



Happy together/apart

by Rostom Merzouki, VP, Global Sustainability, ABS

Although shipping has reduced carbon intensity per unit of transport work for almost two decades – initially by slowing vessel speeds and increasing ship sizes, and later through environmentally conscious operations and improved design – the total well-to-wake greenhouse gas (GHG) emissions present a different narrative. Among many a factor influencing shipping’s green efforts, the ABS’s 2025 Outlook, *Beyond the Horizon: Vision Meets Reality*, assesses the impact of the industry structure on its ability to decarbonize.

The shipping industry operates through self-regulating dynamics of supply and demand, influenced by macroeconomic indicators (such as gross domestic product and population growth), geopolitical disruptions (including sanctions and security threats), and climatic factors (like droughts). So, whereas the 2008 financial crisis sharply reduced trade volumes, emissions have steadily increased in line with trade growth and rising tonnage on the water since 2010. Similarly, the improvements in carbon intensity observed so far – which are only partially attributable to environmental initiatives – have largely been shaped by market forces rather than regulation.

Fragmented fragmentation

While the development and testing of alternative fuels is underway, widespread adoption across all ship types and sizes remains a significant hurdle. As of May 2025, the top 50 shipowners, and of those, the top 10, collectively accounted for 60% and 30% of the global order book, respectively (Fig. 1). Yet, they were responsible for 70% and 50%, accordingly, of the alternative-fuel tonnage (Fig. 2). This indicates a strong concentration of decarbonization efforts among large owners, who benefit from economies of scale and preferential access to financing and public funding.

Adoption of low-carbon technologies is also uneven across ship types. Vehicle carriers and container ships lead in alternative-fuel uptake, largely due to their high emissions intensity driven by elevated service speeds and traffic volumes. More crude tankers and bulkers have been embracing the trend towards alternative fuels, and this is expected to become common in the next five years.

Many operators manage small fleets (Fig. 3), showing a median size of three vessels per fleet over a sample of around 6,000 vessels, resulting in an utilization rate of 60% (Fig. 4), hence a high proportion of ballast voyages at around 40%. Specifically, ballast voyages are driven primarily by trade imbalances, but also by fragmentation and market uncertainties such as delayed cargo fixtures or a lack of information on the next shipment.

While trade imbalances are structural, fragmentation-related inefficiencies can be mitigated, and their mitigation can lead to an improvement in carbon intensity per unit of transport-work and a reduction in GHG emissions. Pooling as few as 20 vessels into a fleet managed by a single operator can yield a reduction in fragmentation and an improvement in utilization rate such that GHG emissions and fuel consumption are reduced by around 4.0% on average.

Unlike sectors such as automotive, where vertical integration enables data sharing and feedback loops between operations

and research & development, the maritime industry suffers from a heavily fragmented supply chain. Engine manufacturers, for instance, often lack access to high-frequency operational data, hindering innovation.

To buy, consort, or pool – that is the question

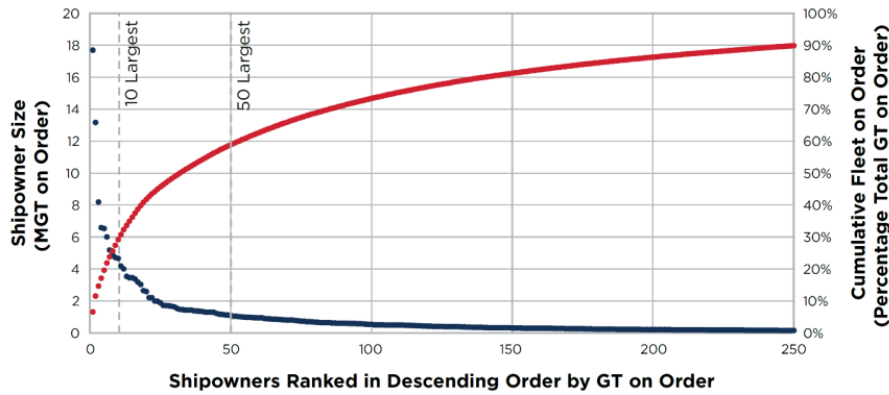
While mergers and acquisitions are common in the container ship sector, and project-based consortia are prevalent in maritime nations such as Japan, South Korea, and China, pooling is a third way that offers the benefits of consolidation – at a lower risk and with increased flexibility.

Ownership of large fleets through M&A may entail risks due to the lack of diversification in shipyard selections, or vessel segments that frequently accompany economies of scale, or tariffs and sanctions that may target only a few ships – yet, negatively affecting the whole organization in today’s volatile geopolitical climate.

Consortia, as an alternative to ownership through M&A, generally involve the development of technical solutions to be commonly adopted by consortium members. However, they typically do not encompass joint commercial operations, where additional opportunities for improvement lie.

