CHIRP Maritime



The Maritime Confidential Hazardous Incident Reporting Programme

2018

Annual Digest of Reports, and Insight Articles



2018 Annual Digest of Reports and Insight Articles

www.chirpmaritime.org

Introduction

Welcome to the third annual review of CHIRP Maritime reports, covering all the cases we published during 2018 and including a number of in-depth articles specially commissioned to highlight important safety topics.

This has been a busy year, especially for Capt. Jeff Parfitt, who took over as Director, Maritime in January and was instantly thrust into the heart of everything we do. Fortunately, he took it in his stride and **CHIRP** Maritime has continued to make excellent progress under his leadership. One of Jeff's first major tasks was to introduce our ground-breaking publication on *Perception, Decision Making and Fatigue at Sea*, which we produced in cooperation with University College London. It is available on our website, is accompanied by a video, and has been reproduced in this Annual Digest. The response to the booklet and to our 2017 Annual Digest was extremely positive, and we were especially honoured when the Secretary General of the International Maritime Organisation decided to bring them both to the attention of all member states – once again ensuring us a truly global audience.

During the year we have been invited to attend meetings of the All Party Parliamentary Group on Maritime and Ports, a distinguished group in the British parliament, so our efforts are becoming more widely recognised. We have also continued to build on our links to the People's Republic of China. We receive excellent support from Dalian Maritime University, and in this Annual Digest you will find the first ever Insight article contributed by a Chinese author. It is an excellent description of the approaches to the port of Shenzhen.

Our Maritime FEEDBACK magazine is now being published in English, Chinese, Filipino and Dutch, so we are most grateful to all the sponsors and translators who help make this happen. Please let us know if there are other languages you would like to receive or, even better, if you would like to sponsor a version in another language.

Speaking of sponsorship, we have again been fortunate in finding generous donors who have made it possible to produce this Annual Digest. They are listed at the end of the Digest and we are extremely grateful for their support and their ongoing commitment to safety.

It is important to state, as always, that **CHIRP** Maritime is run by a very small group of incredibly hard-working people, none of whom is employed full time. Jeff Parfitt, Ian Shields and Howard Nightingale, ably supported by Stephanie Dykes, produce everything and keep us in the forefront of maritime safety, while I assist with some writing and editing. Howard has recently joined the team and his technical background will be invaluable - you can learn more about him in Appendix II. The team are guided by a Maritime Advisory Board (MAB) of outstanding professional men and women who together have over 700 years of experience in shipping and safety and volunteer their time to help us to focus on what is important. They also contribute many of the in-depth Insight articles which appear in the Annual Digest. This is all supervised by Chief Executive Ian Dugmore and a distinguished group of Trustees. We are also fortunate to have a dedicated team of Ambassadors who volunteer their time to spread the word about our activities to an international audience.

It seems to me to be entirely appropriate that, on 9th May 2018, **CHIRP** Maritime was awarded the title 'Team of the Year' at the Lloyd's Register Foundation Annual Conference. We won the award in the face of stiff competition from some high-profile organisations, but I believe it was fitting because of the excellent teamwork and mutual respect which exists throughout our organisation.

During 2018 we were delighted to learn that our very own Capt. Ian Shields had been awarded the prestigious Merchant Navy Medal (MNM) by the UK government for his services to maritime charity, whilst the Deputy Chairman of our MAB, Lt Cdr David Carter RNR, also received the Medal for his services to MN/RN liaison. Further afield, our Ambassador in Australia Capt. Arie Nygh was recently made a Member of the Order of Australia (AM) for his services to shipping. We offer them all our warmest congratulations on these tremendous honours, which they so richly deserved.

The reports this year are as varied as ever and demonstrate that we need to be alert at all times. Some incidents are depressingly familiar whilst others are new, but they all demonstrate how important it is for us to continue to bring them to your attention. Together with the Nautical Institute's MARS programme, we reach hundreds of thousands of seafarers and we know they read our reports. In an era when young seafarers may not always have more experienced colleagues to guide and monitor them at all times, we offer a means for them to learn from the mistakes of others and absorb the lessons which may help them to avoid making the same mistakes.

We firmly believe that everyone who works at sea deserves to return safely to their family at the end of their tour of duty. This should be the ambition of every ship manager, every administrator and everyone else who supervises the business of shipping, but there is still a long way to go. Seafarers' lives matter, but there are still people who do not fully embrace a safety culture.



Fortunately, our reporters and sponsors take a more enlightened view. The generosity of all our sponsors is acknowledged in our publications, and we could not function without them, but our reporters remain anonymous for obvious reasons. We often receive reports from shipping companies and ship managers, who submit their in-house accounts of accidents and near misses so others can learn from them. This is a generous and caring policy which indicates there are still many good employers in the industry. On the other hand, many of our reports come from individuals who are obviously not working for such decent people. These individuals often suffer terrible hardships and risk losing their livelihood by reporting to us, but they do it anyway and we salute them.

We continue to receive reports from a wide cross-section of the maritime industry, but we always need more. In particular, we would like to see more reports from the fishing, leisure, offshore, towage and tanker sectors.

Within these pages you will see examples of how **CHIRP** Maritime have been involved in cases where lives have been saved as a result of our efforts. There can be no greater satisfaction than knowing you have helped to save a life, so please report your incidents and near misses so others can learn from them. There are several ways you can submit a report, and they are described within these pages. We make it as simple as possible, and confidentiality is assured, so there is nothing to stop you!

Once again we have divided the Digest into themed sections to assist readers to find the topics which most interest them, but many of the reports could have been assigned to more than one section, so we urge you to study them all.

Within most sections you will also find Advisory Board Insight articles that illuminate topics covered in that section or provide additional information. They are written by experts and are well worth reading. I have noticed that some of this year's Insight articles suggest new and better ways of doing things – the article about enclosed spaces is a good example and applies to everyone at sea – so we hope regulators will be paying attention and will consider acting upon some of the suggestions.

The appendices contain some very important documents, including the latest flow chart describing what happens when a report is submitted to **CHIRP**. We include it to demonstrate that we make every effort to maintain the anonymity of our reporters while we process a report. To date, we have never revealed the identity of anyone who contacted us, and you will see the steps we take to ensure confidentiality is maintained. All our videos and articles are easy to access through our website, so we hope you will look at them when time permits. For more detailed and focused searches, we recommend the searchable database on the website. There is a useful guide in the banner on our home page which explains how to use our site if you are in any doubt.

We hope you will find the Annual Review both interesting and informative, but please let us know. Your comments are important and will help ensure **CHIRP** Maritime continues to provide the information you need to make our industry safer.

Until next time, take care and may all your voyages lead you safely home.



Editor: **Captain Alan Loynd** FNI FITA MCIArb BA(Hons)

PLEASE NOTE ALL REPORTS RECEIVED BY **CHIRP** ARE ACCEPTED IN GOOD FAITH. WHILST EVERY EFFORT IS MADE TO ENSURE THE ACCURACY OF ANY EDITORIALS, ANALYSES AND COMMENTS THAT ARE PUBLISHED IN THIS DIGEST, PLEASE REMEMBER THAT **CHIRP** DOES NOT POSSESS ANY EXECUTIVE AUTHORITY.

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1. THE HUMAN ELEMENT

We begin this Annual Digest with human factors – a topic which is at the core of everything we do at **CHIRP** Maritime. The chapter contains some specially-written Insight articles which we felt deserved a section of their own.

We begin with our study on *Perception, Decision Making and Fatigue at* Sea. The document is reproduced in full, and the accompanying video is available on our website. The work is a summary of the findings and recommendations from the study we carried out with the Department of Arts and Sciences and the Department of Neuroscience at University College London. It describes how the eyes work with the brain in different ways and contains information vital to the consideration of the human element in ship design, writing better operating procedures, and allowing time to acquire good night vision. It also contains information which is essential to making better decisions and dealing with fatigue. As seafarers, our ability to understand our surroundings and make good decisions is crucial, and this publication can help us. Indeed, it is one of the most important pieces of research we have ever published.

This is followed by an analysis of Human Element reporting and investigation, which discusses what has been achieved so far and what remains to be done. As readers will be aware, we work closely with the MCA in the United Kingdom, and the Human Element team responded most generously when we asked them for their perspective on the current situation. This article will reward careful study and should be required reading for all seafarers. In particular, we ask you to think carefully about "what could be done?"

Finally, we include an important article about entering enclosed spaces. This is a topic which affects all seafarers, and we still lose far too many people in enclosed spaces, so please pay attention to the excellent guidance contained in the article. It is also noteworthy because the author goes a step further and suggests ways of reducing the number of enclosed space entries, which would almost certainly reduce the number of fatalities. Food for thought.



Insight – Perception, Decision Making and Fatigue at Sea

Introduction

As seafarers, we are all used to working under pressure in adverse conditions. Our training reflects this and our experience teaches us how to think and react to situations. From the engine room to the bridge, we all work hard as individuals and as a crew to keep our ships running smoothly.

There are always new hurdles to overcome because nothing we do is commonplace. The challenges can be hidden in the way we see, scan, plan, decide and communicate. To be the best seafarer one can be means finding ways to recognise and deal with these issues.

Our ability to perceive the world around us and to make decisions, both individually and as a crew, is crucial for us to carry out our jobs and to avoid or respond to emergency situations. It is in how we see and how we decide that hidden factors, or factors we may know but take for granted, may ambush us.

Knowing about and understanding these issues and knowing how to avoid them is the route to first class and ever-improving seamanship. These guidelines highlight key issues in the areas of Perception and Decision Making and makes recommendations on how we can combat them together, helping to make our ships more efficient and keeping our seas safe.

This paper is a summary of findings and recommendations in collaboration with the Arts & Sciences, and Neuroscience Departments at University College London.

Understanding how we see

Seeing is something easily taken for granted. The eye is not a camera and the visual brain is easily fooled. Here are 5 things to consider which may help you understand how you see.

Attention

There are limits to what we can see, set by our eyes, brains, experiences and expectations. We often only see the things that we choose to focus on or are expecting to see. When fixated on certain tasks or objects, even the most experienced among us are in danger of missing what is happening under our noses or in our peripheral vision. On a bridge or in machinery control rooms, it is already hard enough to maintain our perspective on the totality of relevant visual information, a task which is complicated by the challenges of paying attention to several things at once while holding information from the last few minutes.

There is a limit to the amount of information we can hold in our memory at any one time. We think that we can track several items at once, but research has shown that this limit is only about four. With so many things to pay attention to and remember, we are working at our brains' limits much of the time. Without even taking into account how tiring it is for our eyes to stay focused for prolonged periods and for our brains to keep track of previously reported contacts, whether it's fixes to take, flashing alarms to respond to or moving contacts, maintaining our attention – i.e. the choice of what to focus on - is demanding.



The need to switch between modes of focus, such as near (to read and use the ECDIS and radar) and far (to spot a contact on the horizon), coupled with the challenge of maintaining distance focus when looking out to sea, makes watchkeeping a more complex task than we think. To the seafarer it may be something we do every day; but to the seafarer's brain, it is an on-the-limit workout. The eye takes time to refocus between near and far modes and loses focus within about a minute of not having something to focus on, especially with distant objects. We must be constantly aware of the limitations of glancing between screens and out of windows, or simply scanning the horizon for an extended period of time, because there is a cost to both switching and staying focused.

So, what does catch our attention? Two types of events dominate attention; things that are surprising (loud, bright, big, fast) or unexpected, and things we strongly predict. As a result, we risk becoming too focused or desensitised to important events that all look and sound the same because we've seen it all before, or not responsive enough to unexpected events. This emphasises the need for good local knowledge to know when something is out of place. However, our expectations tend to influence our focus. When the radar presents a contact, we naturally look for the ship corresponding to that contact and may miss others that have not been scanned. Similarly, with local knowledge, being on the lookout for the familiar may reduce our chances of spotting small, but potentially critical changes.

The challenges are not only set by the sea. Designers of ships and equipment need to remember that approximately 8% of males have some form of red/green colour blindness. Staff need to be capable of correctly recognizing colour coding on cables, pipes and display screens where incorrect judgement can be safety-critical.

Working in night lighting conditions

Human vision operates in several 'modes' depending on the level of light in our surroundings, and it takes time for the eye and brain to transition between the stages. Our eyes are made of two kinds of cells. Rod cells are for black & white vision, light sensitivity in darkness, and detection of movement in the periphery.

Cone cells are for colour vision and seeing fine details. This is why you can't read out of the corner of your eye and screens flicker less when you look at them directly. It's useful to think of having two types of vision: one for fast movement and low lighting conditions, and another for detailed vision in high lighting conditions. Our special challenge is that in 24/7 sailing we need both systems under all conditions.



During the day you can use cells called cones for your central vision for colour and fine detail, but at nighttime they are not sensitive enough and your sight is served by cells called rods in the periphery of your vision. This creates a kind of blind spot in the centre of your vision

According to our review of IMO data on incident severity, more 'severe' and 'very severe' maritime incidents occur at night than during the day. This is partly linked to how our eyes adapt to perceive things at night. For example, we have a night blind spot when looking directly at something for several seconds. This night blind spot is in the centre of our vision, which we depend on in daylight. If you hold out your fist at arm's length, this is about the area of relative blindness in dark conditions. It is why, to see a flickering star, you need to look slightly to the side of it. Unfortunately, we were unable to analyse the full extent of night incidents because, with very few exceptions, the Maritime industry does not collect information on types, timing, severity or near misses in a consistent manner. This is an important missed opportunity to improve our safety.

It takes time for our eyes to adapt when moving between bright and dimly lit sources and environments, such as ports, flashlights or screens that are not sufficiently dimmed. The time to adapt increases with age, and the resulting night vision abilities are less good in older people. Understandably, we can rarely afford the whole half hour required for our eyes to fully adapt and rid us of these problems, but that is not necessarily required so long as the light environment we are in prior to taking over a shift is not too bright, and conditions on the bridge itself are not too dim. To assist the eye in adapting to working in low levels of light, it is a good idea to spend some time in an environment illuminated by reddish light, because the rods – the eye cells that do the work at night – are most sensitive at shorter wavelengths. Using reddish lights or glasses means that these cells stay sensitive.



Dark adaptation line. This figure shows that our eyes are fully adapted to night vision only after 30 minutes in the dark.

Lighting

Sufficient lighting is a key factor in a safe and productive workplace. However, our vision does not only depend on the lighting, but also on our own ability to see. Age plays a key role here because as we age our need for light increase – older people need more light to read than younger people do and find a range of visual tasks more difficult, for example, motion detection, speed of motion, detection of the unexpected, and they are also less able to work with dim displays. We need to see objects under adverse lighting conditions, low contrast, glare and light scatter, mist and fog, this is why we have to be aware of lighting conditions with respect to each individual making allowance for wearing spectacles.

Light is not only about seeing. It controls our biological clocks that in turn regulate our hormones, appetite, body temperature and alertness. This makes thinking about light a broader issue. Rapidly switching between daylight or bright artificial light and dim, dark adapted conditions, will confuse the body's clock systems and reduce our alertness on night duty and recovery from shift work. Thinking about lighting is important in the now – we need the best conditions for observation – and in the longer term because our clocks need regularity.



Apart from these health and wellbeing advantages of good lighting, it can also lead to better and faster work performance, fewer errors and accidents and greater safety.

What and Where

One of our tasks at sea is to identify what we are seeing and where it is going. There are two different systems in our brains for this, and they are called the "What" and "Where" visual systems. The "What" system relies on the centre of your eye for detail and colour and needs bright light to work at its best. The "Where" system relies on peripheral vision, is better in dim light and can detect transient events such as moving objects or flashing lights. These two different kinds of information use different areas of the brain and eye. This means that we can never optimize the two systems at the same time.

How we use our eyes also makes a difference. We look slightly downwards to read, sew, draw, look at our screens and anything that requires accuracy. We do this because our lower visual field is more sensitive than our upper visual field. So if we are looking down at our instruments and then glance upwards to look out to sea, we are not using our best field of vision.

The difficulties for locating and identifying also depend on external factors. For example, while the position and brightness of lights on larger vessels may be sufficient for us to detect, locate and identify, this will often not be the case on smaller craft.

Visual Size and Distance

In the world around us, we categorize each object that we see by its size, shape and location. This experience of the world is called visual space. However, visual space is not the same as actual physical space, it is a distorted version. Because of this, visually perceived size and distance and true size and distance often vary. If we get either size or distance wrong, we get both wrong. If an object's size is underestimated, we will overestimate its distance and vice versa. Moreover, more errors in size-judgment appear with increasing distance i.e. the further the object is, the more likely we are to perceive its size falsely. The perception of size, distance and our sense of space can change in different sea conditions or in different deck conditions, for example in misty conditions, when we are tired or when the light in the room is changing.

Seeing size and distance relies on our "Where" system for distance and both the "What" and "Where" systems for size. This makes it a very difficult task and it is important to use as many clues as possible. We can question each other and ask questions such as, "would something that far away be moving so fast?" or "if it's so close, shouldn't we be able to see its shape (or another aspect of the vessel)".

Understanding how we make decisions

The cliché "two heads are better than one" is based in truth. Our collective perception is much better than our individual perception. When, as a group, we are asked to estimate the size and distance of an object, we always produce more accurate results than any single individual. Within a group, we tend to communicate and reach a compromise, which is more accurate than our own separate estimates. This is at the root of good crew decision making.



Communication & Culture

The culture of communication between the crew onboard a vessel is one of the most, if not the most important, aspects for keeping a vessel running effectively and avoiding emergency situations. The culture and communication on a vessel can vary from ship to ship, crew to crew or even shift to shift. Every ship develops its own culture, and we may be speaking a second language in that culture. It is important to go the extra mile to ensure clarity of communication by using closed loop communication in which we provide clear answers and feedback at every stage of the process.

Crews that don't promote questioning of actions and clear communication between their members can fall into the trap of allowing events to unfold even when they know them to be dangerous. This can happen when other crew members being around discourages an individual from intervening in an emergency situation. This is known to happen in particular when people are fearful of communicating with their superior officers or have low confidence because of tiredness, politeness or fear of embarrassment or reprimand.

