

IUMI Policy Agenda

3. Containers lost at sea

Brief description

According to the World Shipping Council a number of containers are lost at sea each year. High profile accidents include the One Apus which lost a total of 1,816 containers (November 2020) and the Maersk Essen which lost 750 containers (January 2021) during their respective voyages. These events show the necessity to review the root causes of the incidents. Average annual losses currently stand at around 1,200 containers, with 576 lost in 2024.

Container ships have grown at an incredible pace over the past 40 years. While the maximization of economies of scale and the overall impact of transportation costs is impressive, this does come with increased risk. Larger beams and container stack heights lead to high metacentric heights (GM) making the vessels very stable/stiff and prone to violent rolling in heavy seas. Wind exposure on deck stacks further increases the momentum, while specific wave patterns may trigger parametric or synchronous rolling. These dynamics impose extreme loads on lashing systems.

Stowing, lashing and securing practices are a further weak link. The distribution of weight within a container stack has an impact on the stability of a vessel. Misdeclared weight can cause stack collapse, and even one faulty twist lock or damaged securing device may cascade into the loss of entire stacks. Enforcement of the IMO's verified gross mass (VGM) regulation is therefore critical.

Operational aspects may also play a role. Current calculation methods determine where and how many containers can be stowed on board. They often rely on idealized "in-design" assumptions. These in-design conditions cover standardized operating conditions as envisaged in the ship's design, for example symmetric loading or moderate sea states. In practice, however, container vessels are frequently exposed to "off-design" conditions – such as quartering seas, long-period swell, or asymmetric loading – where dynamic roll phenomena like parametric or synchronous rolling can occur. These situations are far from rare in daily operations, yet assessment methods for such off-design conditions vary significantly between classification societies. The absence of harmonized, transparent standards hampers reliable risk evaluation and increases the likelihood of container losses.

Climate change has increased the frequency of severe weather. Improvements in marine weather forecasting and weather routing services help but cannot fully mitigate the risks. Human error is another contributing factor. This includes poor adherence to stowage or

lashing plans, insufficient re-securing of lashings during the voyage, and inadequate cargo stowage within containers.

Losses affect multiple insurance lines, from cargo and hull to liability. They also raise environmental concerns, while salvage capabilities have not kept pace with vessel growth. IUMI notes that internationally harmonized stability and securing standards, greater transparency of calculation models, and binding minimum requirements for dynamic stability assessments could strengthen safety and resilience.

IUMI has been involved in the MARIN-led TopTier Joint Industry Project, which addresses the problem in its full complexity. Outcomes include guidance for crews on how to recognize and avoid parametric rolling, as well as educational material for the wider industry. TopTier findings have also been taken up at IMO level, for example in the publication of MSC.1/Circ.1642, a Notice to Mariners on parametric rolling, and in the ongoing work to revise the Cargo Securing Manual with harmonized performance standards for lashing software. Furthermore, IUMI has co-sponsored TopTier submissions to IMO, including a filing for the 10th session of the Sub-Committee on Carriage of Cargoes and Containers (CCC 10, September 2024). In July 2025, IUMI also co-sponsored a further TopTier submission for CCC 11, ensuring that project results continue to inform IMO deliberations.

In parallel, the IMO is amending SOLAS to require Masters to report without delay any lost containers to the nearest coastal State and the flag State, with the amendments entering into force on 1 January 2026. At the same time, IUMI, IACS and others are working through the IMO Correspondence Group on harmonized performance standards for lashing software. The work continued at the CCC Sub-Committee meeting in September 2025 where a work plan on measures to prevent the loss of containers at sea was completed. Flag States and observer organisations can now submit proposals for new outputs related to the work plan to the next MSC meeting. The work plan covers these aspects:

- Operational guidance and limitations
- Conditions at sea
- Loading, stowage, validation and planning
- Strength properties and calculations issues (calculation technical standard and container securing gear properties)
- Inspection programmes (container securing and lashing gear)
- Strength properties and calculations issues (container properties)
- Inspection programmes (ACEP, PES) (container strength)

A proposal for a new output will have to be submitted to the Maritime Safety Committee to pick up on any of the issues included in the work plan.

The work on performance standards for lashing software continues in a Correspondence Group and will be on the agenda for CCC 12 in September 2026.



IUMI will:

- Support the implementation of the findings of the TopTier JIP into the IMO to effect regulatory improvements with regard to containers lost at sea.
- Raise awareness for the complexity of the root causes of containers lost at sea and means to address them.
- Support lashing software being allowed as supplement to the Cargo Securing Manual for all operating container vessels. The lashing software has to comply at least with minimum and harmonized standards which are to be discussed in the CCC Sub-Committee.
- Support harmonisation of calculation methods for load quantities.