120% Y-O-Y), the car carrier sector sailed into unchartered waters, defying pre-2008 market dynamics.

PLUMERIA LEADER
LNG-powered car carrier with post-Panamax beam with approximately 7,000 CEU. Delivered in March 2022 by Shin Kurushima Toyohashi in Japan to and operated by NYK.

CHARTERING ACTIVITY

Chronic scarcity of supply and voracious demand for tonnage led to never-before-seen charter rates and asset values. Ship owners got comfortable in their driving seats and were able to command longer durations on charter coverages. By the end of the year, the time charter rate for a mid-size ship of 4,900 car equivalent units (CEU) had reached the mid-70,000 United States Dollars (USD) for three years' time charter, whereas that of a Panamax beam ship of 6,500 CEU was in the mid-60,000 USD for five years' time charter. In most cases, the charter revenues exceed the value of the ships! The conflict in Ukraine had very little impact on market dynamics but forced operators to cease calling at Russian ports and re-jig their services, redeploying tonnage elsewhere, particularly to Asia-Pacific, where they were immediately absorbed. Such was the appetite for space from Original Equipment Manufacturers (OEMs) that some saw no other solution than to charter ships themselves. This was the case of Volkswagen Konzernlogistik (VWK), SAIC Anji Logistics, BYD, Ford, and VinFast, all of which chartered tonnage directly. The traditional operators finally saw the tables turn and were able to negotiate cargo contracts with the OEMs at substantially higher freight levels, thereby ensuring a virtuous and more sustainable industrial cycle. In this red-hot environment, investment appetite, which had already been re-ignited the previous year, exploded with 88 ships being inked for construction. After rising from its ashes like a phoenix, the sector spread its wings and took off!

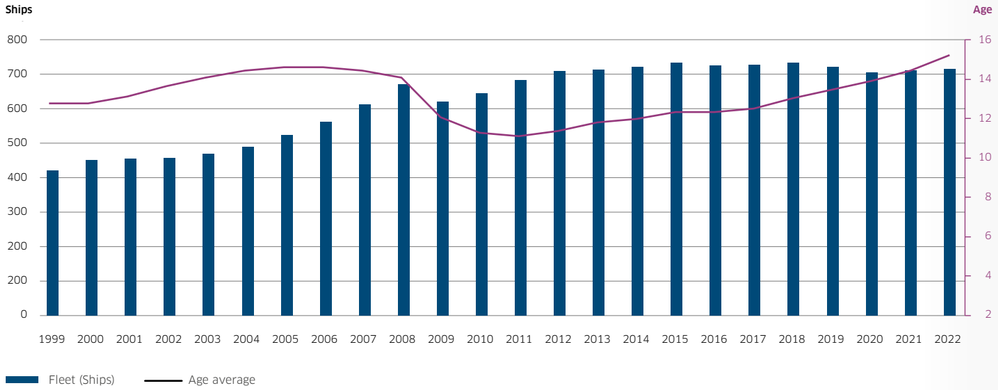
Looking ahead, the expectation is that the logistical and supply chain disruptions should ease throughout the course of 2023. This should in turn release some pressure from the sector's current market dynamics, but not nearly enough to threaten the newfound status quo. Nevertheless, downside triggers remain high with the cost-of-living crisis, continued inflationary pressures, the ongoing conflict in the Ukraine, continued general geopolitical tensions, recurring climate-related natural disasters, plus the ever-present possibility of a "black swan" event. On the upside, 17 units are scheduled for delivery in 2023, so fleet growth is not due to be significantly affected until 2024, when the first large wave of newbuildings (51 units) is due for delivery. In addition, low inventories and pent-up demand could boost cargo volumes. With a bit of luck, therefore, demand side volatility could be offset by the tight supply side, leading to another record year for the sector.

The Ongoing Anti-Trust Investigation

The sweeping investigation into the global car carrier price fixing scandal that has been ongoing since 2012 saw some developments last year. In January, the Competition Commission of India (CCI) passed a final order against four Japanese companies – Nippon Yusen Kaisha (NYK), Kawasaki Kisen Kaisha (K Line), Mitsui OSK Lines (MOL) and Nissan Motor Car Carrier Co. (NMCC) – for indulging in what it described as "cartelisation in the provision of maritime motor vehicle transport services." All four were found guilty of breaching the Competition Act between 2009 and 2012 and subject to penalties. In March, Hoegh Autoliners was fined 26.4 million Brazilian Real (BRL) by Brazil's Tribunal of the Administrative Council for Economic Defence (CADE) for participating in an international cartel. At the same time, the Tribunal of CADE unanimously agreed to dismiss the case against companies and individuals that executed agreements with the authority, namely MOL, NMCC, NYK, Compañia Sud Americana de Vapores (CSAV), K Line, Wallenius Wilhelmsen Logistics, Eukor Car Carriers and 54 individuals. The cease-and-desist agreements commit the investigated parties to stop participating in anticompetitive practices and to pay over 29 million BRL in financial contributions to the Ministry of Justice's Fund for De Facto Joint Rights. Last but not least, in December, the United Kingdom's (UK) Court of Appeal ruled that a class-action suit on behalf of UK motorists against a group of shipping companies could go ahead.