This is exemplified by the 1999 Korean Air Cargo Flight 8509 which crashed shortly after take-off. The black-box revealed that the crew present in the cockpit did not question their captain on his course of action, which was directly counter to what he was told by ground control, and also did not inform or challenge him on any information being given by the numerous alarms and gauges. The crash killed all onboard and is an extreme example where the failure to communicate coupled with a strict and closed culture, at the time the norm for the airline, can have devastating consequences.

Trust

The interface between man and machine is part of the human element of everyday operations and there is a need to recognize the value of human-centred design of safety-critical equipment. At sea we perform a balancing act between trusting each other, our eyes, instincts, experience, and the electronic equipment, which is vital for making quality decisions. Experience and expertise are two hard-earned elements essential to trusting yourself. They will give us the effectiveness to make quality decisions rapidly. Indeed, it is important for a skilful seafarer to be confident with his expertise rather than relying solely on electronic instruments. When the pressure is on and stress is high, the ability to trust your experience makes all the difference. In fact, in emergency situations, knowing your strengths and limits will lower your stress levels and helps to avoid taking risky and dangerous decisions.

There are, of course, dangers to overconfidence. We've all sailed with that crew member. It is important for us to distinguish expertise from familiarity. Poor decision-making and failure to follow protocols can lead to bad habits which become ingrained in our experience. This can lead even the most experienced seafarer to forget to focus or disregard important information. For example, a seafarer's experience helps to develop rules of thumb or habits, such as prioritising information from screens over eyes or vice versa. Sometimes our rules and habits are exactly right for the way we work as individuals, but we need to recognise and challenge them to stay sharp and to develop another habit - the habit of always being a better seafarer than yesterday. We can learn something new every day: the sea is never the same and neither are our individual habits and ways of seeing, deciding and sailing. By knowing our habits, trusting ourselves, respecting the experience of others, even when they see a situation differently, we can prevent incidents and collisions.



Group Decisions

Human error continues to be the main cause of most maritime casualties. Unfortunately, some level of human error is a factor in any industry that involves human labour. We all make mistakes. But there are effective ways of limiting these errors, and one of them is by favouring group decisions over individual ones.

Many collisions are due to crew members making decisions on their own and avoiding discussions with others. You may even have experienced a situation in which you know you should have said something - but didn't. As individuals, we all have different biases and succumb to different forms of illusions. By involving two or more crew members in the decision-making process, we are less reliant on individual biases and lessen the chances of a mistake. Asking others, "what do you think of this?" is never a mistake. The lessons learned from Bridge Resource Management and Engine Room Control Management training promote an appreciation of the need for challenge, intervention, teamwork and effective closed loop communications.

By making group decisions we are able to catch each other's errors earlier, preventing them from leading to a mistaken course of action. In addition, when navigating, we are all exposed to different inputs, and we don't have access to the same information. Focusing on one specific element makes us ignore other elements and factors. This can lead us to make decisions based purely on our own perceptions, which can be misleading. This is why it is important to communicate information clearly with our crewmates – it gives us a broader view of events and helps us come up with more relevant and useful solutions.

Understanding Fatigue

Fatigue is known to anyone who has worked at sea for any length of time, but it takes many forms and has more causes than we might think. It also has consequences that we understand – severe incidents at night.

For example, we can suffer from what is known as visual fatigue. Four moving objects is the maximum number of objects that our brains can pay attention to and track properly at any time. When we are looking at radars, ECDIS or machinery space screens, there are a number of things we need to focus on and as a result, we are constantly at or beyond our own limits of perception as well as decision-making. This constant pressure on our perception can lead to omitting some information, that our brain is no longer capable of perceiving. This can then in turn result in worsened decision-making.

Shift work is known for its disruptive effects on our normal body clocks as well as one's social life. Rotating shift work has been associated with a decrease in cognitive ability and this association becomes stronger over time, especially when we exceed 10 years of chronic fatigue. Moreover, the effects can be lasting. Even after leaving any form of shift work, the recovery of cognitive functioning can take 5 years or longer. This means that managing fatigue is important for life at sea, on shore, and even in retirement.

When working shifts, days can pass without workers seeing daylight – if we work during the day, some of us will be in a room with artificial lighting, and if we work night shifts, we sleep during the day. This is another cause of fatigue as well as insomnia. The result is a decreased ability to make decisions and to understand what is going on around us. Shift workers are more likely to have vitamin D deficiency as their exposure to the sun is minimal, and this has also been linked to damaged cognitive functioning as well as to low mood and depression.

The same goes for stress and pressure. Short term stresses can make us more likely to take risks, but long term stress and prolonged exposure to stress hormones can make us risk averse. In either case we need to be aware of ourselves



and others, to make sure that our decisions don't suffer from either of these problems.

Regardless of the length of voyage, research indicates 61% of seafarers feel more tired at the end of the voyage than at its beginning. Combining all these factors - shift work, lack of daylight, stress and pressure - fatigue may negatively impact health as well as how we carry out our jobs.

Recommendations

Now that we understand the problems, here are a few **CHIRP** recommendations to help us optimize our perceptual and decision making behaviour. These are important for seafarers to be aware of and for managers and maritime regulators when considering the human element in ship design and when writing operating procedures.

Improving how we see

Attention, What and Where

- Discourage operations where individuals are working alone on safety critical activities.
- We can only track a maximum of 4 moving objects, so working with our crewmates is necessary to assist our attention.
- Be aware of our attention limitations, actively change focus between areas.
- We can never optimize the What and the Where system at the same time, so our best option for using our vision at sea is to check with a mate and have one person lead on each element.
- Lift your head when scanning the horizon. Our awareness of near and far space when we lift our heads instead of glancing up is improved as it ensures that the most appropriate part of the eye is being used.

Lighting

- Make sure that you are exposed to at least some daylight during your day to help your body clocks adjust.
- Always ensure that you're working in appropriate lighting.
- Be conscious of adjusting for clutter (e.g. sea, rain) to minimise distractions on equipment screens.

Visual Size and Distance

- When possible, check the size and distance of an object with a colleague, rather than relying on the perception of one individual.
- Use multiple clues to judge size, distance and motion.

Dark Adaptation

- Use red light for adaptation. Use a red light zone before entering the bridge on all ships at night and wear red lensed glasses before taking over shift.
- The industry needs to set recommendations for luminance levels of workstations.
- Adapt for as long as possible, preferable 30 minutes before commencing night work.
- Be aware that even brief exposure to bright screens compromises your night vision.
- Regulate your use of torches and aim for better light discipline by crew.
- Be conscious of changing displays to night mode or dimming them at night.

Improving how we make decisions

Communication & Culture

- Have a culture on board that promotes questioning of decisions, including those of senior crew members by lower ranked members. This will help to counteract the errors caused by individual decision making.
- An explicit layout of the hierarchy on board will favour effective and successful decision making, where every member of crew knows who to report to, and upon whom the final call lies.
- Closed-loop decision making will help improve safety. At each stage of decision making – identifying the question, gauging evidence, proposing and implementing solutions – ensure that you question and agree an outcome.
- Have procedures in place and available for easy reference to ensure that in emergency situations that crew members are able to respond ASAP Practice these drills.

Trust

- Relying solely on electronic instruments or only on experience isn't good enough. A balance must be struck where both are used.
- Strike a balance between relying on your experience and using your crewmates for help.
- Remain calm, trust your expertise and the ship's protocols to make balanced and considered decisions in emergency situations.

Group Decisions

- Two heads are always better than one and decisions should be made by groups instead of by individuals whenever and wherever possible.
- Be aware that stress can lead to risky decision making in emergency situations so try to work with your crew mates to decrease risky decision making.
- Double checking the data with another member of crew will increase the likelihood of it being unbiased and reliable. Ensuring that inputs are the same for all members of crew is essential for successful decision making.
- • Be conscious of the negative effects of being a bystander and encourage all crew members to be participant.

Improving how we deal with fatigue

Fighting/Managing Fatigue

- Those who have remained in shift work for over 10 years should take proper care of their health, both mental and physical, and regularly see a doctor.
- It is important to remember that physical as well as mental wellbeing is crucial for our functioning and safety of everyone on the ship.
- Consider taking a Vitamin D supplement if you are not exposed to the daylight for a prolonged period time.

Act now...

Take a moment to consider the bullet points listed above. Think: eye, brain, group, health

- We can improve our seeing by being aware of the limits of the eye and implementing good adaptation behaviours. Commit to these.
- The quality of information received by the brain is largely influenced by what we see. Look after your eyes but also

appreciate the limitation of eyesight and the impact that improper lighting may have on perception and your decision making.

• Be aware that the brain has limits and was not designed for life at sea.

Physical and mental well-being are important to performance as a seafarer. Fatigue will harm both. In addition to your mandatory seafarer medical, it may be beneficial to see your doctor for a check-up.

Article. 02 _

INSIGHT

The Human Element – An MCA Perspective

Written by the Human Element Team at the UK's Maritime and Coastguard Agency

Introduction

The role of the Human Element (HE) has, at least notionally, received a lot of attention over the past 20 years or so. Perhaps it is time to have a dispassionate evaluation of what has been achieved. What difference has focussing on the human element made? Has the industry focussed on it effectively? Or are we having the same debate we had 20 years ago without actually making any significant progress?

Setting people up to succeed

The underpinning goal of Human Element development should be to improve safety and operational performance primarily through focussing on normal human capabilities and needs. A better understanding of human capabilities should enable us to design equipment, processes, procedures and policies that support the workforce to do their jobs as safely and effectively as possible. In other words, Human Element is about setting people up to succeed. The system should work for the people, not the other way around. But how well is this done? Can it be done better?

Too often Human Element is approached as a discrete piece of work, something that is "done". This approach is understandable - it is how people approach many facets of life – but is ultimately doomed to failure. Rather than a discrete thing that people "do", Human Element should be more a way of life, it's principles and practices inextricably intermeshed into everyday activity. A more effective and open mindset may be needed.

So, as 2018 draws to a close, where is the industry in terms of the effective development of Human Element best practice and how is this helping or hindering safety and operational performance?

The picture appears mixed. There are some really good shining examples of understanding, adoption and implementation of Human Element best practice, regrettably counterbalanced by examples where understanding of the Human Element falls sadly short – as evidenced by the many accidents and incidents globally.

The Good

There is certainly an appetite and high degree of engagement in some parts of the industry. Delegates attending Human Element Advisory Group (HEAG) meetings and other industry seminars and conferences are generally highly engaged, keen to learn and striving to be proactive in developing effective Human Element best practice within their respective organisations. It would be good if new people could be attracted to these events, spreading the message wider and hopefully improving capability and performance.

Behavioural safety practices have found favour in some organisations. Whilst not a cure-all, these certainly have a role to play in improving safety and communication amongst crew members and can produce significant results if they are understood and implemented effectively by all on board, although they may be less effective in organisations with a rigid hierarchical culture where challenge is not appreciated, however well intentioned.

The role of seafarer wellbeing is increasingly understood, not only for its impact on the health of individual seafarers but also the consequent impact of poor wellbeing on safety and operational performance. Many welfare organisations are now heavily engaged in promoting wellbeing and providing support for seafarers and their families and industry guidance is being developed in some areas, for instance the National Maritime Occupational Health & Safety Committee guidance on mental health policies, smoking, alcohol, drugs and so on. This is to be welcomed, and MCA is actively involved with a number of stakeholders working in this area.

One area of significant advance is the evaluation of human factors issues in accident investigations. Focussing on purely technical causes is no longer sustainable, particularly as we clearly know that the vast majority of accidents have a considerable human factor component. Analysis of accidents and incidents is one of the most effective methods of identifying safety related problems and working out ways to prevent recurrence. Increased emphasis on analysing the human factors, along with upskilling investigators in human factors knowledge is one of the more progressive and likely beneficial developments in recent times and if used wisely will make a growing and significant contribution to future accident prevention.

Another area where we are making progress in is leadership and management. The 2010 Manila amendments to STCW provided a greater focus for these. Although still at a very basic level, it is nonetheless a start. The UK fully supported this development and our own Human Element Leadership and Management course (HELM) was developed accordingly. HELM is currently undergoing a review and we want to ensure it is fully fit for purpose in the modern maritime industry.

Where is progress needed?

Firstly, the reluctance of many to engage with the Human Element seems to be heavily based on the misconception that Human Element is all about, or primarily about, manning. Whilst manning is one component of Human Element, it is precisely that, one component. There are so many more, and by a narrow focus on manning we are missing many golden opportunities to make enormous strides in safety and operational performance.



Secondly, let's embrace the evidence, open our minds and base our decisions on modern scientific understanding of human performance, capabilities, limitations and fallibilities and move away from the historical approach of negotiated custom and practice. We need a more fair and open-minded culture that can embrace all the technical, non-technical and social aspects of seafaring.

Thirdly, let's be more inquisitive, carry out more human based research focussed on the maritime industry and designed to deliver the improvements in performance we require. We need to cultivate a general recognition and acceptance that Human Element practice, and development of the soft, non-technical skills can genuinely make life better for all on board and ashore.

The often quoted figure that human actions account for some 80% of accidents and incidents is probably in the right ball park if we consider direct human action in the immediate run up to an accident alone. However, if we look at the fuller picture and take into account actions that may not have directly caused the accident but contributed indirectly – the latent factors - that figure is close to 100% when we take training, management, design, construction, maintenance, organisational culture and so on into account.

Current **CHIRP** analysis of incidents shows a continued pattern of failings in situational awareness closely followed by communications, culture, teamwork, local practices and capability. Analysis by others shows similar results. How can we address some of these issues? MGN 520 (M) "The Deadly Dozen" provides a good overview of this – outlining the 12 most significant human factors in accidents and what can be done about them.

Let's start with the basics – to set people up to succeed we need to give them the correct tools for the job, both hardware and software. Design issues can be problematic. Ships and ships' equipment should be built with sufficient attention to the Human Element. The specification may seem OK on paper, but has it been fully thought through with the user in mind? Is equipment easy to use, can displays be seen clearly, machinery accessed and maintained effectively? Issues of noise, vibration and light pollution in accommodation areas can adversely affect crew whilst emergency access and enclosed spaces are critical to safety. These issues should ideally be addressed at the concept/design stage – once the ship is built it is too late to make significant changes. We need to attract the attention of both the people who commission ships and those who design & build them.

The same applies to written procedures and instructions for carrying out tasks. Too often they can be unclear, ambiguous or just unworkable, leaving the operators to work it out for themselves or use their own local practices to get the job done, not always safely.

A better understanding of automation, automated systems and other technological developments, particularly with regard to human performance would help. Whilst these have many attractions, not least taking away the routine, dangerous and mundane tasks from the operator, the downside is that it can lead to skill fade, reliance on equipment over competence, complacency, and boredom & fatigue, all of which play a significant role in the loss of situational awareness.

A straw poll by MCA identified that the key concern of many is the ship-shore interface. Many were concerned that the ship didn't understand the shore and vice versa, that there was limited trust between the two and they were working to a different agenda with the ensuing result that safety and performance as well as crew wellbeing was compromised.

Traditionally the maritime industry has taught the technical aspects reasonably well although competent use of modern technology is presenting new challenges, and the CHIRP analysis has raised a concern that capability may be a factor in many incidents. Leadership and management skills are beginning to be addressed with the 2010 Manila amendments to STCW.

However, one area where we could make significant improvements is in training about human factors, human performance and limitations. In other words, helping people learn more about themselves, how humans work, and how this can improve our own and our teams' safety and operational performance. This has paid significant dividends in other safety critical industries and there is no reason why it shouldn't raise standards in the maritime industry too. A basic understanding of how our minds work, how and why we make mistakes, and how we can help prevent ourselves and each other making mistakes would make a significant contribution to maritime safety. Yet we seem reluctant to embrace these vital lifesaving skills.

Another key component of safety is organisational culture, particularly embracing the key principles of Just Culture. Adopted in a number of industries, indeed enshrined in law in areas of aviation, Just Culture remains a poor relation in the maritime world, yet it offers wonderful opportunities to identify risks and learn incredibly important safety lessons whilst simultaneously building communication and trust within organisations.

What Could Be Done?

The industry could look at developing effective Human Element Training, possibly embedding it into STCW through IMO, although this would take concerted international effort and agreement. However, we don't need this to happen as a prerequisite for the industry to address human element issues itself.

A number of things could be done without needing to resort to regulation, for instance:

- Develop effective Just Culture principles within organisations. Effective dissemination of the lessons learned across the organisation should enable a better understanding of risks, operational issues and above all expand the boundaries of situational awareness;
- Consider providing crews and shoreside staff and management with human factors training, particularly human performance & limitations and the soft, non-technical skills essential for effective communication and teamwork.
- Look at the ship-shore relationship in organisations. Be open and objective and involve everyone. You might be surprised. Consider developing leadership and management

programmes within the organisation, with significant emphasis on human factors.

- Invest in wellbeing strategies to look after the mental and physical wellbeing of crews and shore side staff. Mental health concerns in particular are increasingly apparent with the consequent negative impacts on seafarer wellbeing, health, safety and operational performance.
- Engage with ship designers to build ships that are "humanfriendly" i.e. built to accommodate human requirements as much as possible. It is far cheaper and more cost effective to get the design right before construction than it is to correct failings afterwards or indeed live with the consequences.
- Manage fatigue and fatigue-related issues effectively. MGN 505 (M) provides guidance on fatigue and the law as it stands in the UK. There is plenty of other guidance too explaining the causes, effects and dangers of fatigue.

Finally, engage a wider audience. Many that are already engaged are highly proactive and reaping the rewards of their efforts. Help expand the sphere of engagement to encompass as many shipping organisations as possible.

Article. 03 _

INSIGHT Enclosed Space Fatalities – Why?

Introduction

CHIRP Maritime recently published an editorial comment in The Maritime Executive titled '<u>If Nobody Entered Enclosed</u> <u>Spaces...</u>'. The article resonated with many in the industry and amongst the comments it attracted was the following:

"Good procedures for ventilation, tank entry, lock out/tag out and proper training make the procedures safe"

Whilst the statement is undoubtedly true if the procedures and training are followed, why are seafarers and others such as shipyard personnel or contractors still tragically dying in enclosed and/or confined spaces? At **CHIRP** Maritime we struggle to believe that people are deliberately ignoring their training and the plethora of checklists and permits required for entering such a space in order to play Russian roulette with their lives!

