

Executive Summary

The Panama Canal has had a significant influence on ship development and trade routes since opening in 1914. As it marks its 100th anniversary with plans to create a new lane for larger transits, this risk bulletin focuses on the impact of this expansion on the maritime industry and the risk challenges it poses. It also examines the canal's safety record, analyzing shipping casualties (of over 100 gross tons).

With approximately **3% (US\$270bn)** of world maritime commerce (**\$9trn**) transiting the Panama Canal every year the safe passage of vessels is critical. There were just **three** shipping incidents (casualties) in the canal during 2013, in line with the 10-year average but up on a year earlier (**1**). There were no total losses.

The Panama Canal has seen **180** shipping casualties over the past 20 years (an average of **nine a year**). Its safety record has improved significantly over the past decade resulting in just **27** casualties (two total losses).

Bulk carriers (**11**), cargo ships (**9**) and container ships (**9**) dominate the canal's casualty list, collectively accounting for over **75%** of all incidents since 2002.

In a relatively controlled shipping environment, the most common cause of incidents in the Panama Canal is contact with walls (**53**) and collisions involving vessels (**50**), accounting for almost **60%** of incidents. Machinery damage/failure is third (**41**), accounting for over **20%**.

Compared with other significant waterways such as the **Suez Canal (505)** and the **Kiel Canal (272)**, **Panama Canal (180)** has seen fewer shipping incidents over the past 20 years, although more ships pass through the Kiel Canal each year than Panama and Suez combined.

The odds of a shipping incident occurring in the Panama Canal are around **1 every 4,000 ships**. For the Suez Canal it is **1 every 1,100 ships**. For the Kiel Canal it is **1 in 830**.

Although the total number of maritime accidents in the Panama Canal has decreased significantly the potential risks are only set to increase with the creation of a new lane for larger ship transits, expected to open in 2015, posing new challenges for the maritime community.

New locks will enable new-Panamax ships (**12,600 teu**)* to enter the canal. Existing locks only allow for the passage of vessels carrying **4,400 teu**.

* A teu or twenty-foot equivalent unit is an inexact unit of cargo capacity, often used to describe container ship capacity. It is based on the volume of a 20-foot-long (6.1 m) container

The expansion will enable between **12 and 14** larger vessels per day (approximately **4,750** additional ships a year) to transit the canal. The increased size of these vessels – particularly container ships of 12,600 teu – will play a critical role in doubling the annual cargo capacity of the canal to **600 million PCUMs tons****.

This will have a significant impact on the insured value of goods being transported. If the Panama Canal operates at its full projected capacity following expansion this could result in an additional **\$1.25bn or more** in insured goods passing through the canal in just one day.

This potentially equates to **\$460bn** a year, significantly, increasing risk accumulation in the region. This estimate does not include hull values or the increasing number of vessels waiting to cross the canal on either side.

Larger ships automatically pose greater risks. The sheer amount of cargo carried means a serious casualty has the potential to lead to a sizeable loss and greater disruption. For example, a fully-loaded new-Panamax 12,600 teu container ship – as long as **four football fields with a beam of up to 49 meters** – could have an average insured cargo value of **\$250m**.

The complexity of the new canal lock system for larger ships could present a risk challenge in the event of it failing to operate. This could lead to blockages inside and outside of the canal. Contingency plans for a lock door malfunction will need to be implemented.

The potential impact of any shipping incident is much wider than just impeding progress through the Panama Canal. With more larger ships on the move in the surrounding region an incident could also impede traffic at major ports in the US and elsewhere, resulting in a potential increase in business interruption losses.

In addition, a number of US ports and terminals on the East and Gulf Coasts are exposed to hurricanes. Larger ships carrying higher concentrations of insured goods will spend more time in these ports, posing an increased risk. For example, a large portion of **Superstorm Sandy** losses in 2012 were due to storm surge that flooded ports in the Northeast region.

There is concern surrounding salvage limitations for larger container ships. In the event of an accident there may be an insufficient number of qualified experienced salvage experts available to handle the new-Panamax ships.

Increasing traffic of larger ships also poses a heightened pollution risk due to the amount of diesel and petroleum carried. The canal's strategic and commercial importance could also mean political and security risks increase following expansion.

To cater for the larger ships a raft of changes are also needed at global ports. Additional infrastructure upgrades will be needed in the form of larger gantry cranes to work these larger ships and to handle the increase in volume. Processing capability will need to be improved to avoid bottlenecks at choke points in ports. Navigability is critical: air and water drafts need to be sufficient to allow safe passage of the larger container ships.

There is substantial commercial risk for ports on both the East Coast and West Coast of the US with the East Coast expanding its container capacity in the hope of gaining market share, while the West Coast spends millions in order to protect existing market share.

Conversely, an expanded all-water route from Asia to the US East/Gulf Coast could reduce the risk of container damage due to a reduction in multiple transloadings. The fewer times a container is handled the lower the risk of damage.

Training is key to mitigating the risks involved with the impact of the Panama Canal expansion both in the canal itself and affected ports. The Panama Canal Authority has invested heavily in training including plans to charter a post-Panamax ship to practice maneuvers through the new lane. However, when the canal is opened a whole host of different vessels will be passing through. This will be a challenge.

With such a focus on training human error is unlikely to be the sole cause of future shipping incidents. The risk of grounding remains, either as a result of equipment failure or a casualty on the ship. Insurers and insureds will need to re-evaluate the risk to containers under this new scenario, as risks will be exacerbated during the initial opening period.

\$1.25bn

Increase in value of insured goods passing through the canal every day

\$250m

Average insured cargo value of the largest container ship able to use the new transit lane

** PCUMs tons: Panama Canal Universal Measurement System, the basis upon which vessels are charged for using the canal. A teu is equivalent to approximately 13 PCUMS tons.