MARITIME FEEDBACK

CHIRP

An independent and confidential reporting system for the Maritime industry

PORTS AND HARBOURS

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Navigating Safety within Ports and Harbours

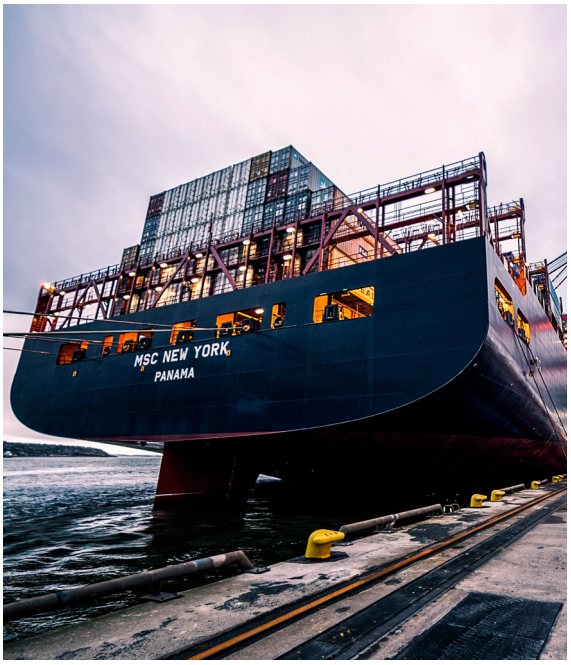
Adam Parnell
Director (Maritime)

As advocates of maritime safety, we are well aware of the unique challenges faced within ports and harbours. Congested waterways, filled with vessels of all shapes and sizes, navigating in close quarters with limited manoeuvrability, and operating within strict time constraints present an intricate safety puzzle. However, within these challenges also lie tremendous opportunities.

For years, ports have served as hubs for information exchange, fostering collaboration and knowledge-sharing among seafarers, with a particular emphasis on safety. After all, as the age-old cliché goes, it's better to learn from the experiences of others since we don't live long enough to have them all ourselves! And that's precisely why we're here.

Celebrating our 20th anniversary, CHIRP has been an active participant in these crucial conversations. Whether it's engaging with individual mariners through our confidential incident reporting program or disseminating valuable insights via our FEEDBACK newsletter series, CHIRP has been dedicated to enhancing maritime safety. And now, we are thrilled to announce the launch of a new series of newsletters specifically tailored to ports and harbours for three specific reasons. Firstly, we aim to raise safety awareness among individuals by providing them with vital education and knowledge. We believe that education is empowerment when it comes to maritime safety.

Secondly, we strive to create a platform for organizations to share their knowledge and best practices without compromising their commercial or reputational interests. By encouraging the exchange of valuable insights, we hope to foster a culture of continuous improvement in safety measures across the industry.