Perhaps a single word should be added to the original comment, "Good procedures for ventilation, tank entry, lock out/ tag out and proper training should make the procedures safe."

Despite increased regulation and training, the fact is that mariners are still dying in enclosed spaces. It would appear that the training, procedures and supervision on vessels around the world may not be as comprehensive and thorough as first thought. This situation is a global problem and has occurred in every area of maritime trade, including commercial shipping, offshore operations and the fishing industry and it spans every quarter of the globe from the North Sea to the Gulf of Mexico and the Far East. An incident can potentially happen on any vessel anywhere in the world at any time and does so with a depressing regularity. It is not **CHIRP**'s intention to point a finger or cause offence but rather to highlight potentially simple solutions to those involved in the maritime industry including naval architects and shore-based legislators, vessel management and ship operators. Whilst the seafarer is always the victim, it is also incumbent upon those who have influence to take ownership of the problem and, by so doing, reduce the risk. The continued loss of human life is unacceptable and wholly preventable.

The Human Element

Let us turn to the Human Element. **CHIRP** analyses all the reports that are published in our FEEDBACK magazine for both latent failures as defined by James Reason, and Human Element failings. The most common failings of human element are in situational awareness closely followed by communications, culture, teamwork, local practices and capability. If we take each part of the human element in turn and apply a few (non-exhaustive) ideas as to what might be considered for enclosed spaces then the following might form a part of a well thought out risk assessment, or toolbox talk prior to any entry into a confined or enclosed space:

Situational Awareness: Is everybody involved in the operation fully aware of all potential hazards involved when entering an enclosed space, whether it is an obvious confined space or not? Has there been a team briefing as to the potential for incident and the possible repercussions of neglect? Are there procedures in place to counter each perceived or potential hazard that might occur?

Alerting: Does everybody involved in the operation know how to raise an alarm about a situation, or more importantly how to raise a concern about a situation before it warrants raising an alarm? Equally important, are you confident enough to raise any concerns without any fear of repercussion? If you have a query or are not sure about any particular part of the proposed operation, then speak up.

Communication: Are people involved, especially those in supervisory roles, truly communicating information to others so that everybody involved understands the task and potential hazards involved? If you enter an enclosed space can you effectively communicate with those outside at all times – or are there "blind" spots. If so, what can you do to mitigate this risk?

Complacency: The expression 'familiarity breeds contempt' can be re-written as 'routine breeds complacency'. Are you sure that all aspects of the intended operation have been covered? Just because you have done it many times before does not mean that the answer is "Yes!"

Culture: There are some cultures that are reluctant to question or even interact with figures in authority or from other cultures. Conversely there are some cultures or individuals who are reluctant to accept 'interference' from others. This is often referred to as "cockpit culture" and refers to historical incidents within the aviation industry that resulted in the total loss of aircraft and crew because the assisting flight crew did not challenge the Captain's fatal decision even when they knew it to be wrong. Whilst it may sound incredible, this social psychology phenomenon is well documented. Does your system on board take this into account and actively challenge it?



The Deadly Dozen

SITUATIONAL AWARENESS

Do you know what's REALLY happening?

Understanding what is really happening and assess its impact on your voyage now and in the future.

ALERTING

Do you REALLY speak up when you should?

Bringing concerns about actions, situations or behaviour to the attention of others in a timely, positive and effective way.

COMMUNICATION

Do you REALLY understand each other?

Transmitting and receiving full and correct information ensuring sender AND receiver share the same understanding.

COMPLACENCY

Is everything REALLY OK? A misplaced feeling of confidence that everything is OK

CULTURE

Do you REALLY have a good safety culture?

The blend of understanding, beliefs and attitudes of people and organisations that result in behaviour and actions.

FIT FOR DUTY

Are you REALLY fit to carry out your duties safely? The combination of physical and mental

state of people which enables them to carry out their duties competently and safely.



LOCAL PRACTICES

Efficiency OR dangerous short cuts? Behaviour and actions applied locally that differ from the official documented practices. Also known as procedural violations.

FATIGUE

Just tired OR dangerously fatigued?

A reduction in physical and/or mental capability as the result of physical, mental or emotional exertion which may impair nearly all physical abilities including: strength; speed; reaction time; co-ordination; decision making; or balance.

DISTRACTIONS

Multi-tasking OR dangerously distracted? An event that interrupts your attention to a task.

PRESSURE

Busy OR dangerously overloaded? Real and perceived demands on people. Do you REALLY have the resources you need.

CAPABILITY

Is your crew REALLY capable? The blend of knowledge, skills and attitude to enable effective, safe performance. Do they have tools and resources to perform competently?

TEAMWORK

Do you work REALLY well together? Working together effectively towards a shared common goal.

The Human Element – Failings which can lead to disaster unless properly addressed.

Local Practices: People in supervisory positions need to be aware of local practices. Just because something is local practice doesn't in itself make it undesirable, but if local practice is in conflict with or inferior to 'best practice', then the procedures must be improved. Is this a case of "We've always done it like this?" It can be a difficult cycle to break but is the cause of many incidents and thus should be thoroughly addressed.

Team Work: Ensure all team members are fully conversant with the task and any potential hazards, especially when the team involves multi-national personnel or when individual team members have been replaced. NEVER ASSUME. As investigators say, "To ASSUME makes an ASS out of U and ME!"

Capability: Are the personnel assigned to specific roles in the operation fully conversant with their duties and responsibilities and truly capable and competent to carry them out safely? If they were, we would not be having the tragic recurrence of incidents. Capability is not simply competence other factors such as being physically able to do the required task need to be considered – this might apply, for example, to a case of tank entry in the Persian Gulf in summer.

The truth is, with reduced crew manning these days, the master has to rely on the personnel available and may face corporate pressure or bullying by his managers, but such pressures must be resisted.

Pressure: Is there realistically enough time and sufficient personnel to carry out the operation? Don't allow other factors to interfere with a safe operation. This includes peer pressure to "get the job done"

Distractions: Ensure personnel involved with enclosed or confined space work are not distracted - other personnel should be aware of the ongoing operation and instructed not to interfere. Highlight to those involved the hazards of allowing themselves to be distracted. Distractions can also arise from work overload or personal issues, and all must be considered to ensure that a task is undertaken safely.

Fatigue: Be aware of the debilitating effects of high humidity, high temperatures and high noise levels which might be encountered within an enclosed or confined space. Even wearing PPE (dust or respirator masks) can be tiring. Ensure personnel have adequate breaks, refreshment and rest periods. Ventilation is all important, and there must be no areas where there might be a build-up of noxious gases, or a lack of oxygen – this should be assessed at the design stage of a compartment, but continuing incidents suggest that designs are not always perfect. This is why all areas of a compartment must be tested?

Fit for Duty: Are the people assigned to the task of confined space entry physically and mentally fit for the job in hand? A person may be fit for their 'routine' duties but are they equally fit for the additional, arduous nature of confined space entry? Is it physically possible for a human to undertake the required task under the prevailing conditions?

Other considerations:

Every confined and enclosed space is different. They come in all shapes and sizes from massive cargo holds or tanks

through assorted void spaces to incredibly confined double bottom tanks, single frame width cofferdams and bulbous bow spaces. Some spaces may not even be immediately identified as being dangerous, such as chain lockers or deck houses containing ballast water treatment plant (the dosing machinery requiring periodic filling with sacks of chemicals has been known to produce a toxic dust atmosphere). Whilst the two basic hazards of oxygen deficiency and toxic atmospheres are potentially present in all confined spaces, many other hazards may be space-specific such as access and egress points, ventilation and ventilation blind pockets, communications and ambient background noise. Where applicable, a compartment should be fully protected with equipment lock-out, to isolate electric circuits or to prevent the ingress of gases/liquids.

On a VLCC, access through a tank lid at main deck level is quite easy but a slip from the ladder could lead to a fatal fall. However, rescue from the tank bottom can be relatively straight forward if the vessel is equipped with the right equipment and the crew has been competently drilled.

By contrast, access to some double bottom spaces can be a nightmare, with the access points too cramped, or lightening holes too small to facilitate passage whilst wearing radios; breathing apparatus, etc. In the event of an emergency, a rescue can be virtually impossible within a short time period. Even rapidly exiting a space can be almost impossible if the seafarer is a long way into the space.

A well thought out risk assessment should address all the above points, and systems or procedures should be in place to reduce the risk to acceptable levels. If this cannot be done, then the obvious answer is "Do not enter!".

Solutions or more problems?

CHIRP Maritime suggests a potential solution is to reduce the risk of an incident by reducing the number of human entries into confined spaces:

It is common sense that if the number of interventions between humans and confined spaces are reduced, the number of potential accidents are equally reduced and statistically the number of fatalities must go down. This might require a reassessment by legislators, classification societies, insurers and ship owners with regard to the frequency of inspection. However, it is not beyond the realms of possibility bearing in mind the realistic prospect of autonomous vessels operating in the near future. Who is going to inspect these spaces on autonomous vessels? If legislators and classification societies are prepared to license these vessels will an inspection regime be required, or will all inspections be carried out by specialists during dockings or maintenance periods?

Utilise specialists

Other major jobs on board frequently involve teams of shore side contractors or riding crews, so why not apply the same solution to entry into confined spaces? Confined space work is not complicated, but the work is out of the ordinary and can be labour intensive, so why not utilise specialist teams? They can be third party or an in-house squad, arriving onboard with all the necessary equipment suitably calibrated and certified for the duration of a port call, maintenance period, short voyage or even an international passage.



Technology exists today whereby inspections can be conducted by robotic means or by drones, and this would completely do away with human intervention into compartments. If Amazon can deliver products to your doorstep via a drone, then the maritime sector could easily utilise the same sort of technology to conduct inspections of enclosed spaces and reduce or eliminate the number of incidents in this area.

We simply have to get the job done!

For generations, seafarers have had a culture that the job must get done. In sailing ships, if a vessel encountered a sudden squall, the sails had to be trimmed or shortened to avoid the risk of being dismasted. If cargo broke adrift, it had to be secured or it might stave in the ships side with dire consequences. Seafarers' tenacity, ingenuity and determination in urgent or emergency situations is legendary.

Nowadays, whilst there are still genuine emergency situations where those same traits of tenacity, ingenuity and determination can prevent an emergency becoming a disaster, there is frequently a work ethic of just getting on with it, even if the safety of the vessel is not at risk. Whilst this is commendable, it can have consequences if there is an incident and the subsequent inquiry criticises the people involved. Suddenly the strong work ethic translates in to a criminal violation of hours of rest, a circumventing of company procedures, or wilful neglect. Regardless of any commercial considerations and pressures, the wilful neglect by the ship's crew will be highlighted by the shipowner/manager seeking to limit liability.

Whilst recognising that vessels today are operating in an intensely competitive market, if the resultant commercial pressures are contributing to the continuing loss of life in confined space accidents then it must be time to pause and radically reassess the situation. The solution should not be more legislation or another layer of permits and checklists to burden the already overloaded seafarer. There must be a fundamental review of the requirements for human intervention within confined spaces. We need a system that reflects the current operational requirements and is fit to evolve for the future, not a system that is built upon past practices.

Paperwork – or a thorough check to ensure the operation can be conducted safely

Before any confined space entry is undertaken the normal risk assessment, pre-entry checklists, atmosphere checks and confined space entry permits should have been completed. In many cases these forms are conscientiously completed, but for some people it is treated as a paper exercise with boxes being blindly ticked by rote. Unfortunately, those responsible for getting the job done on board ignore the in-depth requirements, "It's a load of unnecessary rubbish - just get on with it". It is not unusual for the same rescue equipment and breathing apparatus sets to be used whether it is appropriate and useful or inappropriate and pointless – if it is a stated requirement in the procedure, then it is done.

There can be a tendency for seafarers to assume that because a document, form or checklist has originated from the office ashore then it must be correct, however learnings from incidents tell us that this is not always the case. Generic procedures should be tailored for the job and a specific risk assessment should be undertaken to identify specific hazards. Seafarers and others required to complete checklists should not accept things at face value, but should analyse individual cases and, if necessary, seek clarification or question documents, forms and checklists.

Shipboard SMS procedures often call for either three of four separate signatures on a confined space entry permit (e.g. performing authority, area authority / supervisor, gas tester, issuing authority). It is believed that multiple signatories will perform checks and balances but each of those three or four individuals have their own workload in their own workplace and it is unlikely they will all be in the same location at the same time. So, the person tasked with completing a permit is often seen scurrying about the vessel, permit pad in hand, seeking various signatures to endorse or authorise the permit. In small crew operations, who is there to carry out the checks and balances?

It could be argued that a single person dedicated to the task, trained and competent in the required disciplines could be a more conscientious and safer option than those three or four busy distracted individuals currently required to open a 'Confined Space Entry Permit'. This would be a commendable possibility. However, we know that the additional delays in implementing such a thorough procedure would most likely result in pressure from senior management to circumvent the proper process.

Logistical Support

Most often a vessel's planned maintenance programme is originated and controlled by the owners or vessel managers ashore. These people have a duty of care to ensure that all of the necessary and required equipment is supplied to the vessel to support the marine crew in completing the assigned tasks.

A simple example of this would be for the office to dispatch freshly calibrated gas detectors to their vessels as part of an exchange programme, in advance of the expiry of any current onboard units. That being said, a proper calibration of the instruments using a certified span gas by a competent person should be conducted prior to any tank entry. Gas detector sensors rapidly deteriorate when exposed to extreme heat and other damaging atmospheric conditions. How often do ships accept that a gas detector received onboard only requires an annual third-party calibration? If the unit has been sitting in the agent's car window in extreme heat for a prolonged period, it could be deficient before it even gets on board.

Onboard Supervision

Some tragedies in enclosed spaces occur when vessels are in port and involve personnel who are not a part of the vessels complement – contractors for instance.

Port calls today are a nightmare of frantic activity, set against the time constraints of charterers requirements, daylight operations, tidal restrictions, pilot availability and many other factors. Vessels are inundated with people (port authority, management office staff, surveyors, agents, chandlers, shore gangs, service engineers, crew changes) all requiring attention, induction and supervision by ships staff. They may all know their own par-



Preventing even a single fatality in a confined space makes any effort worth it.

ticular jobs and they may have been aboard the vessel before, but they may not be aware of the current situation on board unless properly advised by ships staff. This requires positive management and supervision by vessel personnel which may not be easy when some or all of the above groups consider they don't need or want supervision. Nevertheless, the vessel's ISM procedures should cover all of the above. Whilst the responsibility for carrying out these procedures effectively lies with the vessel, ensuring that it is possible to do so is entirely the responsibility of company management.

The Way Forward?

The diagram above gives some indication of a possible way forward. There is no simple solution since, if it were easy, it would have been done by now. Just because something is difficult however does not mean it should not be attempted.

CHIRP Maritime would comment as follows:

If we do away with the need to enter enclosed/confined spaces, then we completely remove the hazard. Current

technology gives us the means to conduct remote inspections by drone or robot.

Reduce the number of enclosed/confined space entries and we reduce the number of hazardous situations that personnel are exposed to. At the design stage, scantlings and paint applications could be improved in order to extend the time interval between inspections. This should also reduce any potential maintenance.

At the design stage, engineer out ventilation dead spots and improve access to and access within confined spaces. In addition, engineer out any blind communication spots.

Checklists permits and training programmes alone do not make enclosed or confined space entry safe without effective control, experience, conscientious diligence and sufficient manpower. This applies equally to company management as well as management on board and requires a robust safety culture to be in place.



2. DECK SAFETY

One theme to emerge this year has been the number of cases where seafarers continue to ignore even basic safety precautions. We learn about a ship where someone was working overside without any protective equipment except safety boots - in other words, nothing to prevent a fall or keep him afloat, but safety equipment which might have helped drag him under the water. We also read about crew members who worked up dangerous ladders in a cargo hold, and a surveyor who had no idea how a personnel transfer basket should be used. There is also a case where an entire deck crew appeared to be without protective equipment and did not know how to prepare an anchor for dropping.

These are all serious failings and are seriously worrying. If you witness such incidents on your vessel, you should not hesitate to point out the errors and suggest a safer approach.

There is also a report about the improper rigging of lifting slings on a rescue boat, which could have had deadly consequences. The incident appears to have come about because of poor communication between the people who removed the lifting slings, and those who replaced them.

One report which caused extensive discussion at the Maritime Advisory Board concerns the safety of disabled passengers at sea. The reporter describes some worrying aspects of safety drills as they relate to disabled people, and our research revealed that there are no accepted industry-wide regulations or guidelines on this important topic. Anyone who serves aboard a passenger vessel should give careful thought to the safety of disabled passengers and should bear in mind that disabilities can take many forms, as described in our comments on the report. We also hope delegates to the International Maritime Organization will read this report and take urgent action to address the points which are raised.

Finally, we include an Insight article on HMPE ropes. These ropes are used in an increasing number of marine applications, and we should all be aware of the advantages and potential drawbacks which their use entails.



Article. 04 _

Rescue Boat Lifting Strops

OUTLINE: Rescue boat lifting strops were renewed but when refitted, were secured to the incorrect strongpoints, resulting in the potential for a serious incident to occur.

What the reporter told us:

The lifting strops for the vessel's two inflatable rescue boats, (IRB's), had recently been renewed. At the time of the incident the vessel was alongside, and the opportunity was taken for some familiarisation training. This included swinging out the port rescue boat. Unfortunately, the deck crew who had fitted the new strops attached the aft strops to strongpoints on the hull, and not to the correct lifting points on the transom. This resulted in an unstable lift as the weight of the outboard motor caused the boat to rotate about the aft strops and assume a vertical position, bow up, as shown in the photograph below.



Rescue boat – hanging vertically because strops have not been fitted correctly

Company procedures require all boat launches which are carried out for training purposes, to be undertaken with fall preventer devices (FPD's) in place. In addition, launching is to be preceded by swinging out, lowering, and recovering the boat empty. It was during this process that the problem was discovered when the boat assumed a vertical (bow up) position.

Once the port boat had been swung out over the ship's side it was lowered a few metres, at which point the boat tilted to a vertical (bow up) position. The boat was subsequently recovered by attaching a heaving line to the bow which in turn was secured to the mooring deck, thus bringing the boat to the horizontal position for stowage.