After ten years of penalties and convictions, we still haven't seen the end of this unfortunate chapter

Fleet and Average Age Evolution



THE FLEET

Based on a capacity of 1,000 CEU and above, at the turn of the year, the fleet counted 714 vessels equal to just under 4.0 million CEU, with an average age of 14 years. It marks the third consecutive year that the 4.0 million CEU threshold has not been breached since 2019. Compared with 2021, fleet and capacity growth were flat, each rising by a wafer thin 0.1% Y-O-Y, whilst average age rose by approximately 1% Y-O-Y. This is the second consecutive year of negligible growth over the past five years, maintaining the average over the past five years at approximately -1.1%. The last time the fleet experienced double-digit growth was in 2014 (13.6%). The overall orderbook ended the year at a whopping 131 units, representing approximately 18% of the current fleet, stretching out up to 2027, and accounting for a total of approximately 970,000 CEU. For the second consecutive year, the orderbook to fleet ratio nearly trebled compared with the previous year (6.3%). Looking back over the past ten years, the previous peak occurred in 2015 at 11%. 128 units, or approximately 98% of this orderbook, are post-Panamax beam vessels, accounting for approximately 960,000 CEU, equivalent to approximately 99% of the CEU capacity on order. Most importantly, a staggering 124 units, equivalent to approximately 95% of this orderbook, are endowed with dual fuel liquified natural gas (LNG) propulsion, reconfirming the sector's embracing of this technology to cut greenhouse gas (GHG) emissions, and to decarbonization. The exceptions include the 5 units for the Grimaldi Group, which are ammonia ready. Finally, approximately 27 units, or approximately 21% of the orderbook, are without committed employment upon delivery, equating to an estimated capacity of 192,000 CEU.

A massive 88 new orders were placed during 2022, equivalent to approximately 660,000 CEU with an average intake of approximately 7,500 CEU. This marks a 125% surge Y-O-Y. Spurred by a sizzling charter market, tonnage providers and operators alike made a run for the shipyards. Of note are the 23 units on order for account of Chinese operators SAIC Anji Logistics (5 units) and COSCO Shipping Specialized Carriers (18 units). In addition, there are the units ordered by third parties and already committed to Chinese operators, namely Zodiac Maritime with BYD (2 units) and with SAIC Anji Logistics (2 units), Seaspan with COSCO Shipping Specialized Carriers (3 units) and Santoku Senpaku with Guangzhou Ocean Carrier (6 units), a joint venture between COSCO Shipping Specialized Carriers, SAIC Anji Logistics and Shanghai International Port Group's SIPG Logistics. When you include the existing orders either directly made by Chinese operators or by third parties with charter commitments from Chinese operators, then the Chinese-controlled fleet shapes out to be an armada of 38 ships! This marks a dramatic break with the past and sets the stage for Chinese operators to load vehicles of Chinese OEMs on Chinese built ships, clearly following in the export strategy model of Japanese and South Korean OEMs.

Pictures: ***NEPTUNE BARCELONA****, car carrier with Panamax beam and with approximately 57,000 square meters on 13 decks equivalent to approximately 7,000 CEU with 3 hoistable decks and scrubber fitted. Delivered in July 2022 by 3 Maj Shipyard in Croatia to Neptune Lines and operated by Hyundai Glovis.*

Unsurprisingly, in a booming market, demolition activity ground to a halt

Four units were delivered during the year, accounting for approximately 21,400 CEU, with an average capacity of 5,300 CEU. Deliveries slumped by approximately 64% Y-O-Y, down from 11 units, as did capacity with an approximately 65% fall, down from 61,000 CEU. It goes to highlight how poorly invested the sector had been until the hot streak that began in 2021.

Two units (Sumire & Freesia Leader) saw their delivery dates deferred to 2023, accounting for approximately 14,000 CEU.

Unsurprisingly, in a booming market, demolition activity ground to a halt, with nothing sold for the breakers and only one casualty, the Felicity Ace.

