


TT CLUB

SHIP BERTHING INCIDENTS

REVEALING THE REALITY

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Ship berthing incidents are all too common at ports globally. The berthing operation is highly dependent on human interaction and many incidents have their root cause in this fact. As well as damage to the ship, the berth and quay crane incidents often result in injuries to ship crew and port personnel. The advent of larger tonnage and the consequent 'cascading' effect to smaller ports means that the risk is real in most locations. This article attempts to identify and address the issues that can mitigate the occurrence of ship berthing incidents.

The two key areas of heightened risk are ship manoeuvring in the port and the process of mooring. Manoeuvring exposes the ship to collisions, while mooring can result in injuries or fatalities to crew or mooring line personnel. All the factors contributing to such incidents can be classified as either ship issues or port/terminal issues.

SHIP ISSUES

MASTER

Qualified and experienced masters and pilots are essential to the safe berthing of a ship. The pilot, master and bridge personnel

clearly need good communication and a mutual understanding of the other's role for the safe conduct of the ship in pilotage waters. It is important to achieve clarity so that the pilot may be successfully integrated into the bridge management team.

The pilot's primary duty is to provide accurate information to ensure safe navigation, while the master retains ultimate responsibility for the safety of the ship. The master and his/her bridge personnel have a duty to support the pilot and good communication between the master and the pilot is essential for safe berthing. The entire bridge management team bear responsibility to ensure that all actions are consistent with the passage plan and the safety of the ship, there has been evidence of incidents occurring because the master was new to the port and/or the pilot had not previously experienced the size or type of ship calling at the port.

ENGINE AND PROPULSION EQUIPMENT

Engine and/or propulsion equipment failure is a common cause of ship collisions. Proper maintenance systems and procedures should be established and followed,

including strict adherence to the ship's Safety Management System.

MOORING LINES

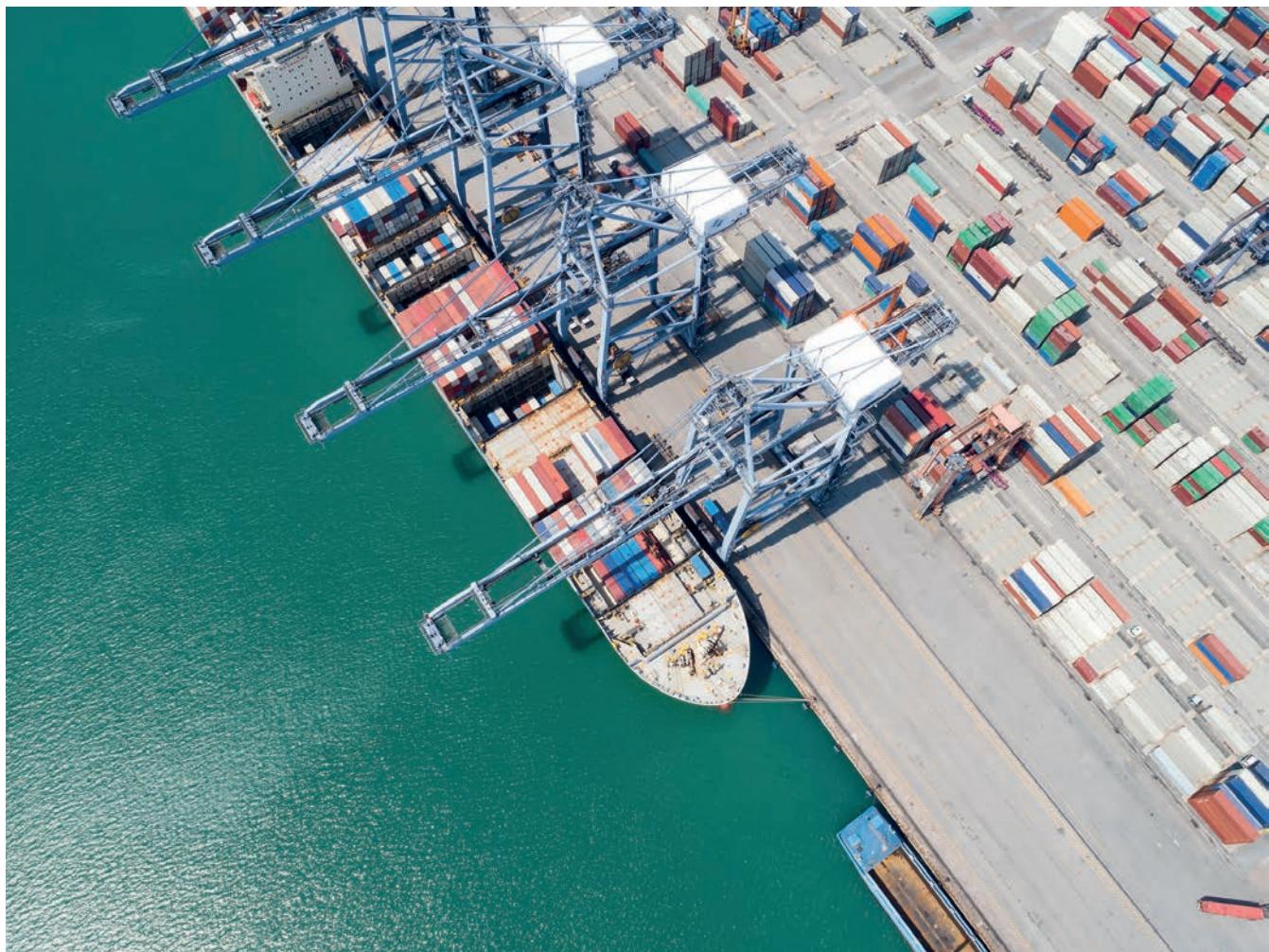
Where ropes are in poor or damaged condition, they should be replaced with spares. It is important that all ropes, wires and links used for mooring have a certificate, and it is good practice for these certificates to be clearly labelled and kept in an easily accessible file ready for inspection. Spare mooring ropes, wires and links should not be stowed with paint, chemicals, or any other shipboard or general cleaning items. Adequate spare mooring lines should be kept on the ship.