With the boat fully secured, the lifting strops were measured against those in the starboard boat and found to be identical. A similar test was then carried out on the starboard rescue boat. As this boat was lifted from its cradle the forward lifting strops became slack, indicating an identical problem. The boat was re-stowed.

Investigation revealed that the aft strops on both boats had been attached to the wrong strongpoints on the hull and not to those on the transom. Having positively confirmed that this was the root cause, the strops were repositioned to the correct strongpoints, and both boats were successfully test launched.

The investigation determined that the crew members concerned were unsure of which strongpoints to use when refitting the strops and, unfortunately, chose not to seek clarification. In order to prevent a recurrence of this incident, the correct strongpoints were then permanently marked.

This incident is being reported because of the potential for serious injury (or worse). Had circumstances prevented testing of the boats after the replacement of the lifting strops, it is entirely possible that manned boats may have been deployed in an emergency situation (which overrides the use of FPD's).

Whilst the changing of one piece of equipment with an identical certificated replacement may appear to be straightforward (and in this case, was not difficult), it is important that there is appropriate supervision and that such items are then cross-checked / tested before use.

When equipment is removed or replaced full notes/photographs should be taken and kept on board to ensure replacements are fitted correctly. On this occasion, it seems that further clarification was not sought when questions were raised amongst the crew who were refitting the strops.

CHIRP Comment

Having discussed the report, the **CHIRP** Maritime Advisory Board agreed that this incident had the potential to cause an extremely serious accident. They highlighted the following;

- It is good practice for vessel operating procedures to include photographs and accompanying notes in a clear logical order – these should be unambiguous. In this case, the procedures would include both the launching and recovery procedures, and the procedure for changing out the lifting strops. A picture is worth a thousand words and can be extremely helpful.
- The above, coupled with a briefing and risk assessment prior to undertaking the task, would negate the Human Element comments in the report related to appropriate supervision and crew not clarifying the location of the strongpoints when refitting the strops.
- In additional to any company or vessel procedures, it is vital that LSA/SOLAS training manuals should be fully up-to-date and that there should be a process for regular review. As a general comment to readers, CHIRP asks when YOU last took the opportunity to have a look at the manuals? Are they fit for purpose and up to date?



 Whilst the colour coding of the strops was certainly an effective preventative measure, once again CHIRP highlights a design issue. The boats should have been designed so as to avoid this fundamental error. Naval architects and designers please take note.

Useful references

- Avoid Lifeboat Accidents BIMCO September 2017
- Launching and Recovery of Boats from Ships The Nautical Institute – January 2018
- <u>2017-12 Lifeboat Falls Paper. Lifeboat Incidents –</u> <u>A review of Issues</u> – **CHIRP**

The above article was published in MFB 50

Article. 05 _

Painting over the side – Who needs Safety Culture?

Correspondence received:

The following is a brief description of a scene that I witnessed whilst alongside in a small Mediterranean port. There was a small coastal ferry moored directly astern of us which is used to connect the port with a nearby island. On her starboard (outboard) side, I could clearly see a crew member working over the side in an unsafe manner. He was dangerously leaning over a metal embarkation ladder and was not wearing any kind of personal protective equipment apart from safety shoes. This picture was taken at the time. There was also what looked like an officer supervising the job from the deck... demonstrating a complete lack of safety culture!



Painting over the side - lack of safety precautions

CHIRP Comment:

CHIRP sees many things wrong in the picture. As a "smoke-oh" exercise, or perhaps at a Safety Committee Meeting, or even just for fun, why not examine the picture to see how many hazards you can spot. You may well be inclined to check that all of your own onboard procedures are robust in terms of planning, risk assessment, toolbox talks and execution of the job itself.

CHIRP would welcome any pictures that may be suitable for a "Spot the Hazards" and/or learning exercise for use in future editions of Maritime Feedback.

The above article was published in MFB50

Article. 06

Emergency Procedures for Disabled Passengers

OUTLINE: A report highlighting difficulties on cruise and passenger vessels that disabled persons may encounter when following standard emergency procedures.

What the Reporter told us:

My husband and I have travelled with this company a couple of times, and on both occasions whilst we attended the emergency muster drill, nothing was said regarding people who were physically unable to walk down the vessel stairways. My husband is a wheelchair user, and last year I actually questioned what people in wheelchairs should do in an emergency since, quite understandably, we were told that wheelchair users should not use the lifts.

Last year we were told that there would be stewards available who would ensure that wheelchair users, etc., could get to their muster stations. This year we noticed that all the wheelchair users (or at least those who were assigned to our particular muster station) were gathered together slightly apart from the rest of the passengers at the muster station. This was done so that after the muster and briefing, we could leave before the able-bodied passengers filled all the lifts. We had mistakenly assumed, having been specifically segregated from able bodied passengers, that the muster instructions and briefing would have been specifically suited to those unable to use the stairways on their own. We were all told that in the event of the alarm sounding, we should return to our cabins, collect warm jackets, hats, any medication and our life jackets, and then proceed to our designated muster station. We were also told that if there was smoke involved, we should keep low and crawl, in order to get to the stairs and our muster station, but nothing was said about wheelchair users. I asked afterwards what people like my husband should do and I was told not to worry because they were aware of which cabins were occupied by wheelchair users and that these people would be collected and taken down the stairs in a stair chair by designated crew members.

My query is this. With our muster station being on Deck 7 and our cabin on Deck 12, if when the alarm sounds we were on another deck how would we get to our cabin in order to collect our life jackets, warm apparel, medication, etc. let alone be there ready for someone to get us down the stairs? If people are in a panic, I can't see how able-bodied people, let alone wheelchair users, are going to get to their own cabin to collect their things and then get to their muster station. From the point of view of wheelchair users, it would seem to me to make more sense if there was a designated gathering point on each deck. That way, when the alarm sounded, whichever deck one was on, crew members could guide those in wheelchairs to where they ultimately needed to be. In addition, if lifejackets were already at the muster stations rather than being placed in individual cabins, they could be distributed at the muster station and assistance could be given with the donning of the lifejacket. In short, it may be fine for able bodied people who can use the stairs to go to their cabin, collect their things and then proceed to their muster point, but such an action could not be carried out by someone in a wheelchair since they would not be able to use a lift.

I should also point out the fact that it is not uncommon for stewards' trolleys to be left outside cabins which makes it difficult at best to pass by with a wheelchair.

CHIRP Comment:

The Maritime Advisory Board (MAB) spent a lot of time discussing this report and commented as follows:

So far as legislation regarding disabled passengers is concerned, there is an EU Directive (1177/2010) which requires international and domestic passenger vessels within European waters to allow disabled persons and persons with reduced mobility to have the same rights as other passengers. Similarly, the US market is governed by the Americans with Disabilities Act (ADA). The UK have gone further when enacting the EU Directive into UK Law by requiring companies to have procedures with respect to disabled passengers and access. The MAB discussed as to whether there was any standard best practice documentation that could be referred to with several of the more well-known cruise companies – apparently there is none.

In general terms with reference to passengers with disabilities, the Maritime Advisory Board highlighted the following;

- Everyone is different, and the range of disabilities varies from being wheelchair bound to those who may be:
 - o visually impaired, with sight difficulties up to total blindness;
 - o aurally impaired, with hearing difficulties up to total deafness;
 - o frail, with difficulties in movement;
 - o mute and unable to vocally respond; and
 - o afflicted with any number of mental disabilities.

All of the above would require specialist care and attention in some shape or form.

- **CHIRP** understands that the procedures that most companies have in place assure that in the event of an emergency, a disabled passenger has a trained crew member or crew members assigned to assist. Perhaps a reasonable course of action might be for a ship representative to discuss with the passenger what assistance may be required in the event of an emergency. A disabled passenger knows for instance, what drugs might be needed in the short to medium term, how best he or she can be moved, and any specific requirements concerning the disability. Perhaps a "grab-bag" could be prepared in readiness for any potential emergency?
- With respect to the lifejackets being situated in cabins as opposed to being at the muster station, this point was queried with several cruise companies. Some have made

a conscious decision to relocate all lifejackets close to the lifeboats. Others have not. It was mentioned that relocation of the lifejackets would be problematic on older vessels where there may not be sufficient space to allow for lifejackets to be situated in this position.

 Similarly, CHIRP understands that many new build cruise vessels have disabled cabins located close to the muster stations. This however, is not universal and there are no regulatory requirements from IMO to ensure that the vessel design takes this into account.

With respect to the specific concerns of the reporter, this report would appear to demonstrate that there was a standard emergency lecture with no bias towards disabled passengers, albeit that they were separated from the main body of passengers. Whilst companies will have their own specific procedures, a more correct response to the concerns of the reporter would be to tell them to stay where they are and ask for assistance, at which point the personnel assigned to that passenger would be summoned to assist with the particular actions required.

CHIRP would like to hear from both passengers and the cruise industry on this subject. This may be in the form of reports detailing issues experienced, or from vessels and company management as to how they cope with such matters. We would be delighted to publish any comment in our "correspondence received" section of Maritime FEEDBACK. More and more people are taking cruises in their retirement and **CHIRP** believes that the whole subject is worthy of further discussion.

The above article was published in MFB51

Article. 07 _

Safe Working Practices – Working Aloft and in Cargo Holds

OUTLINE: *CHIRP* has received several reports concerning unsafe working practices whilst engaged in cargo hold preparations and also when working aloft using ships cranes.

What the Reporter told us (1):

A crewmember reported that whilst anchored on a bulk carrier waiting to load grain, the vessel's management instructed them to repaint the cargo hold. The crew were not provided with basic personal protective equipment such as gloves, dust masks, and eye protection. The holds were being treated with chemicals and painting was conducted from dusk until dawn – which also meant the crew incurred non-paid overtime.

In this particular port, there is a general prohibition on all painting.





Ladder not secured and crew in a precarious location with a risk of falling

CHIRP Comment:

CHIRP highlights that notwithstanding the poor standard of safety employed by the vessel's management and the lack of basic safety protection to do the job, the most common requirement for cleanliness when loading grain in bulk carriers is termed "grain clean". This involves fresh water washing and the removal of all of the previous cargo residues. The hold must be free of any infestation and any loose paint flakes removed, and the hold must be odour free. In this particular case, with these practices being employed, there existed an inherent danger that the holds would not be odour free at all. Holds would generally be inspected prior to loading grain and any failure of the inspection would mean time off hire until any deficiency was rectified.

What the Reporter told us (2):

A vessel reported unsafe working conditions whilst engaged in rust removal and painting of the cargo holds from the hatch coaming to the tank top. This involved using the ship's crane with a cage, or sometimes a bosun's chair, suspended from the crane.



Unsafe work practices Crane Riding

CHIRP Comment:

Whilst some of the work practices regarding unsecured equipment bear remarkable similarities to the previous report, **CHIRP** highlights the picture where crew members are riding in a cage painting the upper sections of the hold. Any crane and associated equipment used for the transfer of personnel should be designated as "man-riding" for that purpose, and in general this means that a crane must be fitted with a failsafe brake. It should also be Class approved for use in transferring personnel. In the above example, the crane is almost certainly not designated for this purpose.

What the Reporter told us (3):

During a personnel transfer operation from our vessel to the bunker barge, a surveyor was to be transferred from our vessel to the barge using a "Billy Pugh" basket.

The bunker surveyor who was to be transferred, positioned himself in the centre of the "Billy Pugh". This area is solely for baggage stowage and the correct method for transferring personnel is for the person to be positioned on the outside of the basket, standing on the base ring with arms engaged through the netting.

This incident was disappointing since the surveyor had participated in the safety meeting before the task's commencement. The operation was reviewed, and the transfer procedure was fully discussed with the surveyor. The transfer then proceeded without incident.

CHIRP Comment:

CHIRP highlights that, in addition to the comments of the reporter, any personnel involved in personnel transfer should be wearing full PPE including life vests.

Whilst the following link from the Standard P+I Club is mainly directed at transfer of personnel during ship to ship transfers, there are many aspects which are relevant to these reports and there are useful guidelines for all to be aware of. The article also shows pictures of the Billy Pugh arrangement for personnel transfer.

http://www.standard-club.com/media/23827/ StandardSafetyPersonnelTransferJuly2010.pdf

Further guidance may be found in the MCA Marine Guidance Note MGN332 (M+F) Lifting Operations and Lifting Equipment Regulations 2006. In particular, the attention of readers is drawn to Regulation 7 of the Annex which states that the employer shall ensure that no lifting equipment shall be used for lifting persons unless it is designed for the purpose. It also states that lifting equipment designed for lifting persons must have suitable devices to prevent it from falling. The Code of Safe Working Practices mentions the following;

- 19.11.4 No person should be lifted except where the equipment is designed or specially adapted and equipped for that purpose, or for rescue or in emergencies.
- There is a full section relating to personnel transfer in section 31.13.

The above article was published in MFB51

Article. 08 _

A Complete Lack of Safety Awareness

OUTLINE: A short report which details two areas where there was a breakdown in safety awareness.

What the Reporter told us:

During the arrival manoeuvre of a general cargo ship, I noticed that most of the crew members on the fore and aft mooring stations were not wearing any PPE at all (no safety shoes, helmets, or gloves). A few of them, including an officer positioned by the mooring winches control panel, were wearing flip-flops!

Furthermore, upon completion of the docking, as they opened the cargo hatches using the ship's old-style derricks, I could clearly see crew members climbing up the vertical ladders leading to the derrick controls and securing arrangements bare-chested, wearing flip-flops, but not any PPE! It was appalling to witness the complete lack of safety culture, whilst everywhere around them were ship safety notices, posters, IMO signs etc. SAFETY FIRST? Well, maybe not on that ship!

In addition, whilst the ship was on the final approach to the pier, the port anchor was dropped from the hawse pipe without being walked back to the water level first. It just missed the line handler's boat which was literally a few metres away. As a result, the line handler's boat rolled heavily and moved quickly away.

The anchor was dropped to slow down the approach. However, this was not clearly communicated by the pilot to all parties involved by VHF. We were all surprised by the unannounced action. The weather was fine at the time (NE winds 10/15 knots), with negligible current and tide, and no abnormalities occurred during the manoeuvre. All the crew in the forward mooring station were standing on the starboard side ready to lower the ropes to the boat. When the anchor was dropped, no one checked the port side prior to letting go.

Lessons Learned:

This is a spiral to disaster – a total lack of awareness of any danger, poor safety culture and no communication.

CHIRP Comment:

Having discussed this report, the Maritime Advisory Board agreed with the reporter that the lack of any safety equipment (PPE) is indicative of a scant respect for safety, leading to a poor safety culture both on board and from the company. With respect to the anchor, it is not uncommon to control the speed of approach by "dredging" an anchor in small ports with restricted room. It is, however, to be expected that proper communication between the bridge team (both pilot and master) and the forward mooring station is maintained throughout. In this case the lack of communication could have been fatal to the line boat. **CHIRP** agrees with the reporter that prior to dropping an anchor the area should be checked over-side to ensure that it is clear. It is also noted that if the dropping of the anchor is regularly conducted then the line handling boat should not have been in the vicinity until this operation was completed. Finally, it is always good practice to lower the anchor to the waterline prior to letting go – anchors can get jammed in the hawse pipe.

The above article was published in MFB53

Article. 09 _

INSIGHT HMPE Rope – Capability with Caution

Introduction

CHIRP Maritime recently received a report detailing the use of HMPE (High Modulus Polyethylene) ropes as towing lines.

The port in question retires the tugs' HMPE lines on the basis of the number of jobs that the line has undertaken. The tugs are fitted with 60mm rope lines which are retired after 2,000 jobs. Upon withdrawal, the lines are then tested to destruction. The expectation of the actual failure of the rope has been based upon a ratio considering bollard pull versus the minimum breaking load (MBL) of a new rope. For an in-service rope the assumption was that failure would not be expected with a ratio of less than 3.6.

Results of the destructive testing were alarming. The expectation was that upon retirement, a minimum of twice the bollard pull would be seen to be acceptable. Some of the test results, however, revealed a ratio as low as 1.3.

Following a recent failure in service the port has reverted to using 64mm rope (with no added chafing gear). They have also reduced the number of jobs that the line can undertake prior to retirement. This was previously set at 3,200 but ropes of this size are now retired after 2,500 jobs.

The reporter was looking for any feedback or advice, since there appears to be limited information available when it comes to determining how long an HMPE line should be in use.

This paper addresses HMPE ropes and their complexities then discusses the retirement criteria following discussion with tug operators. Some aspects of the criteria may be equally applicable to larger vessels.

HMPE Rope and Safe Mooring

HMPE (High Modulus Polyethylene) rope for ship's moorings and tugs' lines has been commonly used in the industry for over a decade. Steel wire ropes have often been replaced (along with



the previous generation of soft ropes) with a lighter, smaller diameter, and higher capability modern rope. This has been welcomed and appreciated within the maritime sector. It has without doubt contributed to safely managing high risk mooring operations, led to reduced maintenance time and associated costs, and delivered a cost-effective enhanced capability despite the inevitable rise in high technology purchase costs.

Safe mooring, however, is the cumulative effect of multiple factors and the type of rope used is only one of those factors. As such, rope failures of whatever type tend to reveal flaws in the mooring operation and its system on multiple levels. Whilst we should not lose sight of this fact, there have been several high-profile incidents where the HMPE construction has been revealed to be a significant factor in the failure. The CHIRP Maritime Advisory Board (MAB) has focussed upon the HMPE factor in this paper but does not exclude the contributory effect of all other aspects in any mooring incident.

HMPE rope failures or adverse effects upon the mooring system have occurred in a set of circumstances that might best be described as non-traditional. The circumstances of some of these failures are not conforming to traditional failures seen with previous types of rope. As such it has raised the question, "What do we not know?"

Reference is drawn to two key sources of information.

- The MAIB Accident Investigation Report 13/2017 into the failure and injury sustained from an HMPE rope on the LNG carrier ZARGA. The CHIRP Maritime Advisory Board (MAB) has first-hand knowledge of such failures on sister vessels. MAIB Zarga Report
- OCIMF Mooring Equipment Guidelines 4 (MEG4). Many of the lessons learned from the Zarga report have been included. <u>OCIMF - MEG4 Guidelines</u>

Complexities and Limitations of HMPE Rope

The complex properties of high modulus synthetic fibre ropes have advantages but limitations.