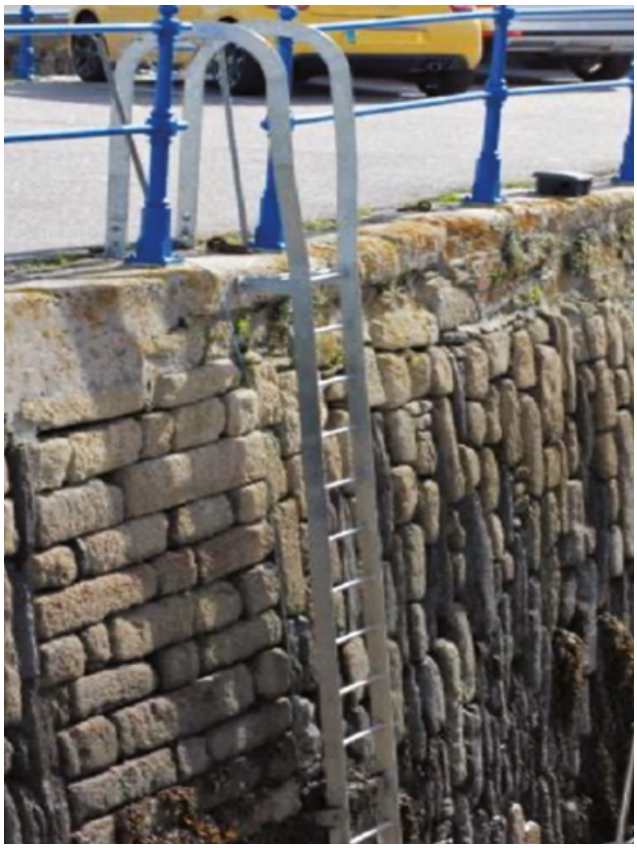


Lastly, these newsletters provide an evidence base for decision-making bodies by highlighting recurrent themes and addressing the underlying causes of incidents. By removing information that identifies individuals, organizations, or specific locations, we shift the focus from the "who" to the "what" and "why" of each incident, enabling us to identify key patterns and develop effective preventive measures.

We sincerely hope that you find this new series engaging, interesting, and, most importantly, helpful in your daily operations. Your feedback is invaluable to us, so please don't hesitate to share your thoughts by contacting us at mail@chirp.co.uk or through your incident reports. Together, we can continue to make ports and harbours safer for everyone involved.

M1877

Fall from vertical quayside ladder has near-fatal consequences



Initial Report

A fisher returned to their vessel with a guest in the late evening after they had met ashore. Both had drunk alcohol. It was low tide, and the vessel was approximately 6m below the quay edge due to the tidal range in that port.

As they climbed down the vertical quayside ladder, the guest fell off the ladder and hit the vessel's hull before falling, injured, into the water. The sea temperature was approximately 10° C (50° F).

The fisher was unable to recover the person in the water and entered the water himself in an attempt to keep the guest from drowning.

A crew member from another fishing vessel moored nearby heard the commotion and managed to recover the injured person and the crew member from the water back onto the deck of the fishing vessel. Due to the effects of the cold water and the injuries, the guest was unresponsive and not breathing.

The port authority's security team called an ambulance and commenced CPR on the casualty until the emergency services arrived, but it took over an hour to lift them from the vessel and up the 6m to the quayside and into the ambulance where they made a full recovery within a few days.

Due to the range of the tide the vessel did not put out a gangway and instead relied on the vertical metal ladder secured to the quay wall. At low tide this generated a significant risk of falling from height and onto the steel deck of the vessel and/or into cold water.

Design (latent factor) – Vertical ladders are exposed to the elements and prone to damage by vessels berthed alongside. There is no fall protection inherent within the design and unless regularly maintained they are prone to rusting and marine growth

Fit for duty – Alcohol increases the likelihood of an incident occurring and CHIRP recommends that Safety Management System (SMS) risk assessments include alcohol/intoxication as a factor when appropriate, particularly in cases where access arrangements include a climb up and down vertical ladders.

Local practices – CHIRP acknowledges that high tidal ranges preclude the use of gangways, and that many ports lack the space, water, and money to install pontoon berths, so must therefore rely on the use of vertical ladders as the safest means of access.

Is there a shared understanding between the port authority and the vessels regarding who is responsible for providing the means of safe access? This can vary by country and regulatory area. Does your vessel adhere to the local regulations?

Culture – To be effective, there must be a shared safety culture between vessels and port authorities, particularly where regulations on the provision of a safe means of access can be interpreted differently by the port authority and a vessel's Master. Port safety forums are one way of developing this shared safety culture with everyone working to a shared understanding of risks and their control measures.

Capability – Do ports have the correct equipment to facilitate recovery of a casualty from a vessel at low tide, and is this operation regularly practised?

CHIRP Comment

The Master is responsible for ensuring a safe means of access to their vessel. This can be difficult, especially for small vessels that lack the space on board to carry or rig a gangway, or where the tidal range would make the gangway too steep to safely use. In these cases, Masters consider that they have no option but to use the vertical ladders as the only means of access or request a more suitable berth. By contrast, many port authorities view the vertical quayside ladders as 'self-rescue' equipment for anyone who falls into the water. They do not consider them as a safe means of access onto vessels, especially those that lie some distance below the quay edge at low tide. The rules that determine whether it is the port authority or the master that is responsible for providing safe access onto vessels vary by country and are not always clear. CHIRP urges regulators in those jurisdictions to reduce the scope for different interpretations wherever possible.