Looking ahead, 21 ships, or approximately 83,000 CEU, representing 2.9% of the current fleet, will be 28 years old and above in 2023. In 2024, 25 ships, or approximately 105,000 CEU, representing 3.5% of the current fleet will be 28 years old and above. As the prevailing hot market dynamics should endure throughout the coming year, it is unlikely that these vintage ships will be retired. The coming into effect of the Carbon Intensity Indicator (CII) is unlikely to pose a real threat given the fact that its application and enforcement are still a work in progress. Despite their attempts at greenwashing themselves as much as possible these days, OEMs are unlikely to turn down poor-rated tonnage as long as they are struggling to evacuate cargo and don't have any greener alternatives.

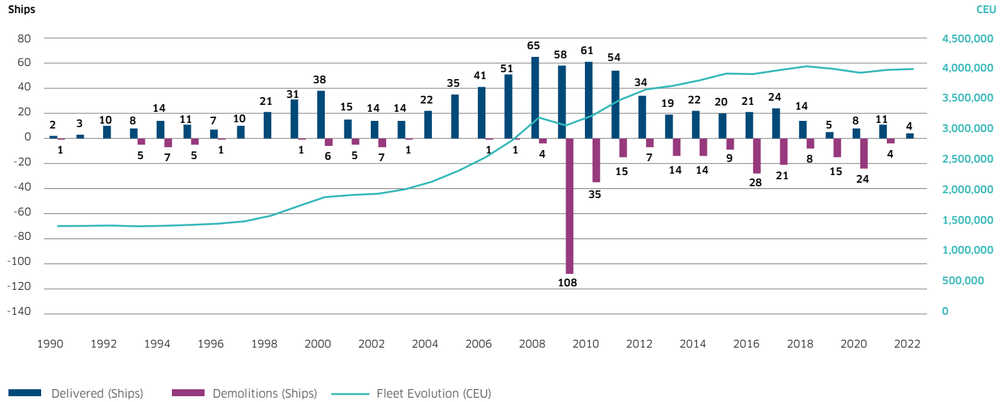
Picture: ***AUTO ACHIEVE****, second in a series of three car carriers with dual-fuel Liquified Natural Gas (LNG) battery hybrid propulsion and approximately 30,600 square meters on 10 decks, equivalent to approximately 3,600 CEU with 2 hoistable decks. Delivered in June 2022 by Jiangnan Shipyard in China for United European Car Carriers (UECC) and operated by UECC.*

These will start arriving, but mainly in 2024. It is then – perhaps – that operators and owners will replace vintage tonnage for greener newbuildings.

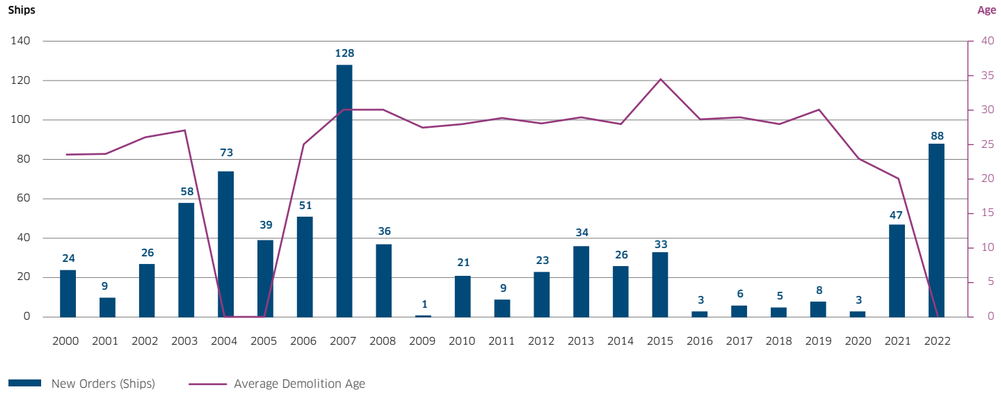
Sale and purchase activity posted a strong performance for the third consecutive year with 45 transactions, up 40% Y-O-Y. The average age was 15 years, and the average size was 5,200 CEU, for a total of approximately 237,000 CEU. The activity was a mix of arms' length sales including purchase options (31) and sale & leasebacks. For a historically illiquid market, it confirms the dramatic shift in investment appetite for the sector which had begun in 2021. However, given the prohibitive values of assets, we do not expect activity to stay strong in the coming year.

Sale and purchase activity posted a strong performance for the third consecutive year with 45 transactions

Fleet Evolution



New Orders vs. Average Demolition Age



Mercy Ships

Floating hospitals.
Vessels of hope.

Since over 50% of the world's population lives near a coast, our ships are the best way to reach people in need with personalized, state-of-the-art medical care.