WINCHES

It is important that all greasing points are free, working correctly and have not been painted over so equipment can be maintained to the suitable standard. All winches should also be included in a ship's Planned Maintenance System.

SHIP MOORING CREW

A number of incidents occur when non-deck crew are deployed during mooring



operations. It is important to have sufficient personnel to be able to moor the ship safely and effectively. All crew should be trained and be familiar with the physical environment and the hazards associated with mooring operations. It is vital that time is taken to ensure that procedures are both understood and followed by the crew. A number of familiar factors recur in mooring incidents: seafarers stand in areas exposed to injury should ropes part. When crew with insufficient training take part in mooring operations, it is often these people who are seriously injured when something goes wrong. The ship and its equipment must be maintained to a high standard to reduce the risk of mooring incidents; all personnel should be adequately trained in the use of the correct personal protective equipment and adequate procedures should be in place, including supervision by a competent person. Training in mooring operations should be incorporated into the ship's regular training schedule and include all personnel who may be involved.

WEATHER

Adverse weather can have a significant effect on a ship in a port environment. Wind may cause heading changes and leeway, failure

to compensate correctly for wind during berthing is a significant cause of berthing incidents. The difficulty in allowing for wind arises from the variable effect it can have due to changes in a ship's heading and speed. Tides, currents and the swell also have significant effects on a ship preparing to moor or sail and must be considered by the master and the pilot in their calculations.

NEW TECHNOLOGIES

Modern, more reliable ship engines and the addition of thrusters have improved the level of safety in ship manoeuvring. Furthermore, certain ports are installing vacuum and magnetic mooring systems that can improve safety by removing personnel from the risks inherent in mooring lines.

PORT/TERMINAL ISSUES

PILOTS

In most ports pilots are essential in assisting the master to manoeuvre his ship safely into port. Port authorities and pilots must ensure that appropriate training, systems and procedures are in place to manage the berthing and un-berthing of the ships that they may be handling, especially taking account of new services or larger ships.

TUGS

Similarly, port authorities need to plan for new services or larger ships, ensuring that there are a sufficient number of tugs with enough power.