The need to recover casualties from vessels at low tide is reasonably foreseeable, so ports are strongly encouraged to conduct thorough risk assessments to deal with this scenario and develop an emergency recovery plan. This might require the purchase of specialist equipment or the nomination of a suitable 'casualty recovery' berth.

Ports and vessels' masters are also encouraged to ensure that visiting crews are aware of the local arrangements for

summoning emergency assistance and can describe their location to the emergency services when doing so.

Key Issues relating to this report

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M1820

Collison with bridge and barge after moorings parted in high winds

Initial Report

A heavy-lift vessel was berthed alongside with 3 stern lines and 2 springs aft, 3 headlines and 2 springs forward. The three stern lines were all on the same bollard. During the afternoon the port authority issued a strong wind warning and the crew checked that the mooring lines were of the vessel, adding another 3 lines to the same bollard used to hold the heavy lift vessel's three stern ropes.

At approximately 22:00 the heavy lift ship shook considerably when 50 knot winds gusted through the port. The master saw the ship's 3 stern lines detach from the dock, followed by the 2 after springs, allowing the stern to swing quickly into the centre of the dock basin, causing one of the forward springs and one headline to part. The master contacted the engine room and ordered the main engine to be made ready as soon as possible. They then called the port control and requested tug assistance, as did the vessel astern.

The vessel was now attached to the dock with just 2 headlines and one fore spring, and as it continued to swing it hit a berthed bunker barge and a railway bridge, sustaining damage to the starboard side amidships as well as on the starboard quarter. A piece of cargo was also discovered to be hanging over the starboard side. The Master called port control via VHF to advise that the vessel had contacted the railway bridge and requested them to inform the rail authorities. He also informed the local agent and the vessel's technical superintendent of what had happened.

While not an exact science, it is possible to estimate the likely forces generated by high winds on a high-sided vessel so long as the windage area is known

Tugs were deployed and the vessel was re-secured to the dock at 0300 hrs. A memorandum of class was subsequently issued due to impact damages to the vessel and cargo. There was some minor damage to the bunker barge and the rail bridge. An investigation revealed that the mooring bollard to which the stern lines of both vessels were attached had been pulled completely out of its foundations due to the wind loading on the side of the vessels. It also concluded that the crew could not have prevented the incident.

CHIRP Comment

Placing all the stern ropes onto one bollard created a single point of failure which was aggravated when the second vessel secured to the same bollard. Either vessel could have identified this latent risk, as could the supervisor of the line-handling party. It is possible that neither the port authority nor the master understood the risk which had been created. There is no evidence of a discussion regarding the possibility of the vessel moving to an alternative berth, either before or after the strong wind warning was issued, and no additional lines were put ashore after the warning had been received. Similarly, the vessel could have brought its engine(s) to immediate notice as a prudent contingency measure.

It is good practice for port authorities who operate tugs to consider having them at immediate notice during periods of forecast bad weather. In this case, they could have been deployed to 'push on' or to at least minimise the swing of the vessel as it broke away. The port authority might also have considered temporarily relocating the vessel(s) to a more sheltered part of the harbour or even directing them to proceed to sea to safely ride out the poor weather.

While not an exact science, it is possible to estimate the likely forces generated by high winds on a high-sided vessel so long as the windage area is known. Many vessels keep a 'ready reckoner' on the bridge for quick reference, and some port authorities that regularly berth high-sided vessels have similarly developed a guide to assist them in calculating the likely 'pull' forces that the bollards must accommodate. The use of auto-tensioners can cause dynamic loading of lines that potentially exceed bollard holding limits so this should be considered as well. Bollard holding strength depends on bollard rating, the surface to which it is attached and the vertical angle of pull from the mooring lines. It is possible to

determine the safe holding capacity of quayside bollards using nondestructive testing.

