



# **Too big to sail?**

## **Why big ships mean big risks**

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## ARE SHIPS TOO BIG?

**How big is too big? Ever Given's 2021 incident in the Suez Canal, increases in container overboard events and the launch of ever-larger container ships have brought the question into sharp focus.**

Take the Ever Given's grounding. Was it an outlier, a rare occurrence given the massive traffic volume that regularly travels through the canal? Or was it a sign of things to come, as ships get bigger and our current infrastructure strains at the seams to contain them?

The critical question to ask is:

## Who benefits from the increase in ship size?



### Shipping lines

Having fewer ships at sea generates efficiencies of scale and reduces crew costs. Significantly, shipping lines also claim that bigger ships are more fuel-efficient and thus 'greener' than a fleet of many smaller vessels.



### Shipyards

The steady demand for new, large ships keeps them in business and allows shipwrights to explore the limits of ship construction in terms of design, materials, automation and more.



### Consumers

The shipping lines' efficiencies of scale provide greater shipping opportunities and more diversity in cargo operations. When it's often cheaper to export your raw materials for processing and re-import them as finished goods than to manufacture locally, the cost benefits are hard to deny.

## **SEA LANES: CONTROLLING GLOBAL TRADE**

**The Panama Canal, Suez Canal and Strait of Malacca are three of the busiest and most important shipping lanes in the world.**

However, all three are also narrow and shallow, meaning a ship that can navigate one may not necessarily be able to pass through another.

“The Panamax vessels originally were the biggest that could go through the Panama Canal. When they made the duplicate Panama Canal, then they had the Post Panamax or New Panamax, which was the new maximum that could go through there,” Kurt Herron, Logistics Risk Engineer at NTI, explains.

**“And then you’ve got the ULCV which is Ultra Large Container Vessel, or what some people like to call Suezmax, which is the largest that goes through the Suez Canal.”**

But with the rise of China as an import-export giant and routes from China to the USA West Coast and China to Europe becoming the world’s principal sea routes, the previous maximum size of these ‘max’ ships has been drastically reimagined.

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**“As China has become the manufacturing hub of the globe, it makes sense to run these size vessels to key markets from China.”**

— **Kurt Herron,**  
Logistics Risk Engineer, NTI

## SHIP SIZE: HOW BIG – AND WHY?

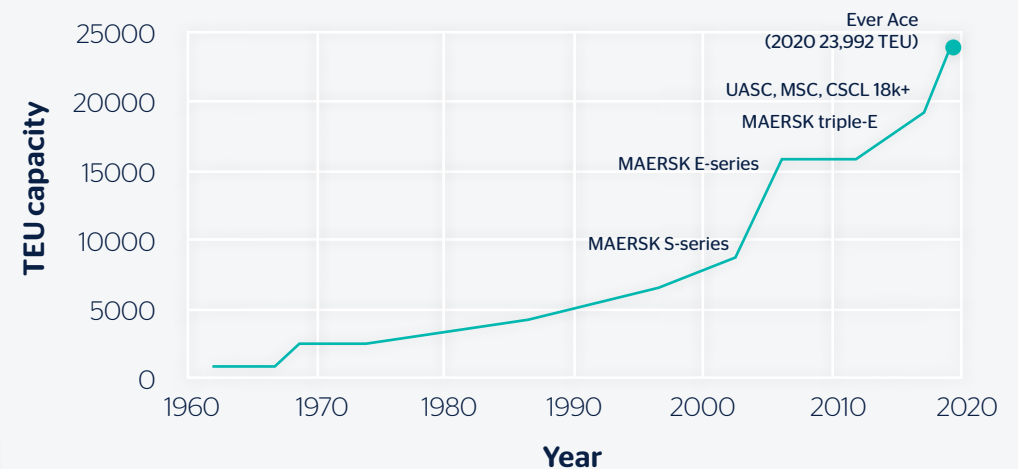
The largest container ships on the seas in 2021 measure some 400 metres in length, 61 metres across, and can carry 24,000 shipping containers (known as twenty-foot equivalent units, or TEU).

However, these massive ships are a relatively new phenomenon, having seen a dramatic shift over the past 50 years.

And the past 15 or so years have seen another jump in capacity, with Kurt noting “they’ve doubled since 2006.”

The timing of this enormous increase in capacity coincides with the rise of global supply chains and global retail, but also with market consolidation in container shipping, which as the [United Nations noted](#) “reflects the industry’s efforts to cope with the difficult market conditions faced since the 2008 global financial crisis”.