Axial Compression Fatigue has been revealed to be a significant factor in HMPE rope failure. Simply explained, it occurs when the rope is tensioned around a lead of smaller-than-optimal diameter. This then prevents the individual HMPE fibres within the rope from moving freely in order to take up their correct tensile or elastic properties.

In addition, jacketed protection of HMPE rope does not allow visual inspection of the internal construction or allow for an accurate condition assessment in any practically meaningful sense without the use of specialist shore-based equipment. There has been a move away from jacketed construction towards a visible lay for ease of splicing and repair. Chafing protection can be woven into pennants or high wear areas.

Separately, the use of HMPE ropes has revealed some alarming incidents. This has involved multiple factors, and in some cases the HMPE ropes were so good that they actually revealed weaknesses in other aspects of the mooring system. Reported examples are noted below, with "unpredictable" being the theme:

- Bollards being squeezed like wine glass stems as the figure of eight rope takes the strain and compresses the steel.
- Bollards being ripped from the deck as the breaking strain of a small diameter HMPE rope exceeded that of the bollard.
- Rope tending to be buried deep in the lay upon drums. This appears to be more frequent than with previous larger diameter ropes of the same breaking strain.
- Failure with no snap back at all, as well as high snap back failures. This has inevitably created an uncertainty as to the when and how failure will occur.
- Low load failure from one HMPE rope of a paired mooring

 the rope had previously taken loads approaching the breaking strain with ease - completely the same exposure with widely different effect.
- A failed mooring rope was end for ended, only for the same rope to fail in the same place again at low load, but at the opposite end of the same rope!

The importance of reducing levels of peak loading on HMPE rope by using a tail or pennant is highlighted, with the increased elasticity being the important factor in reducing such loads. The use of nylon tails of at least 11 metres in length on larger vessels at sheltered berths, and 22m in length on exposed berths has been recommended to extend the lives of HMPE ropes.

Historically the predominant HMPE rope failure cases have been noted to be clear of fairleads and at low load. This is possibly due to prior high loading, thus causing fatigue damage. The fatigue would lead to future failures in tensile strength due to internal abrasion and fibre creep. The question of what is an optimum HMPE content within the fibre construct to ensure the optimum benefits has been raised.

Axial Compression Fatigue is amplified by bending an HMPE rope around curves in inappropriately tight leads which are not suitable for the diameter of the rope. The result is that the fibres twist and bend in excess of normal operating usage, reducing the rope life by loss of the tensile strength. The rope construction then hardens and loses elasticity due to fatigue. The effect is cumulative, latent and very difficult to detect by conventional means. This can result in a rope not failing at high loading the first time it is exposed to such a situation but failing at much lesser loading the next occasion. This is quite contrary to established experience with previous rope types.

Larger diameter and properly maintained leads, which are better matched to the size of the HMPE rope, are the way forward. Technical considerations relate to the D:d ratio of the inside and outside curvature of such a rope around the diameter of a lead. This D/d ratio is the diameter of the curvature divided by the diameter of the mooring rope. MEG4 recommends this ratio to be as high as possible with minimum bending and an absolute minimum factor of 15 applied. Note Panama leads have variable curvature with the tightest at the apex and are not easy to measure, whilst roller leads, bitts and bollards will be much easier to assess. It should be appreciated that the difference of stress levels upon the fibres of the rope will be greatest in a tightly curved lead. The tighter the curvatures the shorter the rope life. It is appreciated that on smaller vessels and tugs, the operators may not know what the diameter of the leads are, so it may be difficult to make a calculation of this figure.

Retirement Criteria

CHIRP Maritime asked some tug companies for their views with respect to the retirement of ropes and as to whether there was any recognised industry standard or practice for retirement of ropes. The consensus was that there is currently no industry guidance available, but that tug companies invariably have a close working relationship with the rope manufacturers.

Tug companies have, in many cases, adopted their own procedures as to length in service of HMPE and the retirement criteria, based on hours in service or the number of jobs. Feedback from major tug operators has suggested end for ending every 1500 jobs and changing out every 3000 jobs. However, where a more elastic nylon type pennant is utilised then this can be increased by 1000 to 1200 jobs. Monthly inspection of a preferred non-jacketed construction has been adopted.

The foregoing is very general, and there are a large number of variables to consider, some of which include;

- Generally speaking, the life cycle of both ropes and pennants will depend upon the experience of a tug and port. It will be difficult to come to an accurate analysis unless retired ropes are subjected to destructive testing. Some companies do test on retirement of the rope so life span can be continually assessed.
- Ropes often fail due to the cumulative effects of a number of events and not a single isolated incident.
- One anomaly is that the test piece of a failed rope may still be strong and thus may not part under test conditions as anticipated
- Different materials and size of rope will inevitably mean differences in hours and/or jobs undertaken prior to retirement.
- The experience and knowledge of tug crews are vitally important and any concerns that they have should be followed up.
- Material, construction, shock loading, angles, heat, internal friction and abrasion all have a negative impact and are impossible to measure without new technology. In towing ropes, this varies considerably according to the type of towing and the vessels being towed.
- Invariably, cost is an additional factor high quality ropes are expensive. Some tug companies will have contracts where tow lines are supplied from ports or terminals. This potentially could mean that cheaper ropes are supplied, with a consequential loss in quality.

A good relationship between the rope manufacturer and the tug or vessel managers is critical for guidance in usage. Experience will be gained through destructive testing following retirement or unexpected events, which should enable manufacturers to improve their products in order to improve service life. The issue of how to purchase a new rope is comprehensively covered in <u>OCIMF - MEG4</u> Guidelines and will have a positive impact in how ropes are not just manufactured but also purchased. This will be a key factor and will have positive impact on rope life duration.

In February 2011, an HMPE Users Group was established to pool knowledge and contribute to industry guidance. This was mentioned in the MAIB report for consideration in OCI-MF's MEG4. Additionally OCIMF and SIGTTO have issued a guide to purchasing <u>High Modulus Synthetic Fibre mooring</u> lines and the first section has a table detailing factors that may impact upon the service life of a rope.

Conclusions

Key lessons learned may be briefly summarised as follows:

- HMPE rope is prone to Axial Compression Fatigue failure when not used in accordance with manufacturer's guidance.
- Such manufacturer's guidance needs to be strictly followed by managers and updates promulgated to vessels so that the seafarers can safely use HMPE ropes to their full potential.
- The complete mooring system, and the fitness for the size of HMPE rope fitted needs to be considered to ensure the best match. Only when the system is perfectly matched will it be as safe as it can possibly be. This is particularly so when matching the radius of tight leads to the size and properties of the HMPE rope to prevent Axial Compression Fatigue.
- It is therefore essential that the type of rope to be utilised is considered along with the winch and the tug (or vessel for that matter) at the design stage, and not as an add-on later.
- The Code of Safe Working Practices provides a wealth of supporting advice to mitigate mooring risk in addition to MEG4.
- The so-called "snap back zone highlighting" is commonplace yet ineffective in preventing snap back exposure. Tugs will of course clear their mooring decks completely when their ropes are in tension, but larger vessels may be unable to do so. Consideration should be given to previous CHIRP advice relating to "Tension Spots" in order to highlight limited safe areas for mooring operations. It should be noted that the Code of Safe Working Practices discourages snap back zones as being unsafe. A thorough risk assessment identifying a "spot" which is safe from rope "tension" should be conducted. No movements of personnel engaged in mooring operations are in progress. An ideology not of "unsafe where to go" but "safe where to stay" should be adopted.

CHIRP Maritime welcomes Near Miss reporting on any incident relating to HMPE rope. The diverse nature of characteristics and failures shows the value of open reporting, so that incidents can be investigated in depth and lessons learned can be shared for the safety of all. It has become apparent in many cases of HMPE rope failure that these ropes do not behave in ways we have previously been conditioned to consider. New technology means new lessons. The key is open reporting so that we may continue to learn.



3. ENGINEERING AND TECHNICAL

Some of the reports in this section occurred through no fault of the owners, managers or crews of the vessels involved. This makes it even more important to try and identify the root cause in these incidents to prevent repetition. The human element as ever is central to this and some of the reports indicate failings at the design and construction stage.

The case of an engine failing to start may have been caused by fuel problems, and we include useful advice on testing engines prior to sailing. We also ask for more reports of a similar nature because the consequences of such events can be extremely serious, so please let us know if you experience such a failure.

We learn about a relatively new ship where the light fittings were

overheating, and another where there were persistent rudder angle discrepancies which had probably existed since the ship was delivered.

Steering problems are also the topic of a second report, and again it was a problem which may have existed since delivery. It is notable that these ships were relatively new, so you can never relax even though you might expect more problems on older vessels. Vigilance should always be exercised, even on the newest ships.

We also have a report about a vigilant safety officer who noted some improper modifications to a portable aluminium ladder. Luckily, he noticed the problem before anyone was hurt, and we tell you where to find more information on this topic if you are not sure what is acceptable.

This chapter concludes with two Insight articles about confidential reporting and whistle-blowing, which include a case study and discussion of the topic. Many whistle-blowing cases revolve around engineers and oil records, which is why the articles are included here, but we believe they will be useful for all personnel afloat, and many people ashore. As happens so often, the articles were triggered by one of the reports received by CHIRP Maritime which we felt needed further clarification. The first Insight article was recently published in Safety at Sea magazine, whilst the case study was written specifically for this Digest to clarify the differences between confidential reporting and anonymous whistle blowing.



Article. 10 _

Main Engine – Failure to Start

OUTLINE: An outline of a main engine failure when departing the berth.

What the Reporter told us:

During an unberthing/departure operation at a container terminal, the main engine failed to start. Control was transferred from bridge control to manual local control in the engine room, and after approximately 10 minutes the main engine was able to be started and run ahead. The aft tug remained attached for the passage out of the harbour until clear of the channel. The vessel was deep draft and was restricted to the centre of the channel which at the time was experiencing a strong flood tide. The Master was advised that the problem was a stuck fuel valve on one of the main engine units. The vessel subsequently went to anchor and carried out repairs to rectify the problem. Once completed, the vessel continued on its voyage to the next port.

Further dialogue with the reporter confirmed that it was not normal practice to have an outward-bound escorting tug. With respect to any speed issues caused by the stuck valve, it was confirmed that speed was kept to a minimum to accommodate the escorting tug and to reduce squat in the narrow channel. There was thus no attempt to increase outbound speed.

CHIRP wrote to the company and received the following response;

The main engine failed to start due to non-operational spill valves in the fuel pumps for six units. As a precautionary measure, the vessel tried to start the engine from the local stand in the ER. At this point, failure of the push rods was noted. All were loosened, and from there the vessel immediately resumed normal operations. We suspect the fuel oil quality to be the possible cause as the fuel pumps were recently overhauled by the manufacturer. The fuel oil specification was checked and found to be within ISO specifications. The vessel eventually eased up the push rods and the engine resumed normal operation. We are currently in discussion with the manufacturers as to what exactly triggered this malfunction.

CHIRP Comment:

The **CHIRP** Maritime Advisory Board commented that the response in this case has been positive from the company and is evidence of a good report and the adoption of best practice. In this case not only has the problem been rectified, but moves are underway to ensure that there is no repeat.

CHIRP is aware of other cases where an engine has either failed to start, or that the response has been "sluggish". Any further reports detailing these issues will be welcomed.

Finally, although not mentioned in the report itself, **CHIRP** would comment that it is best practice to test a main engine prior to departure by turning it over on both air and fuel. This will necessitate suitable precautions – such as raising the gangway and having personnel standing by moorings.

Article. 11 ___

Unauthorised Modification

OUTLINE: A report detailing a dangerous modification of an aluminium step ladder.

What the Reporter told us:

During a routine safety inspection of the Steering Gear Room, the Shipboard Safety Officer spotted an unauthorised modification to a portable aluminium ladder. The ladder had been crudely extended by bolting two pieces of wood into the sides of the ladder. Attached to the end of this was a wooden spreader/step. The full distance from the aluminium steps to the wooden spreader/step was nearly an additional one metre.

The pieces of wood had visible evidence of cracks, sharp edges, and two long nails with 2cm protruding from the wood. In addition, the arrangement resulted in the ladder becoming unstable as it was uneven when placed upright on the deck.

The Safety Officer advised that equipment such as portable ladders should never be modified as this is outside their design parameters and would render them unsafe for use. In addition, the manufacturer's certificate for the safe load of the ladder would become null and void. If this type of modification were noted during a Third Party inspection, such as Port State Control, the inspectors would not be impressed.

CHIRP Comment:

The Maritime Advisory Board commented that this is a classic case of not using "the right tool for the right job" and agreed with the comments of the Shipboard Safety Officer. Unauthorised modification could lead to equipment failure and potential injury. From a human element perspective, the person who modified the ladder was clearly not aware of, nor concerned with, the dangers that could arise from this practice. Furthermore, looking at the "Deadly Dozen" reveals the following:

- Local Practices Don't cut corners and beware of the local "norms" becoming the new standard.
- Culture Do you really have a good safety culture does everyone on board and in shore management really care about safety?
- Situational Awareness Ask yourself "What have I missed?"
- Complacency When considering any job, follow procedures they work.

The Code of Safe Working Practices has a lot to say regarding portable ladders. Sections 11.8.4-11.8.5, 17.3, A17.2/3-A17.2/4, 22.2.9, 22.6, 28.6.3 refer.

The above article was published in MFB51

The above article was published in MFB50

Overheating of Light Fittings

OUTLINE: A report detailing a repeat of a known hazard that had previously been identified and actioned by the Company.

What the Reporter told us:

During a night time routine safety fire patrol, a watchman reported to the OOW that he smelled melting cable coming from a light fixture in the accommodation spaces. The Electrician was immediately called to investigate the causes of this incident. It was found that a fluorescent light capacitor had overheated. This in turn resulted in nearby cables becoming burnt. The Electrician replaced the capacitor and additionally renewed the burnt cables. Normal operation of the light fitting was restored without further incident.

Using the internal near miss reporting system, the company management were notified, and the safety department duly followed up. The following points were highlighted:

Within the previous twelve months, two similar incidents had occurred on company vessels and both were specific to this particular capacitor that had originated from a single manufacturer. These two failures led the company to take the following action;

- All fleet vessels fitted with this particular light-fitting were to replace the capacitors with an updated product.
- The Planned Maintenance System for all vessels with this fitting were modified to provide instructions for inspection every six months, and to renew the capacitors every four years.
- 500 capacitors were delivered to the affected vessels by the manufacturer.

In this particular case, and prior to the incident, the replacement capacitors had been received on board but not fitted. Further, the vessel's last routine report to the company management indicated that inspection and maintenance on the accommodation lights had recently been carried out with no problems being reported.

After examining the defective capacitor, it was found that this type of capacitor was still fitted on board. The company instructed that all of the old capacitors be replaced, with appropriate spares ordered.

Overheating and failure of capacitors in fluorescent lights constitute a fire risk. It is important to use capacitors made from flame retardant materials fitted with an appropriate thermal fuse. The lighting fixtures in the engine room and in the accommodation should be subject to regular inspections to confirm their good condition.

Proper implementation of PMS requirements and implementation of instructions from the company, especially those deriving from hazardous incidents, should be promptly arranged.

CHIRP Comment:

This report highlights the value of companies having an effective near miss reporting system. It also shows that

even with a reporting system, things can go wrong. If a hazard has been identified and actions taken to rectify the problem (which may take a certain amount of time to implement), then these should form part of the handover notes for onboard personnel. In addition, a company could request positive confirmation of remedial action. If this had been done, then it would effectively ensure that a closed loop instruction had been properly implemented.

The above article was published in MFB51

Article 13 _

Rudder Angle Discrepancies

OUTLINE: A report describing a vessel which was apparently experiencing excessive port helm.

What the reporter told us:

As part of my duties as a pilot, I was required to shift a vessel from one berth to another. During the operation, I noticed that she was carrying an excessive amount of port helm, which I estimated to be in the region of 5 to 10 degrees. I pointed this out to the bridge team and on berthing, advised the master to compare the steering gear rudder angle against the corresponding rudder angle indicator display. However, when the vessel sailed outbound, the attending pilot observed that the situation had not much improved.

Recently, the same vessel returned to our port. Whilst inbound, the attending pilot again observed the same phenomenon. This made handling the vessel challenging, and as a result this discrepancy was formally reported to the local authorities.

Last night I sailed the vessel. Prior to departure, I discussed the issue with the master, and I insisted on witnessing the testing of the steering gear. An officer conducted the appropriate tests, and all was found to be in order.

However, the outward passage required a tug to be made fast on the centre-lead aft, and so I briefed the tug master that I would be conducting checks between the bridge rudder angle indicator and the actual angle of rudder observed by the tug master. Throughout the passage, about 50mm of rudder was visible above the waterline and any apparent discrepancies could be observed by the tug master.

On leaving the berth, it was immediately apparent that the vessel still carried a considerable amount of port helm. At various points during the passage, I was able to compare the vessel's rudder angle indicator with corresponding observations from the tug master. These comparisons led me to conclude that the ship was carrying 8 to 9 degrees of port helm beyond what was indicated on the bridge.

The vessel is relatively new having been built in 2017, and there is no evidence of excessive vibration or load on the steering gear. The handling characteristics are however, outside the parameters that would be considered normal by the average ship handler and could be considered unsafe in certain circumstances. I feel the matter probably needs further investigation.

What the company told us:

CHIRP wrote to the company concerned, which conducted a full investigation. This investigation also included a detailed review of the VDR. This, along with the company analysis of the situation, did not suggest that there was any external force such as a grounding which might have caused the problem. The company requested the attendance of Class, and the following is an extract of the Class report detailing their findings and subsequent repair in drydock. This included damage to the hydraulic rams of the steering gear and the rudder stock. The company concluded that the damage to the steering system was most likely due to workmanship and/or material failure at the new building stage.

A bottom inspection of the vessel was carried out in drydock and there was no indication of any damage to the hull bottom paintwork. In addition, an inspection of the propeller blades and rudder revealed no deficiencies.