GLOBAL MERCY
37,000 Gt, is the world's largest civilian hospital ship, constructed as the first purpose-built floating hospital for the humanitarian organization Mercy Ships with 6 operating theaters, 199 hospital beds and 641 volunteers onboard. Build by Stena Roro, Göteborg Sweden.

AFRICA MERCY
16,572 Gt a former rail ferry named Dronning Ingrid (Queen Ingrid) converted into a hospital ships by Mercy Ships with 5 operating theaters, 82 hospital beds with 450 volunteers onboard.
Build by Helsingørs Værft AS, Elsinore, Denmark

Around the world, in places without access to medical care, there are children, teens and adults suffering and dying from treatable causes. Without help, one child in eight will die before the age of 5. Together, we can reach these vulnerable children and families and provide hope and healing.

Our hospital ships are filled with state-of-the-art medical equipment and a volunteer crew of doctors, nurses, medical staff, technicians, teachers, physical therapists and other caring people driven by mercy to help make the world a better, healthier place for all.

MERCY SHIPS CARGO DAY

• Since 2016, the Shipping and Trading community has worked together to raise funds for **Mercy Ships** through the **Mercy Ships Cargo Day**, held annually.

• Charterers are giving "Mercy" Cargoes to Shipbrokers who in their turn donate 50% of their commissions to **Mercy Ships**. Other participants such as Shipowners, Ship Agents and Marine Survey Companies can also make a donation.

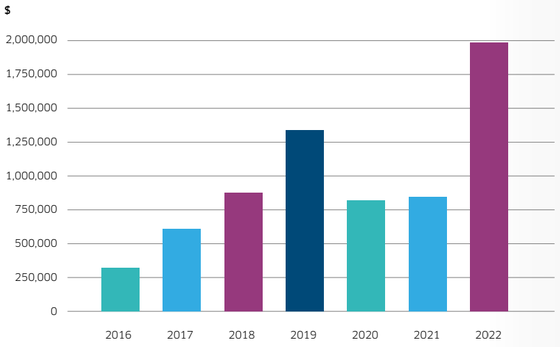
• The **Cargo Day** online fundraising event raised $7 million in 7 years by the shipping and trading community!

• In 2022, **Mercy Ships Cargo Day** broke its all-time record with $2.0 million that will help change the lives of thousands of people in Africa.

• **Cargo Day** 2023 online fundraising event will be launched at the beginning of November 2023.

Next Cargo Day in November 2023

Cargo Day Results



Year	Result ($)
2016	314,000
2017	673,000
2018	860,000
2019	1,300,000
2020	787,000
2021	793,000
2022	1,999,000
Total amounts	**6,726,000**

CARGODAY2023

TWO HOSPITAL SHIPS TO BRING HOPE AND HEALING IN WEST AFRICA

Mercy Ships, an international humanitarian NGO, was founded in 1978 by Don & Deyon Stephens in Switzerland. For more than 40 years, this humanitarian NGO has been providing surgery to the most vulnerable people in Africa.

2022 was a year of promises fulfilled and hope realized for Mercy Ships. Mercy Ships and its local partners provided more than 2,000 life-changing surgeries and trained more than 1,100 health care workers.

- More than 1,200 volunteers from 65 countries
- Over 200 Senegalese crew members (Day Crew)
- 186 local partners
- 2,312 surgical operations
- 194 participants in training courses for a total of 24,529 hours of training. including 53 future dentists
- 87 farmers trained in sustainable nutritional agriculture
- projects in 7 African countries

In 2023, Mercy Ships will multiply the humanitarian impact.

The Africa Mercy has recently joined with the Global Mercy in Tenerife, where both ships geared up for this year. The Global Mercy is now in Dakar to welcome patients from Senegal and Gambia until June. After, she will be in Sierra Leone while the Africa Mercy enters a period of maintenance in South Africa, enabling her to serve alongside her sister ship for many years to come! In the second half of the year, The Africa Mercy will travel to a new country to bring hope and healing!

2022, a year of promises fulfilled for Mercy Ships

TESTIMONIAL

Mercy Ships - Story of Kadidja

At first glance, **Kadidja** is just like any other child. The 4-year-old girl is happy and energetic. She loves to dance, play, and eat good food. She brightens up any room with her fearless energy and hardly ever stops giggling. But something was holding her back.

More on:
https://mercyships.ch/en/action-africa/patients-stories/kadidja

*Picture: **HOULEYE** was born with a strange mass on her neck. She received surgery on the Africa Mercy.*

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Offices

Athens
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Oslo
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Paris
+33 1 41 92 12 34

Shanghai
+86 21 6321 5666

Singapore
+65 6603 3230

Stamford (Connecticut)
+1 203 487 7014

General Enquiries
contact@brsbrokers.com

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2023 Annual Review

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