When requesting a berth, large and high-sided vessels are strongly encouraged to include their bollard holding requirements in the pre-arrival ship/shore information exchange if they are not already doing so. They should ask if the port has published any environmental limitations (including maximum wind speeds) for vessel movement, berthing/unberthing or cargo handling.

Key Issues relating to this report

Local Practices: Vessels and port authorities are encouraged to develop and use a windage 'ready reckoner' to assist in the allocation of berths and the bollards to be used. Does the port authority periodically test quayside bollards to assess their holding capacity?

Communication: Do your ship/shore information exchanges include mention of bollard requirements for the current and forecast weather conditions? Do they include any requirements to sail from the port if environmental limits are exceeded? How are changes to the weather forecast communicated to the deck officers and line-handlers when alongside? Would you communicate with the car carrier which berthed astern of your vessel and discuss reducing the number of lines secured to the bollard?

Culture: Is it an accepted local practice in your port or vessel to put all lines onto one bollard? If so, why? Is this a training issue?

Alerting: Do you feel empowered to question why so many or vessel view such questions as good teamwork or as a criticism? Do you alert all the ship's crew to the expected strong winds especially the engineers? Alerting is part of good teamwork behaviour.

Teamwork: Do you feel that your ship operates with a good teamwork spirit (good teamwork encourages everyone to think and contribute; a "group think" approach means everyone can help in thinking about the situation)?

Situational awareness: Does your port or vessel monitor changes to the situation such as another vessel coming alongside and using the same bollards?

M2062

Contingency action to avoid a close quarter incident with a passenger Ferry

Initial Report

Our reporter, a passenger ferry captain, writes: "As per the timetable, we arrived at the standby location for the port at the required time. It was daylight, with good visibility and a stiff wind. We worked, as usual, on the pre-arrival checks and verifications as we closed on the berth. When I called the port per the pre-arrival checklist, I was informed that a large passenger liner had just let go and that I might have to 'slow her up' (referring to my vessel). However, given the proximity to the berth, the other boat and the increasingly confined waters, it was clear that I would have to lose speed quicker than I safely could. So, I had to opt for a rapid turn upwind (to avoid being set onto the nearby lee shore). I continued my turn and completed a 360, and during this time, the passenger liner was clear of the port and the berth we were aiming for. Our distance from the breakwater was approximately 3 cables when we started the turn.

For each port of arrival, we plan two abort positions. We had passed the first, where 'Standby' is rung on, the crew called to stations, pitch response is verified, and hand steering is engaged. We had not yet reached the second abort position (approximately four cables from the first), so a direct abort was still viable.

Shortly after passing the first abort and confirming the items mentioned, I called the harbour for permission to continue into the berth. I was given the all-clear whilst being advised of a departing cruise ship that might be leaving. The operator told me I "might want to slow her up a bit", but it was now clear to me that I would need to abort the arrival to avoid a close-quarters situation with the cruise vessel, which was manoeuvring off her berth. Given the proximity of the lee shore to starboard, I elected to turn to port/upwind and gain distance from the shore, together with slackening speed to a minimum.

With the above avoidance measures well underway and having the desired effect, I communicated with the cruise vessel to establish which general direction they intended to take upon clearing the harbour to allow me to plan the rest of my manoeuvre and not result in additional unnecessary risk. With them advising a course to the east initially before turning to the north, I elected to complete a full 360, allowing time and space for the cruise ship to exit the immediate harbour area and for me to generally pick up the standard approach to our berth for arrival.

The main hazards were the proximity of the lee shore, with easterly winds, something that is factored into the passage plan to allow extra room, including the shoaling waters to the south of the berth; this knowledge allowed me to decide on early, positive and bold avoidance measures quickly, rather than allowing the risk to increase by proceeding onwards, even at a reduced speed, and allowing an unnecessary close quarters situation to develop.