BOLLARDS

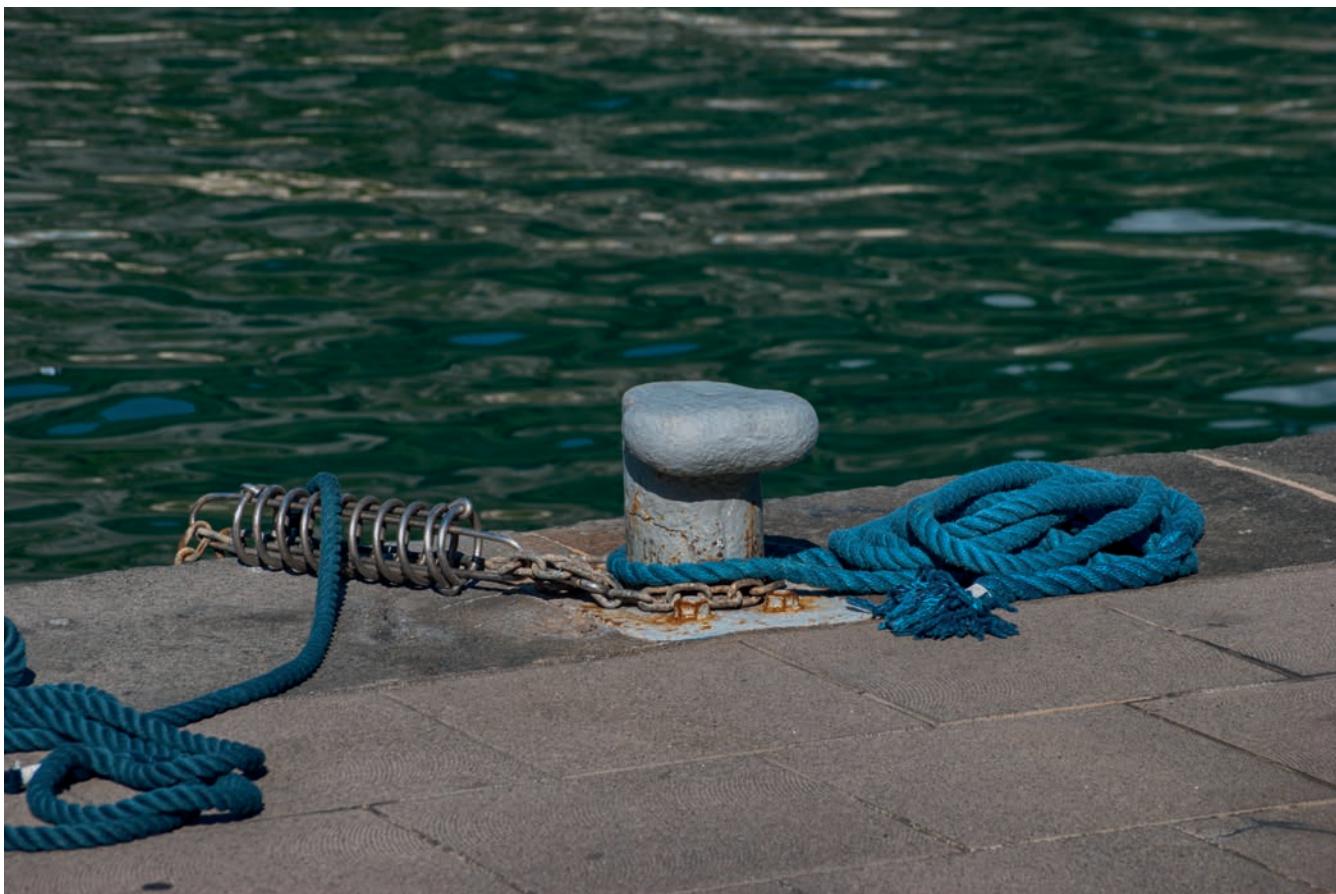
In many ports bollards may have been in place and potentially unchecked for decades. There is currently no international standard to ensure that bollards are sufficient in number, quality and capacity, as well as suitably located for the tonnage likely to call at each berth. Ships also need to have appropriate dialogues with the ports.

MOORING PERSONNEL

It is important to have sufficient personnel to be able to moor the ship safely and effectively. All mooring personnel should be trained and familiar with bights, snap-back zones and the hazards associated with mooring operations.

PARKING LOCATION OF QUAY CRANES

When a ship is berthing, the safest location to park quay cranes is well away from the allocated berth. However, this is generally impossible due to the



length of berths and location of other operations. Furthermore, repositioning cranes after berthing would cause unacceptable delays. Therefore, the least risky location to park quay cranes during a ship's berthing is in the centre of the intended berth. As it is often the bow or the stern which impacts the berth, a quay crane parked near to the ends of the allocated berth will have an increased risk of collision. Unfortunately wherever quay cranes are parked along the quay they can be impacted by an out-of-control ship.

WEATHER

Most port authorities have procedures which only allow berthing and un-berthing when the wind speed is below a certain level (generally between 20 and 30 knots). Procedures are also dependent on wind direction, tides, currents and swell. These procedures are to prevent damage to equipment and infrastructure in the port as well as to ensure the safety of personnel.

Ports in regions prone to hurricanes, typhoons or cyclones generally have additional procedures to send ships out to sea when severe weather is forecast. Emergency procedures for severe weather may be less advanced in locations that historically have never had to deal with such conditions. Recent experience evidences that unfamiliar and erratic weather

conditions are becoming more prevalent. Therefore, all ports should implement emergency procedures to send ships to sea in advance of severe weather – do not wait for an incident before developing an emergency plan.

The risk of ship mooring lines breaking during severe weather conditions are substantial and only partially mitigated by the availability of additional mooring lines or tugs on standby. However, these should form part of the emergency response plan.

NEW TECHNOLOGIES

Emerging technologies offering vacuum and magnetic mooring systems may improve safety and the

securing of ships. These technologies negate the need for mooring lines and therefore remove

port and ship personnel from potentially dangerous situations. Once more, while these systems are

not cheap, the improved safety benefits may justify their installation.

In summary, monitoring and addressing the above issues will help mitigate the occurrence of ship berthing incidents. The stakeholders on both the ship and port/terminal sides of the interface need to focus on their own issues, but also work together to manage the safety of people, assets and the environment.

ABOUT THE AUTHOR

Laurence Jones's covers advice and support in underwriting decisions and claims assessment with TT Club, working proactively with clients and the wider industry to identify areas where risk may be reduced. He is based in Sydney, Australia and is also a qualified engineer with over 40 years' experience in general management, engineering, maintenance, operations, industrial relations and logistics experience in manufacturing, mining and the global ports and terminals industry. He is a Director of ICHCA International, and an Advisor to PEMA.

ABOUT THE ORGANIZATION

TT Club has single-mindedly served the international transport and logistics community since 1968, evolving alongside the industry to provide the highest quality comprehensive cover. With TT Club you can expect comprehensive cover, loss prevention and expert support, integrated global reach and a claims process that is on your side.

ENQUIRIES

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