Inspection of the steering gear, rudder stock and the rudder blade were carried out in dry dock. Damage was noted as follows;

- Securing bolts for the guide bar bearing of the steering gear were found to be broken and the guide bar was found to be 20mm out of alignment.
- Cracks were found in the port side hydraulic cylinder ram, several foundation bolts were loose, and the ram was found to be slightly out of alignment.
- Several port side steering gear cylinder ram foundation bolts were loose.
- The upper rudder stock keyway was found to be slightly deformed, there was an offset of 25mm between the upper and lower bearings of the upper rudder stock when compared with the true centre line.
- A twist of the keyway amounting to approximately nine degrees was found between the upper and lower keyway when comparing this with the original centre line.

The Class report additionally gives full details of the repair that was carried out which included a thorough overhaul of the rudder carrier, repairs to the hydraulic rams and the steering gear foundations, heat treatment and straightening of the rudder stock, and machining out the deformations. The tiller keyway and carrier to the rudder stock were renewed. All of the work was carried out as per Class technical specifications.

The repairs were followed by magnetic particle testing, penetrant testing and ultrasonic testing of welding and machined repairs.

Upon completion of the repairs the rudder blade was given a swing test, and the steering gear with associated alarms were fully tested with satisfactory results. In addition, the attending surveyor witnessed sea trials of the steering gear whilst manoeuvring and these also were satisfactory.





Notes:

- 1. The steering gear guide bar is a structure that guides the lateral movement of the hydraulic ram rods, such that the tiller movements correctly reflect the desired rudder angle of steering. The guide bar can run parallel to the steering gear crosshead or be fitted in place of the crosshead shown above. The guide bar bearing is the moving part of the mechanism that takes movement of the steering rams and transfers it to the tiller, while moving on the guide bar.
- 2. The securing bolts for the guide bar bearing effectively connect the steering rams to the tiller.
- 3. The rudder stock is the cylindrical steel bar (or tube) which connects the tiller to the rudder. It is of sufficient strength and moves in azimuth, to ensure that steering gear movements cause the corresponding direct movement of the rudder.
- 4. The upper rudder stock keyway lies within the joint of the tiller to the rudder stock, with the key ensuring (if aligned correctly, and not damaged) that the tiller arm is correctly located, relative to rudder position, when the tiller arm is tightened down correctly onto the upper taper fit of the rudder stock.
- 5. A typical steering gear has two hydraulic rams: one on the port side and one on the starboard side of the rudder stock, to provide power for the full range of rudder movement starboard to port.

CHIRP Comment:

The Maritime Advisory Board agreed that this incident was a good example of a company following up and acting upon receipt of a report. Quite apart from the technicalities of the actual repair, the main focus of the Advisory Board comment, was that there was potential for a hazardous situation to develop, such as a grounding. In hindsight, it is easy to see that there was a problem even though the standard steering gear tests did not reveal any issues. It is also easy to note that for many defects (not specifically this report but in general),



if the problem is not detected immediately it can become the norm – "That's the way it's always been". So the main lesson to come out of this report is: if something doesn't feel right, then there may well be an issue – so REPORT IT! This lesson does not only apply to this vessel's manoeuvring characteristics, but to any piece of equipment or any operation which does not appear to be functioning as you might expect it to.

The above article was published in MFB 51

Article 14 ____

Newbuild Vessel – Poor Steerage

OUTLINE: A report describing a new build vessel with poor handling characteristics when in the loaded condition.

What the Reporter told us:

Description of Event: A pilot reported that when berthing a specific vessel, a considerable amount of port helm was required to stop a tendency of the vessel to go to starboard. The vessel was in the loaded condition and the speed varied between six and nine knots. The weather and water depth were considered not to be a contributing factor.

The vessel is a new generation bulk carrier with a very rounded bluff bow and is the third vessel of this hull form where I have encountered this tendency. The first couple of times, I thought perhaps it was the weather, but now I believe it is a quirk of the design. When the vessel is in a light condition, there has been no issue.

Further dialogue:

CHIRP wrote to the designers of this particular class in order to seek any clarification of the reported manoeuvring issues but received no response. Similarly, a letter was sent to the Quality Assurance department of the vessel's ISM Managers – likewise, no response was received.

CHIRP Comment:

The Maritime Advisory Board discussed this report in depth. Some members had historical first-hand experience of other new build vessels where poor handing was attributable to the design of the rudder. Regarding one such class in particular, a change of rudder design was required and the installation of a "high lift" rudder rectified the problem.

In general, sea trials for new building vessels are conducted in the ballast condition only, with the laden condition being extrapolated from the results.

It was pointed out that the lessons are similar to those of the rudder angle indicator report above. If the handling of the vessel does not feel right, then report this to your managers for further investigation. Poor manoeuvring characteristics, if unrecognised, present a danger to safe navigation and the potential for grounding or collision in restricted waters.

In addition, **CHIRP** will be writing to the relevant Classification Society, primarily as an awareness raising exercise, but also to try to determine whether this is a known common problem. Any feedback will be promulgated in a future issue of Maritime FEEDBACK. In order to widen the debate, **CHIRP** would like to hear from anyone else who has experienced similar problems.

The above article was published in MFB51

Article 15

Insight – The Stigma of Whistleblowing

Originally published in the November 2018 Edition of Safety At Sea magazine.

Introduction

It is a common view that someone who submits a confidential report on a hazardous occurrence is just the same as a whistleblower. We at **CHIRP** Maritime do not share that view.

While whistleblowing is a common term often included in official employment contracts and legislation, it can also carry a stigma. It is often used in a derogatory fashion to denigrate the reporter's integrity and status, although the purpose in most cases is to expose corrupt, poor, and/or unethical practices. However, it has also been the case that some whistleblowing has been motivated by a grievance or malicious intent and/or the prospect of financial reward.

Whistleblowing can be a frightening and daunting task and people feel it is easier not to speak out

The most important difference between whistleblowing and confidential reporting is that the former is anonymous, whereas confidential is exactly that, and the concerns of the reporter can be discussed, analysed, and acted upon.

So why do we at **CHIRP** insist that we are not a whistleblowing organisation? First, we operate a confidential instead of anonymous reporting system. From the outset of contact, we establish a one-to-one communication with the reporter to reduce any possibility of false reporting with malicious intent. Once we have established this rapport and level of trust, we further engage with the reporter to extract and confirm the accurate details of the alleged incident.

From the very beginning of our process, we ask the reporter to confirm that other possible avenues of resolution have been explored and exhausted. We encourage the reporter to use internal company reporting schemes through their company management safety management systems – that is what they are for in the first place. But time and again, these avenues have proved closed and that is when we step in.

Of course, in many scenarios, there may be an absence of an effective company reporting system – perhaps a ship-toship or ship-to-shore incident, where the other party is not a company asset or employee and is, therefore, outside any internal safety management system.

The stigma associated with whistleblowing can often involve an element of fear, clandestine meetings, and a one-way flow of information, potentially resulting in a witch-hunt for the reporter and often resulting in termination of employment, loss of credibility, and expensive legal restitution, which in many cases is not possible. This may result in a feeling of injustice and a perception of persecution, a cover up, and enduring corruption.

At **CHIRP** Maritime, we seek to avoid extreme repercussions and go to great lengths to ensure the confidential reporter is involved at every step of the way. In our system, the reporter is advised of any potential action that we might take and must approve it. At any time, our reporter can halt the process and we will dutifully comply. The reporter remains in control of the report. Furthermore, if an individual can easily be identified, the matter will not be progressed but instead retained on file. In the event that similar reports are received, the issue will then be expedited.

We will seek a response from the respective party, such as the shipowner, manager, class society, or flag state, and will seek a satisfactory resolution and closure. At no time do we seek recompense on behalf of a reporter, nor has any ever been offered or proposed. Our aim is to extract learning to benefit the mariner and the maritime sector. In addition, we seek to correct the situation itself. It is this unique function that sets **CHIRP** Maritime apart and distinguishes the organisation as a world leader in maritime confidential hazardous incident reporting.

When to report

What qualifies as a hazardous occurrence? What do we listen to and take on?

Principally, we look at issues that can affect the environment, health, safety, and which have a direct impact on the seafarer. We also look at best management practice, commenting on both poor and effective examples. What we do not deal with is personal grievances and issues that may be better served by organisations such as the International Seafarers Welfare and Assistance Network (ISWAN), with which we have a memorandum of understanding to mutually refer relevant reports.

Whistleblowing is often used to raise an issue of alleged impropriety to the regulator, and this in turn may result in loss of anonymity of the reporter or receive no interest from the regulator. By using confidential reporting, CHIRP Maritime can maintain distance and apply direct pressure to the relevant body. **CHIRP** Maritime has neither government involvement in its organisation nor other single-party involvement; it is not reliant upon single-source funding. Most importantly, **CHIRP** retains autonomy. It can absorb critical reactions and shield the reporter from intimidation and retribution. Crucially, **CHIRP** Maritime is international and draws upon a substantial network of contacts through ambassadors and established routes developed over more than 15 years of operation in this field.

Answering a need

A confidential incident reporting system is a mechanism that allows problems with safety – in critical fields such as aviation and maritime – to be reported in confidence. This in turn allows incidents to be highlighted instead of being kept quiet due to fear of blame or reprisals against the reporter.

In the United Kingdom, the aviation industry is subject to mandatory reporting of technical faults, but such a requirement does not exist in the maritime world. An analysis of the reported incidents can also provide insight into how those incidents occurred and, through such identification, the possibility of recurrence can be mitigated or removed.

But how is CHIRP able to maintain confidentiality and reassure the reporter? Our process is one of limiting access to the reporter and 'dis-identifying' the information. Only one or two people within CHIRP will know the identity of the reporter. Once the incident information is submitted, we go to great lengths to ensure the report does not identify an individual, company, or vessel and, especially, the reporter. All information about a reporter is destroyed on completion of every report. Once the report has been suitably dis-identified, it is then forwarded to the CHIRP Maritime Advisory Board for consideration and again the identity of the reporter is not revealed. The board consists of 28 experts whose specialist knowledge covers a vast area of expertise in considerable depth. We have marine pilots, human element professionals, military and commercial professionals, offshore, pleasure yachting, and fishing experts, as well as professional casualty investigators, law firms, and P&I and union representatives. And if the expertise is not readily available, we will be able to find it through our network of contacts.

Finally, once the advisory process is exhausted and advice issued, it is either conveyed back to the reporter and/or actioned by the **CHIRP** Maritime Adviser. Quite often, if the subject is of sufficient merit, a specialist 'insight article' will be constructed and posted. Recent articles have included 'Rigging of combination ladders' and 'Issues with ECDIS'.

Upon reaching closure of the report, the reporter's personal details are automatically deleted from the **CHIRP** Maritime database so even **CHIRP** cannot make further contact with the reporter. By following this protocol, only a small number of active reports are ever 'live' on the **CHIRP** Maritime database and it is this limiting process, along with a secure and remote IT system, that protects our reporters and ensures enduring confidentiality.

It is this process that makes **CHIRP** Maritime the foremost maritime confidential hazardous incident reporting programme in the world. It will continue to reach out across the globe and strives to connect with those who matter.

What makes us different from whistleblowing?

- **CHIRP** Maritime is completely autonomous without government intervention
- We go to great lengths to protect our reporters
- We go the extra mile in finding resolution, in challenging those that need to be challenged
- We will ask questions that others will not
- · We will not hide behind the veil of fear
- CHIRP Maritime puts the mariner first

"While whistleblowing is a common term often included in official employment contracts and legislation, it can also



carry a stigma. It's often used in a derogatory fashion" Capt Jeff Parfitt, Director (Maritime), *CHIRP* Charitable Trust.

Article 16 _

INSIGHT

Confidential Reporting or Whistleblowing – A Case Study

Introduction

Further to the **CHIRP** Maritime Insight Article on "The Stigma of Whistleblowing" the following is a short case study which illustrates the difference between Confidential Reporting and Whistleblowing.

CHIRP received a report querying whether actions on board constituted a violation of MARPOL. We followed up with the reporter as described below:

What the Reporter told us.

The report was quite brief and described an internal transfer of bilge water from the bilge holding tank to the sludge tank. This was done using a "modified" portable bilge pump arrangement and a separate hose. The reporter's question: Was this a MARPOL violation?

In addition to the MARPOL question, it should be noted that the reporter had additional concerns relating to the violation of the Maritime Labour Convention (MLC), that is: onboard bullying; abuse; hours of work and fatigue. These concerns were addressed by our partner organisation ISWAN. We have mentioned this because one of the aspects to be considered in whistleblowing cases is the motivation of the reporter, and it is therefore important to establish any adverse agenda that might have instigated the confidential report. In this case, all the issues raised were confirmed to be legitimate and both **CHIRP** Maritime and ISWAN were able to follow up directly with the reporter.

Further Dialogue.

The initial response from **CHIRP** Maritime to the reporter was as follows;

"There is no MARPOL violation IF water is being transferred via a hose from the bilge holding tank to the sludge tank via a Wilden pump or similar, (by this it is meant that the end of the hose is in the sludge tank and the other end in the bilge holding tank), AND the transfer is fully and properly recorded in the Oil Record Book Part 1. Normally, if this were done, then it is assumed that for whatever reason, the vessel is getting tight on capacity in the bilge holding tank and the intention is to incinerate sludge to generate extra space. Assumptions can be made as to the reason for this, such as being in a special area and/or being unable to discharge bilges via the 15ppm monitor.

However, the initial report stated that the bilge pump had been modified. If so, or if the bilge line had been modified to accept the coupling, then this IS a clear violation of MARPOL Annex 1. In this case it was stated that the bilges were transferred to the sludge tank, so an attending Inspector might assume that this arrangement could be used as a "magic pipe" to bypass the oily water separator / 15ppm monitor and thus discharge bilges directly to sea".

Further dialogue with the reporter revealed that the actual transfer involved bilge water from the bilge holding tank being transferred to the sludge tank using the bilge pump but disconnecting a section of line on the discharge side of the pump, thence connecting a portable hose to discharge to the sludge tank. This is somewhat different from a "modified bilge pump" as previously reported. No Wilden pump or similar method was utilised.

It was also ascertained that the vessel was in a MARPOL Annex 1 Special Area, and that the vessel had discharged both sludge and bilges at her last port of call through the standard discharge connection to shore – however the speed of discharge of the bilges was relatively slow and was not completed.

None of the above would have been assessed as whistleblowing but from the information received, it is possible to make learnings as described in the next section.





Learnings from the Report.

Although in this case, there was not a direct violation of MARPOL, the following is relevant.

- MEPC.1 Circ.641 gives guidance on approval of bilge and sludge handling systems – amongst other things the following points are relevant to the report:
 - The circular prohibits common bilge water and sludge piping other than the common discharge pipe leading to the shore connections manifold as required by regulation 13 of Annex I.
 - o The Administration should verify that bilge pumps cannot take suction from oil residue (sludge) tanks.
 - o The Administration should verify that sludge pumps cannot discharge to bilge water holding tanks.
- In addition to this, and more recently, the lines from the sludge tank and the bilge holding tank should be fitted with a screw down non-return valve to ensure that sludge cannot enter the bilge system.
- **CHIRP** Maritime has a certain degree of sympathy with those that trade predominantly within Special Areas but would add that this necessitates the careful and correct management of oily waste. In this case the vessel appears to have become tight for space in the bilge tank and was attempting to manage the situation, albeit in a manner that CHIRP Maritime would not condone.

Best practice would have been to accept the delay at the previous port and dispose of sufficient waste to safely get you to the next port of call. In any event, a full accurate record of the transfer must be made in the Oil Record Book Part 1, in order to protect yourself against any suggestions of violation.

• The other aspect of the report is that the bilge system was dismantled to effect the transfer. Whilst this must be done on occasion for maintenance, it is again vitally important that all aspects of the maintenance are fully recorded in the vessel's planned maintenance system records. **CHIRP** is aware of companies that are so concerned about any suggestion of impropriety, that they have examined the whole bilge and sludge system, then placed security seals at any areas that might be disconnected. These have been recorded in the Planned Maintenance System and then when maintenance has been required, the removal of the seals is similarly recorded as is the placement of new seals upon completion of the task.

Conclusions.

The report demonstrates that with Confidential Reporting, the concern of a reporter can be followed up through direct dialogue and that learnings extracted can be disseminated across the industry without the need of compromising the identities of the reporter, company, vessel or organisation.



4. PILOT BOARDING AND PILOTAGE

There are not many jobs at sea which are easier than rigging a pilot ladder properly, so why do so many crews find it impossible? I wish we knew the answer but, yet again, we have received numerous reports which prove that this simple task is often beyond the abilities of the people involved.

There is also a report of a pilot who nearly came to grief because he did not pause to assess the swell before stepping onto the pilot ladder. To his credit, he reported this near miss and has learned a valuable lesson from the experience.

We also received a report which was remarkably similar to one which was sent to us last year and involved a sister vessel. The pilot boarding door was located in a dangerous position, and we discussed this with the classification society. Their response was disappointing because they relied upon the letter of the law rather than its intent and defended themselves by pointing out that the arrangement complied with the regulations. Our Maritime Advisory Board were not particularly impressed with this response and made some very sensible comments which are well worth reading. We also included a link to the IMPA guidelines to naval architects and ship builders, which it seems are still not being universally applied.

Returning to the subject of pilot ladders, and particularly combination ladders, we conclude this section with an Insight article which was specially commissioned because of the large number of reports we received this year. Written by experts, it contains solid advice and is supplemented with the IMO resolutions concerning combination ladders, as well as the IMPA pilot boarding poster.

We urge every seafarer to study this section carefully, particularly the Insight article. As stated at the beginning, rigging ladders properly is not difficult, so please pay attention and make sure we can reduce the number of reports next year. Together, we can easily eliminate the problems and make shipping safer.
Article 17 _

Unexpected Swell – Lucky Escape

OUTLINE: A Pilot experiences a lucky escape whilst boarding a vessel.

What the Reporter told us:

Whilst boarding a vessel from the pilot launch, an unanticipated swell picked up the ladder which I had just stepped onto. This resulted in me dropping to a position that had me sitting on the rungs of the ladder on the deck of the pilot boat whilst still holding on to the ladder. I continued to hold on, and as the boat dropped away, I quickly resumed climbing the ladder. Fortunately, the event did not result in an injury, and I safely boarded the vessel. At the time, the weather was a southerly wind of 10-18 knots with a low swell. Vessel steering 075°T at 10 knots to create a lee.