As my vessel is on a timetabled service, we arrive and leave at the same time every day, weather permitting. Despite this, the cruise ship was allowed a departure that directly clashed with our arrival. A clash in movements such as this should have been avoided with a simple telephone call or email. After that, we could have timed our arrival later, thus preventing the situation above entirely.

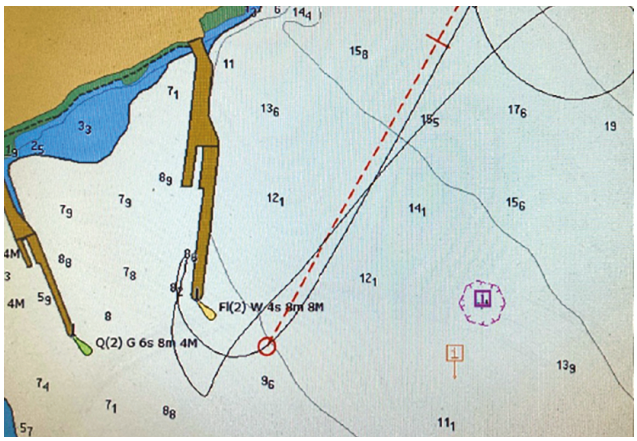
It's worth noting that the bridge team worked very well together in the initial arrival, the abort actions, and the passage/arrival resumption and subsequent safe berthing.

CHIRP Comment

The ferry traded time for space and safe water and avoided a close-quarters situation. This was the correct course of action. Readers are encouraged to compare this with report M2036, published in our last edition of FEEDBACK, which highlights the perils of taking the opposite approach.

Port authorities are responsible for managing vessel traffic, and they would have been aware of the ferry's scheduled arrival time. Cruise vessels too operate to an itinerary but better co-ordination between the port and the cruise ship would have avoided this incident. This suggests either a breakdown in communication or the ferry's arrival was not correctly considered when the cruise ship planned its departure time. Radio procedure by the port authority was also ambiguous: was "You might want to slow up" a direction, or a recommendation?

In smaller ports, particularly those which are not staffed 24 hours a day, publish notices to mariners directing certain sizes or categories of vessels to broadcast their arrival and departure on the port's VHF working channel. This alerts other vessels of traffic in their vicinity and allows them to co-ordinate with each other. CHIRP encourages small ports to consider whether such a scheme would be appropriate in their harbour.



Key Issues relating to this report

Local Practices – Port management must not leave marine operations to chance. Establish clear safety risk measures, and define procedures to clearly understand what is required for arriving and departing vessels at this port.

Communications – Clear communications from the port authority, which prioritises incoming and outgoing vessel traffic, should be established, especially in ports with limited room to manoeuvre.

M2070

Mooring launch crushed against the side of a container vessel

Initial Report

The port berthing officer was attending to a large container vessel's berthing when he received a radio message from the mooring team to quickly head aft to investigate a serious incident during mooring operations.

The aft mooring launch sat at the stern of the containership, waiting for the third line to be lowered to them. Instead, the two lines that had been run ashore and were fast on the bollards were slackened off by the aft mooring team and dumped into the water. The launch tried to move away from the lines to avoid getting tangled. When the launch was almost clear, the ship heaved up on the two lines again, only to catch the mooring launch, lifting it out of the water and crushing against the underside of the ship's flare. The two launch crew considered abandoning the craft, as the prolonged shouting and blast of their horn did not affect getting the crew's attention. Finally, the ship's after mooring crew realised what had happened and slackened off the lines. Other than the boat crew being severely shaken by the incident, there were no injuries to the crew but some damage to the mooring boat.

CHIRP Comment

This is an obvious case of miscommunication during a critical phase of the mooring operation.

Vessels often pay out lines to take the weight off them prior to transferring them to the working drums. The safest method is to do this only after all lines are ashore, and then moved one at a time, so that the lines and the vessel always remain under control. CHIRP wonders if there was a real- or perceived-time pressure on the mooring party for them to take such a dangerous short-cut?