Container ship TEU capacity growth



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“We’re talking upwards of 1500%, 2000% increase in terms of container capacity in vessels between 1970 and today.”

– Kurt Herron, Logistics Risk Engineer, NTI

## SHIP SIZE: THE GOOD

**With a single ship now able to carry double the capacity of its mid-noughts predecessors, we see many larger vessels on the ocean, making for more efficient operations.**

Ultimately, these efficiencies result in better access for more people to a greater range of products at more competitive prices than would otherwise be the case. They make cheaper, imported goods available in developing nations and open new markets for these countries' exported goods.

They also provide opportunities to make the shipping industry environmentally cleaner, as large ships can afford to travel slower.

In 2018, the global shipping industry agreed to slash emissions by 50% by 2050 compared to 2008 levels, and a key is simply slowing, with the [BBC reporting](#) that **“cutting ship speed by 20% would cut sulphur and nitrogen oxides by around 24%.”**

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**“It just makes sense financially that, rather than having lots of smaller vessels making the same voyage, you’d have fewer, bigger ship that can transport higher volumes in one hit.”**

— **Dan Morrison**, National Cargo Product Manager, NTI

## SHIP SIZE: THE BAD

**The biggest challenge with ships of this magnitude is that they are significantly harder to control, requiring kilometres of ocean to stop or turn.**

But more than just the sheer length and weight of the ship alone, the increase in cargo also has a role to play in the issue of manoeuvrability.

As TEU increases, the height of container stacks grows, which makes these ships far more likely to be affected by the wind.

The Suez Canal Authority has indicated that the Ever Given incident investigation's findings won't be made public. But clearly many factors were involved, including human error and high winds. The Authority must reflect on whether its decision-making and incident response protocols for safe transit are sound.

Another growing risk on large ships is container loss from on-deck stacks. A [2021 S&P Global report](#) on supply chains found “the winter storm season in the Pacific ... led at least five ultra-large container vessels to lose containers,” **the most significant loss being the ONE Apus having more than 1800 containers go overboard.**

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**“These large vessels move substantially differently to the smaller versions. With that comes an inherently higher possibility of containers going overboard.”**

— **Kurt Herron,**  
Logistics Risk Engineer, NTI

## SHIP SIZE: THE UGLY

**It's critical to keep in mind that these enormous ships are just one link in the supply chain and that their rapid increase in size has knock-on effects.**

"It's not simply a change to the vessel. It's a change to the whole logistics process of moving containers from one location to the next," says Dan Morrison, National Cargo Product Manager at NTI.

In recent years even the COVID-19 pandemic, rising container prices and ever-increasing transport bottlenecks have not stopped shipping volumes from rising.

The critical challenge is to ensure our transport networks remain resilient, keep pace with new ship types and are flexible enough to absorb incidents and accidents with minimal disruption.

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**“The infrastructure on either side of it needs to be changed to keep up. You need to have more containers at the port to put onto these vessels, and you have to have more trucks and trains and cranes to move the containers around.”**

– **Dan Morrison**, National Cargo Product Manager,  
NTI

## MANAGING YOUR SHIPPING RISKS

**While these enormous ships don't make their way to Australian ports, there's no guarantee that Aussie cargo won't end up on one due to trans-shipping.**

"The most convenient way is to get everything to, say, Singapore port and then have it put on a bigger vessel," Dan Morrison explains.

**This convenience is why it's critical to get as much information as you can about your entire chain.**

Ultimately, when so much of the supply chain is in other people's hands, the most effective action you can take is to control your controllables.

**"Make the accurate declarations of what you have, so the vessels get loaded appropriately," Dan says.**

"Have appropriate insurance as well, because in the event something goes wrong, we're here to protect you."

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**“Understand your supply chain, engage with your carriers and engage with your freight forwarders to understand where, if anywhere, your cargo is trans-shipping ... it's all about just making sure that you've prepared your goods for shipping and then understanding what happens once they leave your control.”**

— Dan Morrison,

National Cargo Product Manager, NTI



## THE FUTURE

**As to the question of whether ships can get bigger, the short answer is: absolutely!**

Presently, Chinese shipyards are constructing 24,232 TEU container ships, which will mark a new record in terms of capacity. And that's hardly the ceiling in terms of what can be achieved, with Bloomberg speculating in March that we could "see 50,000 TEU vessels plying the sea in your lifetime."

That said, the sky isn't the limit, with Dan pointing out that "steel only has so much strength behind it ... a vessel can only achieve a certain size before it's just impossible to manage."