I feel that this was a case of being caught by an unexpected sudden change to the boat's motion, which even caught the boat skipper by surprise. It would suggest a policy of not rushing to transfer to the ladder before getting a good feel for the relative movement of the two vessels. Following the incident, I discussed the incident with my manager to investigate whether we could have done things differently, but nothing stood out to me or my boat crew, other than to take time to assess every task well, before transferring.

Further dialogue:

CHIRP requested confirmation that the lee was requested, that the pilot ladder was correctly rigged and that an officer was in attendance. Positive confirmation was received to all of these points. We also asked if there was any knowledge of historically unusual swells, which might prompt a review of the requested lee or gain additional information as to the timing of the swells. The reporter replied that it is in an area where heavy swells are often a way of life. They have a good wave-rider device that gives them information to plan for the transfer well before leaving the harbour.

CHIRP Comment:

The **CHIRP** Maritime Advisory Board commented that this was indeed a lucky escape. Different circumstances could have led to a very serious accident. The report highlights the inherent dangers that a pilot experiences when boarding or disembarking a vessel. In addition to the reporter's comment relating to assessing every task, it is essential that the vessel's personnel both on the bridge and at the pilot ladder, along with the crew member of the pilot launch assisting the pilot, and the launch skipper are all fully alert to dangers such as those described in the report. One error of judgement can have serious consequences.

The above article was published in MFB50

Article 18 _

Fishing Vessels and Pilot Ladders

OUTLINE: A report outlining the need for fishing vessels to rig pilot ladders safely

What the Reporter told us (1):

Whilst preparing to disembark a fishing vessel after an outbound pilotage, the following was noted at the pilot ladder: shackles were used to connect side ropes together as a loop around the ship's side rail, no bulwark ladder was provided and there were no stanchions in place. There were also no fittings for them on the deck. No lifebuoy with light was provided at the disembarkation position, and there was no deck officer at the ladder.

Following a VHF conversation and agreement with the launch master to ensure a safe disembarkation, the transfer was completed inside the harbour in sheltered waters. A Port State Control inspection upon the vessel's next arrival was recommended.

I have piloted this vessel in and out a number of times in the three and a half years that I have been here, but on previous occasions the pilot ladder was rigged abaft the bridge with arrangements that met the IMO regulations. On this occasion it was rigged forward of the bridge and close to the flare of the bow, which was contrary to requirements. The vessel had been laid up for some time and reflagged. The crew were unfamiliar with the bridge equipment and what a Pilot Card was, so this was probably their first departure. The ship was heading outbound to fishing grounds and was not expected to return to port in the near future.

At 47m LOA and 897 GRT, she was not a 'small fishing vessel' and would expect to take a pilot in most ports. I could have ignored the deficiency and moved on, but in order to ensure the safety of pilots boarding the vessel in the future, it needed to be reported! I get so annoyed when so-called 'professional seafarers', ignore regulations put in place for my safety!

What the Reporter told us (2):

This 105m fishing vessel is engaged in fishing offshore around our country and regularly calls at our port. Following an outbound pilotage, when disembarking, it was noted that the man ropes for the pilot ladder were synthetic, and that they were less than 28mm in diameter. As conditions were calm with little movement between the fishing vessel and the pilot launch, I had the option of holding the pilot ladder rather than manropes. I disembarked safely but stress that the man ropes were unsafe.

CHIRP Comment:

The Maritime Advisory Board commented that irrespective of the type of vessel, a pilot ladder should always be rigged correctly in accordance with SOLAS Chapter V Regulation 23, and IMO Assembly Resolution A.1045(27), as amended by A.1108(29). In addition, reference is made to the IMPA Pilot Boarding Arrangements poster. All of the foregoing may be found on the publications page of Chirpmaritime.org.



For clarity, the application of SOLAS V regulation 1 states inter alia that;

The Administration shall determine to what extent the provisions of regulations 15, 16, 17, 18, 19, 20, 21, 22, **23**, 24, 25, 26, 27 and 28 do not apply to the following categories of ships:

- 4.1 ships below 150 gross tonnage engaged on any voyage;
- **4.2** ships below 500 gross tonnage not engaged on international voyages; and
- 4.3 fishing vessels

Rule 23 however, states that Ships engaged on voyages in the course of which pilots may be employed shall be provided with pilot transfer arrangements

With respect to manropes, SOLAS V Regulation 23 – 7.1.1 states that "Two man-ropes of not less than 28 mm and not more than 32 mm in diameter properly secured to the ship if required by the pilot; man-ropes shall be fixed at the rope end to the ring plate fixed on deck and shall be ready for use when the pilot disembarks, (or upon request from a pilot approaching to board), the manropes shall reach the height of the stanchions or bulwarks at the point of access to the deck before terminating at the ring plate on deck".

CHIRP would comment that whilst synthetic ropes are not explicitly forbidden, best practice and a pilot's preference is for natural fibre such as manila rope, as this gives a much better grip

Finally, **CHIRP** would mention to all readers there is absolutely no obligation for a pilot to use a non-compliant ladder arrangement.

The above article was published in MFB50

Article 19 _

Pilot Ladders – Don't do this!

CHIRP has received several reports including pictures showing bad practice related to pilot ladders. Some of these are highlighted below:

- Incorrect pilot ladder rigging (see picture 1 below).
- Pilot ladder bottom rubber steps chock missing. Steps at uneven gaps and angled. The manropes have been fitted with monkey's fists at the ends, and the side-ropes are not continuous as the regulations require - they do not pass under the steps but terminate lashed together (see picture 2).
- Rope ladder secured to ship's side by only one magnet which was loose and located more than 2 metres from the bottom of the gangway platform.
- Whilst disembarking a vessel using a port side ladder, the Pilot noticed a nylon chock loose and hanging out, approx.
 3.5 metres from the bottom of the ladder on the aft side.
- A tripping line was fitted below the bottom spreader, and the ladder steps were not horizontal (see picture 3)
- A heavy metal socket was fitted at the end of a heaving line. The line was lowered during a transfer on the outward pilotage.

• Rung bent on rubber ladder steps. Tripping line fitted below spreader. Side ropes not continuous as also mentioned in the comment for picture two (see picture 4).



1 – Dangerous loop at bottom of ladder



2 – Uneven ladder step



3 – Tripping line below spreader



CHIRP Comment:

The **CHIRP** Maritime Advisory Board commented that the SOLAS requirement for a tripping line states: "When a retrieval line is considered necessary to ensure the safe rigging of a pilot ladder, the line should be fastened at or

above the last spreader step and should lead forward. The retrieval line should not hinder the pilot nor obstruct the safe approach of the pilot boat.

As the pictures show, there is a long way to go to improve ladder safety. Pilots, and indeed vessel personnel, are risking their lives with these arrangements. All ladders should be carefully inspected prior to use and should be maintained properly in order to ensure that they remain fit for purpose.

The above article was published in MFB50

Article 20 _

Get me To and From the Bridge on Time

OUTLINE: Two short reports from Pilots outlining difficulties in making a timely entrance to the wheelhouse, and in disembarking following a pilotage.

What the Reporter told us (1):

When boarding the vessel there was no "responsible officer" at the ladder - a cadet with a radio was in attendance along with crew members. As I was boarding in heavy swells, (3-6 metres), I had to call up to the cadet and ask him to pass a course alteration to the bridge. Due to his apparent inexperience, he didn't immediately grasp what was required.

Once on board, there was a significant delay getting access to the elevator as it appeared to be held up on another deck. This added a few minutes delay in getting to the bridge. I suggested using the stairs, but the cadet appeared reluctant to do this. Due to the long time it took to get to the bridge on this large car carrier, I advised the Master that either the elevator should be held for the pilot, or the stairs used.

Finally, when entering the accommodation, I slipped on a towel that had been laid on the deck at the entry door. Fortunately, I caught myself before falling completely. If people are required to wipe their feet, an appropriate mat should be fitted

CHIRP Comment:

The **CHIRP** Maritime Advisory Board noted that there were a number of significant issues in this report, indicating causal factors that are relevant to the Human Element "Deadly Dozen" as follows:

- A lack of radio contact between pilot and bridge. (Communication)
- A cadet rather than an officer at the pilot boarding station. (Capability, Teamwork)
- The delay with the lift and the slippery towel. (Local practices, Situational awareness, Complacency)

With respect to the radio contact between the pilot and the bridge, **CHIRP** reinforces the fact that a cadet is not an appropriate person for supervising pilot transfer operations and that the regulations are quite specific as to the supervisory requirements. In addition, the Board commented that a request to alter course made from the pilot boat directly to the bridge may have been the better option.

What the Reporter told us (2):

A Pilot boarded for an outbound passage from the offshore side of the vessel, through a combination ladder arrangement with the lower platform about 2.5 meters above the water. The vessel's responsible officer was advised that the arrangement was far from compliant with SOLAS Chapter V Rule 23. Once on board, the Pilot requested that the combination arrangement be removed, and to rig the pilot ladder directly as the freeboard was less than nine metres.

By the time the pilot boat arrived alongside for pilot disembarkation, the crew were trying to rig the ladder properly, but for some reason they were unable to do so. This was possibly due to the crew having been involved in unmooring operations, or a lack of education and training regarding pilot transfer, since they seemed to be unaware as to what the Pilot and pilot boat crew were requesting. Finally, because the ship was already leaving the pilot disembarking area and there was other traffic waiting for pilotage, the Pilot decided to disembark through the combination ladder arrangement. The weather conditions were good. The officer on deck was advised that the vessel should revise its procedures.

It is a mistake to expect that just asking to rectify a non-compliant arrangement will result in it being available on time. We should revise our communication procedures prior to pilot boarding, informing vessels clearly that boarding arrangements should meet SOLAS regulations, otherwise this could cause a delay until proper arrangements are provided. Both the reporter and **CHIRP** wrote to the vessel's management, but no response was received.

CHIRP Comment:

The **CHIRP** Maritime Advisory Board commented that vessels should be well aware of the transfer arrangement requirements through SOLAS V 23, and the Pilot Boarding IMPA placard. Additionally, they should be well aware of their freeboard, and thus know exactly what to rig unless specifically requested otherwise. Nevertheless, the reporter highlights the necessity of clear instructions from the port. **CHIRP** would suggest that "SOLAS compliant" is perhaps not specific enough, and that a written or verbal phrase such as "Pilot ladder on the xx side of the vessel 2.5m above the water – please do not rig a combination ladder unless your freeboard is greater than nine metres" would be a clear request. This may well be of assistance where personnel receiving the request do not have English as their native language.

The above article was published in MFB50

Article 21

Combination Ladder Issues

CHIRP continues to receive many reports from pilots who are faced with non-compliant pilot boarding arrangements. Further to the article in Maritime FEEDBACK 50, we have received a lot of reports relating to combination ladder arrangements. Some of these reports were very detailed and proved to be too big to be included in FEEDBACK. **CHIRP** has therefore compiled an Insight article on the subject. This insight article identifies some of the problematic areas, both



with step over combination ladders and those rigged with a trapdoor within the accommodation ladder platform. The non-compliances are explained as are the requirements necessary to rectify the issues. In addition, **CHIRP** has included the full text of the IMO Resolutions governing the requirements for pilot ladders and accommodation ladders, plus the IMPA Pilot Boarding Poster.

The Insight Article may be found in full in Article 24 of this section titled RIGGING of ACCOMODATION LADDERS and is aimed at mariners and company management alike.

The above article was published in MFB51

Article 22 _

Unsafe pilot boarding and disembarking arrangements

OUTLINE: A report outlining an appalling disregard for safety, where a pilot's life was placed in danger due to an entirely unnecessary risk.

What the reporter told us:

On the evening of 17th April, the vessel in question asked for a pilot for an outbound manoeuvre. The weather conditions were good. The vessel was requested to rig a pilot ladder on the offshore side along with other requirements relating to the tug and unmooring procedures. The master confirmed that the ship was in all respects ready to sail. The pilot arranged to board the vessel from a boat shortly afterwards. As the pilot was boarding, he placed his weight on the ladder and the ladder slipped down about a rung's length. He then tested the ladder once more and it held, and so he continued to board. When the pilot got to deck level, he saw that an officer (of approximately two metres in height and 140 kilograms in weight) was holding the ladder against the edge of the deck to prevent the ladder from falling down. Essentially, the officer was securing the ladder by using his body weight because the ladder had not been secured to any point AT ALL! Upon arrival on the bridge, the pilot immediately reported the situation to the master and received an apology. Upon completion of the pilotage, the pilot prepared to disembark. However, once again, the ladder had not been made fast and there was just one rung "hooked" into a piece of angle-iron welded on the deck. The pilot again complained that the ladder was not made fast but one of the crew members jumped on the ladder to show him that it was safe enough! As the vessel was outbound and there was other traffic waiting for pilot service, the pilot chose to disembark and there was no further incident.

What the company told us:

CHIRP wrote to the relevant company who responded and thanked **CHIRP** Maritime for bringing this to their attention. The following points are a précis of the company response;

- Unforgiveable negligence of the crew who checked the securing of the ladder.
- It was reported that the ladder was fastened at one point to the deck, but this cannot be followed up with any degree of certainty.

- It is the first time that a case such as this has happened within our fleet.
- In view of the report we will take all necessary steps to prevent a recurrence.

CHIRP Comment:

The Maritime Advisory Board thanked the company for responding to this incident report and agreed with the company that this practice is simply unacceptable. Irrespective of whether the ladder was fastened at one point to the deck or not at all, it was not correctly rigged nor checked to ensure that it was safe for boarding/disembarkation. **CHIRP** has plenty of reports where ladders have not been correctly rigged at deck level, and some of these have been highlighted on our Facebook page, (https://en-gb.facebook.com/Chirpmaritime/). The use of shackles, spreaders, and angle-iron bars or similar are all illegal methods of securing a ladder. The ladder should have the loose ends of the side ropes secured (lashed) to eye bolts or deck pads and this should be at a distance from the ship side railings - not less than 915mm - so as not to obstruct the deck at the pilot embarkation position.

CHIRP once again reinforces the point that no pilot should ever feel that he is being forced into embarkation or disembarkation via a ladder that is believed to be unsafe. We make no apology for repeating this and encourage all pilots to report any unsatisfactory arrangements to port authorities and Port State Control regimes who should actively support their pilots in this respect.

The above article was published in MFB52

Article 23 __

Pilot Door Design

OUTLINE: Further to the article in MFB 48 concerning a vessel that was not constructed in compliance with SOLAS V 23, a second similar report has been received.

What the reporter told us:

This report concerns a new build vessel on her maiden voyage. The pilot boarded at the agreed pilot boarding area. On this occasion, the pilot access was via a "cat flap" which was positioned within the aft quarter length of the vessel. The stern camber profile started about 5m from the ladder's position making it difficult for the pilot cutter to land properly and risking the cutter being sucked under the counter.

On the outward-bound passage of the same vessel, with a draft of 10.4m, the pilot cutter was damaged whilst trying to disembark two pilots via the cat flap. The cat flap disembarkation option was aborted and the vessel rigged a combination ladder from amidships from which the pilots were able to safely disembark.

All of the vessel's other ladder equipment was observed to be in good order. The Owner should be informed of the difficulties this design caused, and pilot boarding arrangements reviewed before building any similar vessels.



Damage to pilot cutter

Further Dialogue:

Investigation revealed that the vessel was built at the same shipyard as the report in Maritime FEEDBACK Issue 48, and with the same classification society, but had different owners and different flag.

CHIRP wrote to the managers of the vessel, the classification society, flag, and the shipyard. Whilst the letters to the ship managers and flag simply detailed the report, the letters to class and the shipyard highlighted the fact that the failings outlined in the previous report had not been rectified and that incidents were continuing. It was also highlighted that since both class and the yard had been involved in the modification to the previous vessels, as detailed in Maritime FEED-BACK Issue 48, it was unfortunate that lessons learned and acknowledged had not been taken forward for the new builds.

Although the managers of the vessel, the shipyard and the flag state all declined to respond, CHIRP did receive a response from the classification society. The salient points are highlighted below:

Our approval of the pilot boarding arrangements for this ship is based on a combination of two arrangements;

- The pilot-ladder located aft, for drafts above 13m, and
- The combination accommodation ladder and pilot ladder arrangement located amidships, for drafts, less than 13 m.

With this combination, our approval is in conformance with the SOLAS requirements.

The choice of the correct arrangement to be deployed is, as you will surely appreciate, an operational matter to be decided by the ship's staff, depending upon the boarding conditions.

We assure you that we constantly strive to realise this Classification Society's purpose, which is "to safeguard life, property and the environment" in all our endeavours.

CHIRP Comment:

The Maritime Advisory Board discussed this report in depth. Whilst thanking the classification society for their response, it was also noted that the approval was for this particular vessel and does not relate to the article published in Maritime FEEDBACK Issue 48.

The actual root cause of this incident and the one previously reported lies both in regulation and the initial approval at the design stage, (whilst noting that the classification society at the design stage may not necessarily be the same one as when the vessel is brought into service).

SOLAS Chapter V Regulation 23.3.1 states, "Arrangements shall be provided to enable the pilot to embark and disembark safely on either side of the ship." Sub-section 3.3.1.2 further states it should be within the parallel body of the ship and, as far as practicable, within the mid-ship half length of the ship. If the wording in red is removed, the regulation becomes a directive, rather than a choice.

It is essential that classification societies work in conjunction with shipyards to ensure not only compliance with the letter of regulations, but also within their sprit to avoid hazardous situations and potential loss of life. Flag states have a duty to ensure compliance with regulations either directly or by oversight of designated bodies, i.e. classification societies. Ship owners should also take an active interest in the vessels that they purchase so that they are fit for purpose and do not unnecessarily endanger life.

Whilst an alternative option for a combination of an accommodation ladder and pilot ladder may exist, the temptation to use an alternative pilot door requiring less rigging, located in the aft quarter length of a ship in proximity to the propellers should not be an option. The danger to both the pilot cutter and pilot when such a location exists needs to be fully appreciated.