Key Issues relating to this report

Situational Awareness – While launches or other vessels such as tugs often make line handling easier, it complicates the mooring officer's task because they must simultaneously retain an awareness of what is happening on board as well as over the side. It is rare that a vessel has enough crew to dedicate one person to each of these tasks, although that would be ideal. Instead, additional care must be taken when working lines with vessels nearby.

Pressure – Mooring operations must never be rushed. Care is required by the master and pilot to provide timely messaging to the mooring teams to ensure that each order is carried out carefully and in an unhurried manner.

Distractions – The mooring team were distracted when they failed to hear the mooring boat crew's alert when they were trapped against the ship's hull. Keeping alert during mooring operations is vital, given the changing nature of the ship's movement and the strain on the mooring lines.

M2100

Vessel grounds in harbour

Initial Report

The pilot boarded a very large container ship at 0200 before it navigated into harbour. The wind was NNE 10 knots, the tidal current was to the SE, and visibility was good. The pilot noted after the incident that language difficulties reduced the effectiveness of spoken communication.

At about 0350 (1 hr and 30 mins after high water), the container ship commenced her swing to port off the berth. By 0405, with the swing completed, the vessel appeared to be setting south under the influence of wind and tide.

The vessel's stern swung towards the quay and got

close to one of the jetty cranes, so the pilot manoeuvred the vessel to avoid contact. They needed someone to report distances to the quay and other infrastructure as it was less than 10m from the jetty and a mooring dolphin. Three tugs were directed to pull the container ship away from the jetty, but it became apparent that the vessel had drifted due to wind and tide and had grounded on a charted shallow patch. The port authorities were informed, and a fourth tug was despatched to push onto the vessel's port quarter. With this assistance, the ship safely manoeuvred off the shallow patch at 0506 and subsequently berthed without further incident after extensive checks on the hull's watertight integrity.

CHIRP Comment

Maintaining situational awareness at night is challenging. Visual references are difficult to make out, particularly against background lights, and they can change over time due to development ashore. IMO SOLAS Chapter V regulation 13,

Establishment and operation of aids to navigation should be reviewed for each port as the volume of traffic justifies and the degree of risk required

As part of the assessment, port authorities must consider whether their navigation aids are sufficient to enable safe navigation, including appropriate lit aids to navigation if the port is open at night. To determine which aids are required, countries and port authorities must conduct risk assessments of their ports. IALA guidance (G1124) provides a guide to safety assessment.

The briefing between the pilot and crew was hampered by language difficulties. The pilot became the 'single point of failure' as a result. A sketch or other visual aid would have helped develop a common understanding, making it easier to identify when the pilot needed assistance and to prompt constructively or question, e.g. "Are you aware that we are drifting towards the shallow patch?" This did not happen.

As the vessel moved close to the jetty and other objects, the pilot's workload focus increased, and they lost overall situational awareness.

CHIRP strongly encourages teams to adopt the PACE (Probe, Alert, Challenge, and Emergency) described in some depth in the CHIRP publication 'Making critical decisions at Sea', which is available on our website. Good communication and attention are essential, particularly at night when our circadian rhythms are often at their lowest.

CHIRP draws your attention to the enormous forces acting on the underwater hull of very large vessels. Masters responsible for safely navigating very large vessels should be provided with adequate training in handling these large vessels so that they can, with enhanced knowledge, assist the pilots in safely berthing the vessel.

There are a number of manned-model courses which train masters and pilots in understanding the dynamic forces acting on the hull of all types of vessels.

Key Issues relating to this report

Communications – The bridge team should have affirmed the pilot's actions when requested. A drawing of the intended plan would have provided a visual interpretation of the stages of the turn with safe clearing distances applied to the radar for cross-checking.

Alerting – Only the pilot appeared concerned about the vessel's movement towards the corner of the jetty. The pilot stated he was acting alone- does this happen on your ship? Do you provide the support the pilot needs?

Fatigue/Situational Awareness – It's possible, given the time of day, that elements of fatigue were apparent. Berthing or unberthing at night requires enhanced situational awareness of yourself and your surroundings. Actively seek input from others.

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