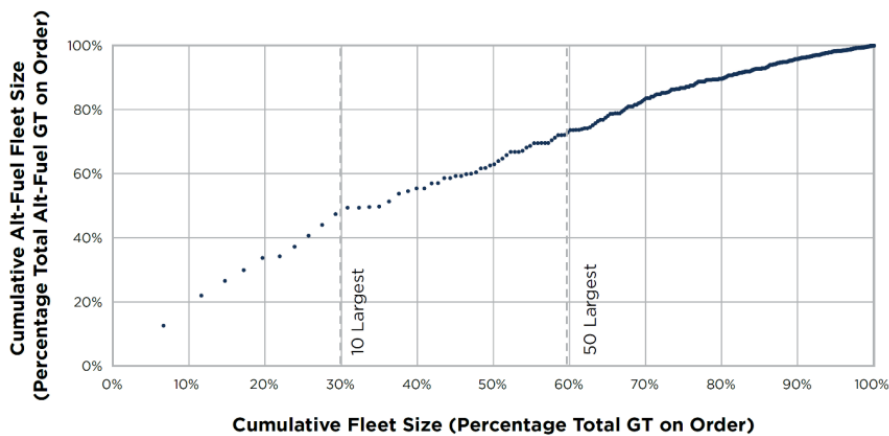
On the other hand, pooling allows small and mid-sized shipowners to share resources and reduce exposure to macroeconomic

Fig. 1. Owners' size and orders



Source for figs. 1-2: Clarksons Research, ABS

Fig. 2. Owners' size and alternative fuel on order



shocks while giving them the option to leverage regional market discrepancies for arbitrage opportunities and flexibly switch between pools. It not only reduces costs and emissions but also empowers smaller shipowners in hard-to-abate segments by enabling shared resources that can be invested in decarbonization.

Larger players, meanwhile, may increasingly rely on chartering vessels built to their specifications but owned by smaller owners, improving margins and accelerating green technology adoption without additional ownership risk.

In this context, fragmentation, when strategically managed, can become a source of profitability and innovation for agile players willing to fleetly collaborate and consolidate operations.

To decarbonize – safely, credibly, and affordably

Considering decarbonization in its widest context, the maritime sector clearly stands at a pivotal juncture. Decarbonization has shifted from a strategic aspiration to an execution race measured in years – not decades. The central question for the next five years

is straightforward: can policy, technology, and capital mobilize fast enough to bridge the growing gap between climate ambition and operational reality?

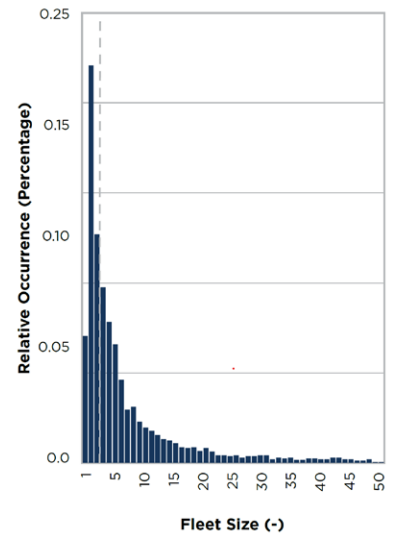
As the 2030s approach, the only credible path is to build a bridge with available clean fuels, extend the runway with energy efficiency and on-board carbon capture to reduce emissions, and prepare for the end-game – likely a combination of nuclear and true zero-carbon fuels.

The priority is to decarbonize safely, credibly, and affordably. That means synchronizing frameworks to avoid double-charging, de-risking retrofits amid yard bottlenecks, and focusing on lanes where vessels, fuel, and infrastructure can come together. Meanwhile, it's essential not to over-penalize the solutions that work



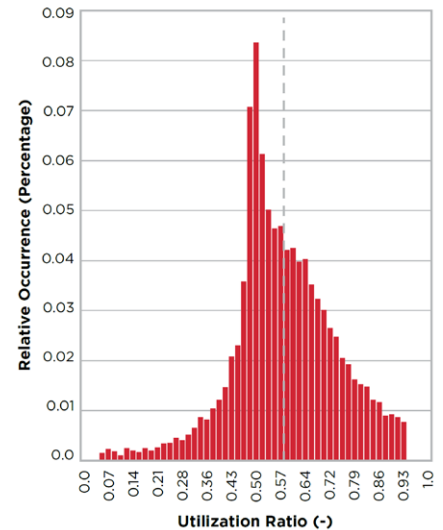
Rostom Merzouki, whose 30+ years of experience in the marine industry spans sailing, engineering, project & vessel management, is now the Vice President of Sustainability for the **American Bureau of Shipping (ABS)**. His team is responsible for developing, implementing, and overseeing the class' sustainability strategy and initiatives. This critical role helps ensure that ABS operates responsibly and is positively contributing to the maritime industry while carrying out the company's safety mission.

Fig. 3. Fleet size histogram



Source for figs. 3-4: Bimpikis et al. (2025)

Fig. 4. Fleet utilization histogram



today nor to over-promise those that do not yet exist at scale.

By converting monetization into mobilization, backing near-term, measurable reductions, and investing with discipline in tomorrow's options, shipping can meet tightening targets while preserving safety, reliability, and trade. Getting this right is critical because it helps build the system that actually delivers net zero. □