**However, issues portside are likely to determine how big we ultimately get.**

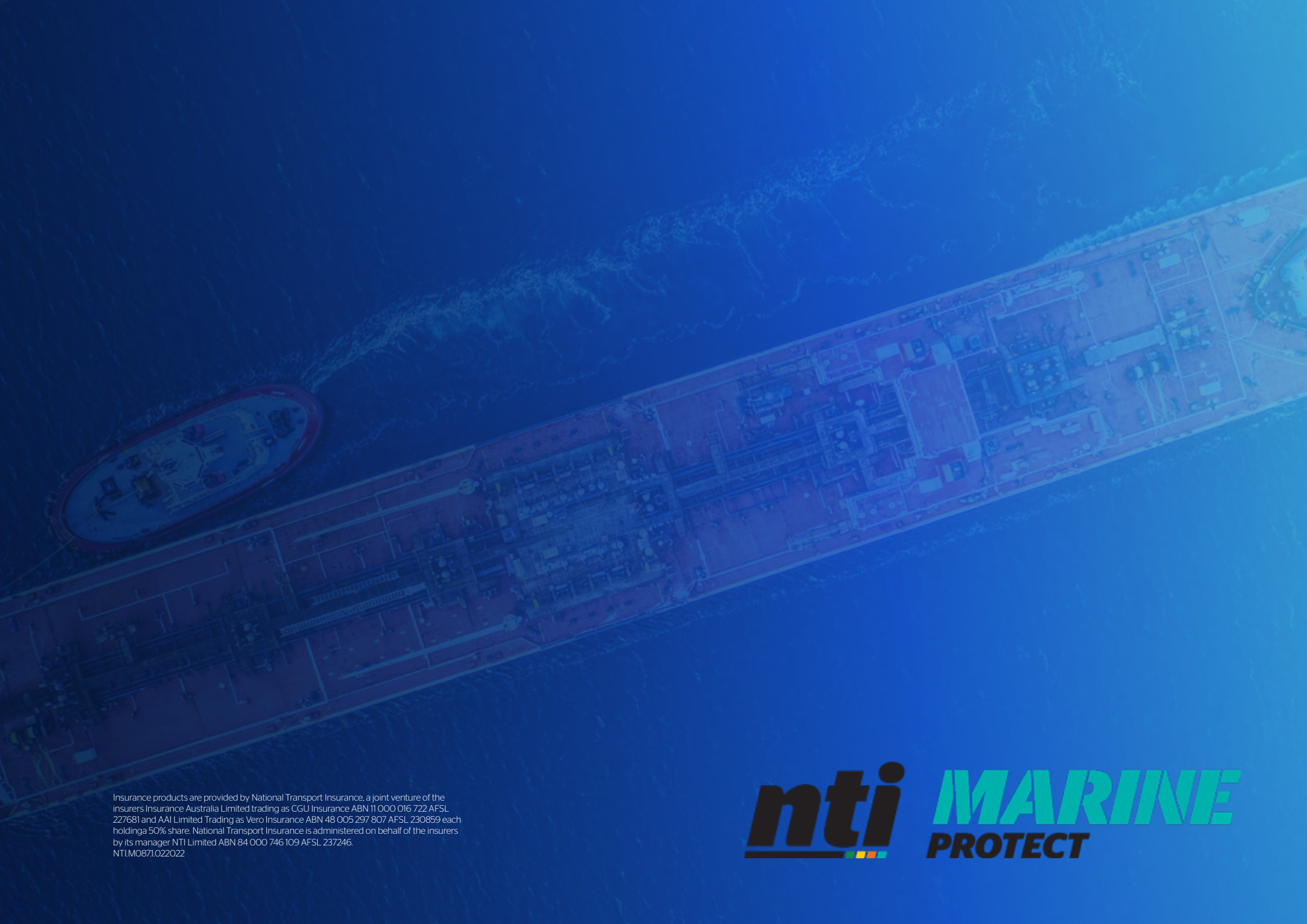
Dan also says that, before we push for these ships that bump up against the laws of physics, we need to sort out the issues we're facing now:

"There are a lot of questions coming from logistics, freight forwarders and cargo owners groups, about why there are more containers falling on vessels. Before things get bigger, they've got to figure out what's this problem and do we need to change something else to make it bigger?"

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**“The limit really is how big a vessel the port can hold. Port infrastructure is hard to change once it's in place. At some point, you reach the limit that the size of the vessel that can go into a location.”**

**— Dan Morrison,**  
National Cargo Product Manager, NTI



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