It is preferable to 'design out' rather than 'design in' a potential hazard resulting from an interpretation of imprecise wording in regulations, especially when the wording is intended for exceptional cases.

The following link may be helpful: <u>IMPA Guidance for Naval</u> <u>Architects & Shipyards – Provision of Pilot Boarding Arrangements 2012</u>

The above article was published in MFB53

Article 24 _

INSIGHT

Rigging of Combination Ladders

Introduction

CHIRP has received many reports relating to failings when rigging accommodation ladders in conjunction with pilot ladders. Despite regulatory procedures from the International Maritime Organization in the form of SOLAS V Regulation 23, plus Assembly Resolution A.1045(27), as amended by A.1108(29), and much industry guidance from many sources, the lives of marine pilots and others using these arrangements continue to be put at risk. These poor practices make it clear that a more informed use of the correct



methodology must be applied when rigging pilot ladders in combination with an accommodation ladder. This will lead to safer practices and outcomes.

Combination Ladders

The term "Combination Ladder" may refer to either an arrangement where the lower platform of the accommodation ladder is fitted with a trapdoor to allow "through" rigging of the pilot ladder (thus permitting the pilot to safely transfer to the platform or to deck), or a simple step over arrangement where the pilot ladder is rigged beside the lower platform.

In either case, the methodology of rigging the combination should be carefully assessed by conducting a thorough risk assessment. The arrangement should be properly planned and carefully supervised whilst being rigged and this should include a thorough inspection of all relevant fittings. At the time of transfer, an officer (not a cadet or rating), should oversee the operation and maintain direct communication with the bridge.

Combination Ladder – Trapdoor arrangement

A trapdoor designed to facilitate safe transfer may either be through an accommodation ladder platform, or it may lead to a platform directly to deck. In either case the following configuration should be put in place in order to facilitate a safe transfer. The platform or ladder combination must ensure that the pilot does not have to climb more than 9 metres, nor less than 1.5 metres by means of the pilot ladder. In addition, the accommodation ladder should be no lower than five metres above the waterline to enable the pilot launch to make a safe approach.



Figure 1 – A trapdoor arrangement through an accommodation ladder rigged correctly

Photo courtesy of Adam Roberts AMPI

- For a trapdoor arrangement, the pilot ladder must extend above the lower platform to the ships side rails.
- The pilot ladder must be firmly attached to the ship's side at a height of 1.5 metres above the platform.
- All steps of a pilot ladder must lie flat against the side of the ship.
- If the trapdoor arrangement is in conjunction with an accommodation ladder, then the accommodation ladder should also be secured to the ship's side in order to prevent it swinging. In addition, the platform of the accommodation ladder is to be horizontal. The trapdoor, (minimum 750mm x 750mm), should open upwards and be secured vertically.
- The accommodation ladder angle is not to be greater than

45 degrees, and the ladder itself should lead aft.

• The accommodation ladder and platform should have rigid handrails and stanchions on both sides. Any other arrangement should provide full safety for boarding, be properly secured and securely fenced.

If a vessel has been properly constructed and designed, or if sufficient attention has been paid to older ships when retro-fitting the equipment to comply with newer regulations, then the bulleted list is not difficult to comply with. However, in order to achieve this, the company management will need to ensure that effective processes for both new and existing ships are in place. Unfortunately, **CHIRP** continues to receive a high number of reports that indicate non-compliance and some of them are described below.



Figure 2 – Non-Compliant platform trapdoor arrangement *Photo courtesy of Ports of Auckland Limited (POAL)*

Figure 2 shows an arrangement where the pilot ladder has been rigged by connecting it to eyebolts welded below the trapdoor/hatch. In this case the regulatory failings are:

- The pilot ladder does not lie flush against the ship's side.
- The ladder does not extend sufficiently past the trapdoor (to the ships side rails).
- The pilot ladder should be firmly attached to the ship's side at a height of 1.5 metres above the trapdoor.

In addition, the pilot has no effective means of safely making the transition to the accommodation ladder platform from the pilot.

All of the above were noted upon arrival and discussed on board with the vessel's management. The vessel did offer a solution prior to departure and this is discussed in Figures 3 and 4.



Figure 3 – Non-Compliant platform trapdoor arrangement Photo courtesy of Ports of Auckland Limited (POAL)

Figure 3 shows the same ladder as Figure 2, but it has been raised to be flush with the maindeck. However, it still raises concerns as to the safety of the arrangement. For departure, the ladder had been removed from the eyebolts and rigged over the railing of the accommodation ladder prior to being reconnected to the eyebolts. This was done in order to comply with the requirement that a ladder must extend 1.5 metres above the platform. This configuration led to the ladder not being flush against the ship's side as shown in Figure 4. It also led to the pilot ladder being angled outboard towards the trapdoor at the point of embarkation, so the pilot had to lean back in order to board/disembark. This in turn impacted upon the safety of the transfer of the pilot from pilot ladder to accommodation ladder and vice versa. Finally, the pilot ladder in its entirety is supported solely by the accommodation ladder railing, which it is a load it is not designed for.



Figure 4 – Non-Compliant platform trapdoor arrangement *Photo courtesy of Ports of Auckland Limited (POAL)*

Figure 4 shows the disembarkation arrangement with the ladder not resting flush with the ship's side.

Having further discussed the arrangement with the vessel, it was requested that the vessel revert to the original eyebolt configuration until permanent modifications could be made to ensure compliance. Whilst **CHIRP** appreciates the efforts of the vessel to try to comply with the request of the pilot in this case, the example does show the difficulties which can be experienced. Full compliance must be addressed either at the new building stage, or at a vessel's dry docking when a retrofit can be implemented to ensure that the latest SOLAS regulatory requirements are adhered to. If not, issues like this will continue to occur. In this particular case, the vessel's managers were contacted by the local Port Authority with full details of the issue.

Combination Ladder – Step over arrangement

The regulatory requirements for an arrangement where the pilot steps off a pilot ladder onto the platform of an accommodation ladder are similar to that of a trapdoor/hatch configuration, with the main difference being that the pilot ladder must extend at least 2 metres above the lower platform, (not necessarily all the way to the ship side rails). Non-compliant arrangements continue to be regularly reported to **CHIRP**.

Requirements are that;

- The pilot ladder must extend 2 metres above the lower platform.
- The pilot ladder must be firmly attached to the ship's side at a height of 1.5 metres above the platform.
- All steps of a pilot ladder must lie flat against the side of the ship.

The following photos show examples of non-compliance which can be easily remedied.



Figure 5 – Non-Compliant combination (courtesy of CHIRP Reporter)

In Figure 5, it can be seen that the Pilot Ladder is not secured to the ship's side 1.5 metres above the accommodation ladder platform. Therefore, the only method that a pilot can use to transfer from the pilot ladder to the accommodation ladder is to make a grab for the outboard stanchion of the latter. **CHIRP** simply asks whether you would be prepared to risk your life on the effectiveness of a single pole on a platform that may or may not have been effectively rigged. The picture on the right shows the man ropes, which have also been incorrectly rigged.

The next picture shows the same pilot ladder from sea level as the pilot approaches to board. There is a spliced loop at the bottom of the ladder as opposed to the regulatory continuous length of rope. The third rubber step is damaged.





Figure 6 – Non-Compliant combination (courtesy of CHIRP Reporter)

line does not risk becoming entangled with the pilot boat as it approaches from aft.



Figure 8 – Tripping lines – there is only one way to rig them correctly

Another area where **CHIRP** receives reports is related to the rigging of secure attachments. The most common methods are magnetic or vacuum pads as shown in Figure 9. Less common, but equally effective are eyebolts on the hull at the point of attachment to an accommodation ladder. All too often an arrangement of this type is not provided or is ineffective. This leaves a pilot against the ship's side, and an accommodation ladder that can swing out if the vessel rolls. **CHIRP** appreciates that these fittings may not be easy to rig, but all a pilot requires is a safe and stable platform to be able to embark or disembark safely.

CHIRP also notes that it is a common but unsafe practice to attach the pilot ladder to the accommodation ladder. If the accommodation ladder and pilot ladder have been correctly secured to the ships side, then this practice is unnecessary since it has a tendency to move the pilot ladder away from the vertical and can also cause obstructions to effective boarding. For both a trap door combination arrangement and a "step over" combination the horizontal distance between pilot ladder and accommodation ladder should be between 0.1 metres and 0.2 metres.

Ladder unstable or not resting



Figure 9 - Examples of compliant fitting – magnetic (left) and vacuum (right).

All of the evidence in Figures 5 and 6 indicate a complete lack of awareness of requirements, a lack of maintenance, a lack of supervision, and a lack of company oversight.



Figure 7 – Non-Compliant combination (courtesy of **CHIRP** Reporter)

The ladder in Figure 7 is missing all forms of securing to the ship's side. The ladder itself is in poor condition and obviously not horizontal. In addition, it was reported that this ladder was covered in palm kernel from a previous cargo. The pilot quite correctly refused to board until a compliant boarding arrangement was provided. It is reported that the crew had little understanding of what was required, which is probably a reflection of the attitude of the company's management as well.

Sundry fittings and procedures

With both pilot ladders and combination arrangements, **CHIRP** continues to receive many reports of non-compliance. The diagrams below illustrate the only correct way of rigging a tripping line. The top two diagrams with the line attached to the bottom of the ladder are incorrect since the pilot boat gunwhale may become fouled on the rope. Regarding the bottom two pictures, the tripping line must be rigged at or above the lower spreader and must lead forward so that the

Judging the height when rigging a pilot ladder can be tricky. Marking off each metre of the ladder with different coloured tape is an effective method to ensure that the correct height is rigged as requested, since the vessel's freeboard is surely known. Marking a ladder in this way also ensures it is less likely to rig a ladder with the steps anything less than horizontal – refer to Figure 7

Conclusions

CHIRP is receiving far too many reports relating to deficiencies in pilot embarking and disembarking arrangements, including incorrect rigging of combination ladders and maintenance of the equipment. **CHIRP** believes that an inspection by a responsible officer prior to an operation should determine whether the arrangement is safe to use. After all, if you would not trust yourself with the arrangement why would you expect anybody else to use it? **CHIRP** actively encourages pilots, and all other personnel using combination ladders not to accept non-compliant arrangements and to refuse to embark or disembark until a compliant and safe arrangement has been provided.

Useful References

- 1. <u>Shipping Industry Guidance on Pilot Transfer Arrange-</u> ments 2012
- 2. Pilot ladders UKMPA Reporting Non-Compliance
- 3. Safety at Sea Safety Focus Pilot ladder neglect
- 4. IMPA Safety Campaign 2016
- 5. <u>The Nautical Institute Seaways 2016 –</u> <u>Securing Pilot Ladders</u>
- 6. <u>IMPA Guidance for Naval Architects & Shipyards Provi</u>sion of Pilot Boarding Arrangements 2012
- 7. SOLAS Chapter V Regulation 23
- 8. <u>UKMPA The Embarkation and Disembarkation of Pilots –</u> <u>Code of Safe Practice - August 2017</u>
- 9. Witherbys Seamanship Pilot Ladder Manual

The IMPA Pilots Boarding Poster is reproduced in Annex 1 below, and the IMO Resolutions A.1045 (27) and A.1108 (29) relating to safe pilot transfer arrangements are reproduced in Appendix VI and VII.

ANNEX 1

IMPA Pilot Boarding Poster

The pilot boarding poster shown in Figure 10 may be downloaded from the IMPA website by following this link – <u>IMPA</u> <u>Downloads</u>. The file is available for download in English, French, Spanish, and Chinese. A laminated version is also available from <u>Witherbys Seamanship</u>.





5. COLLISION REGULATIONS AND NAVIGATION

There is a lot to think about in this section, and it deserves careful study.

We begin with a case where changeover procedures were not fully understood, then consider a helmsman who made an error which was noticed and corrected. Effective supervision saved the day, but was fatigue a contributing factor?

There is a worrying report about a ship which failed to observe the Collision Regulations in the open ocean, where there was absolutely no need to cause a close quarters situation, and we learn about a port approach which was poorly charted and where the response of the authorities was extremely disappointing.

We also meet a master who thought he could leave the bridge when the pilot came aboard, and another who appears to have misunderstood a simple question about the length of time needed to slow down. It is sad if masters are so overworked that they need to do paperwork whilst the pilot has the con, but company instructions should forbid the practice and other strategies should be adopted to ease the master's workload. We also wonder why owners would accept main engines with time-consuming load-up/load-down programmes when so many port approaches still require rapid engine movements.

Once again, we include reports where communications issues take centre stage. Captains in the modern era should really know better than to grunt at engineer officers and keep them in the dark, whilst pre-arrival checks should always be carried out properly. By the same token, modern ports should probably not suffer from a lack of tug crews on a working day, and Sunday lunch is not a legitimate excuse.

We conclude the reports in this section with a number of near-miss incidents, and different themes can be detected.

First there are a surprising number of reports where the encounters were between commercial vessels and leisure or passenger craft – and it is not always the leisure craft that appear to be in the wrong. Any professional mariner should be ashamed to be the subject of such a report. Secondly, there are a number of reports where the first instinct of the people involved is to reach for the VHF and talk about it rather than taking action in accordance with the Collision Regulations. There are also a number of cases where the participants had different interpretations of the same event and might have benefited from trying to see things from the point of view of the other vessel. Finally, there is still a worrying trend for some vessels to disregard the Collision Regulations in quite serious ways. There is no excuse for this, and it is a sad indication that we still have a long way to go before shipping becomes safer.

The section concludes with a special Insight report about navigation in the approaches to Shenzhen port. This is the first article we have ever received from the People's Republic of China and it contains very useful information written from the perspective of an experienced pilot. In addition to routing information, there is a clear explanation of the different jurisdictions which cover the approaches. We hope this will be the first of many contributions from China.





Bow Thruster Availability

OUTLINE: A misunderstanding when changing over the control position for a bow thruster.

What the Reporter told us:

I was recently piloting a vessel and experienced an issue whilst changing over the bow thruster control from the central station to the starboard bridge wing. The Master and Chief Officer (of different nationalities) had some misunderstanding as to the correct procedure to transfer control. This resulted in the Master becoming flustered and running from the bridge wing to the wheelhouse whilst the vessel was approaching the berth.

I had to intervene and ask the Master to stay at the bridge wing control for engine movements. Two tugs were made fast, so the bow thruster was not crucial for the manoeuvre. Eventually the problem was resolved and thruster control was made available should it have been required.

CHIRP Comment:

The Maritime Advisory Board commented as follows;

- The report demonstrates a lack of understanding of the bridge equipment and changeover procedures. It is essential that changeover procedures are clearly understood and implemented. Testing of the changeover procedure should form a part of the pre-arrival checks. In addition, the design of the changeover of controls should provide for a simple, unambiguous process, with appropriate operational instructions.
- Human element issues can be noted in the lack of situational awareness and communication between the bridge team members.
- Since two tugs were made fast, the bow thruster might not have been needed. Nevertheless, as a generic learning, bow thrusters should be tested prior to arrival so that they are available in case of any emergency.

The above article was published in MFB50

Article 26 ____

Helmsman Error

OUTLINE: A report outlining a loss of concentration by the helmsman whilst under pilotage.

What the Reporter told us:

On the northern bend in a port approach channel, the helmsman put the wheel to port instead of to starboard. The Pilot and Master immediately picked up on the error and rapidly corrected the helmsman.

A few minutes later the Pilot ordered starboard five degrees helm, but the helmsman seemed to be disorientated and left the wheel amidships. The request was reinforced by showing a hand direction to starboard prior to the helmsman refocusing his attention. Initially the helmsman seemed to be very alert, but his performance deteriorated quite suddenly during the pilotage. This occurrence was near midnight and reinforces the fact that crew fatigue can creep in at any moment, especially around the hours between midnight and 0300 hours when the body clock is most susceptible.

CHIRP Comment:

CHIRP contacted the DPA and were disappointed that there was no response. The Maritime Advisory Board commented that this is an example of effective bridge team supervision and noted that best practice is to reinforce a helm order with a hand movement indicating direction to ensure that the request is understood.

It was noted that fatigue is a possibility but there are other potential factors which affect the ability to concentrate, e.g. bad news from home. The Board mentioned that the helmsman is an extremely important member of the bridge team and suggested the following best practice:

- Know your personnel the helmsmen should be encouraged to alert any bridge team member if there are any distracting issues, or if feeling fatigued.
- The helmsmen should be relieved on a regular basis.
- Always have someone to check the rudder angle indicator for correct response to helm orders.
- Good company procedures will take the above factors into account.

It was finally noted that fatigue is an ongoing topic at the IMO, and the Human Element, Training and Watchkeeping (HTW) sub-committee is currently revising fatigue guidelines.

The above article was published in MFB50

Article 27 __

Overtaking or Crossing?

OUTLINE: A report detailing blatant non-compliance with collision regulations.

What the Reporter told us:

At the time of the incident, (1700 hours local time in daylight), we were in the middle of the ocean with no risks to open navigation, and with plenty of water under the keel. The weather was a south-easterly wind of 25 knots with rough seas. The Second Officer was on watch and the Master was on the bridge during the entire event.

Vessel "xxx", (a bulk carrier), was on our port quarter with a heading 077° and a speed of 13.3 knots. Own vessel, (laden VLCC), was proceeding on heading 063° and a speed of 12.7kts. See following diagram.



Schematic diagram showing relative positions of the two vessels

It was a slightly doubtful as to whether this was a Rule 13 situation in which "xxx" was overtaking us, or a crossing situation as per Rules 15 and16 in which she was the give-way vessel and we were the 'stand-on' vessel as per Rule 17. Given the relative aspects of the vessel, we perceived it as an overtaking situation and in line with Rule 13(c), good seamanship would dictate that it was an overtaking situation. Either way, we were the stand-on vessel and "xxx" was supposed to take avoiding action.

No avoiding action was observed from "xxx" and with a CPA of 0.2 miles and TCPA of 30 minutes, we decided to contact her on VHF to ask for her intentions. She replied that she intended to maintain course and speed.

We therefore decided to take our own actions and altered course 30° to starboard in order to maintain a safe distance of at least 1.5 miles. By altering to starboard, we let her overtake us at a safe distance. Due to the relatively small difference in speed between the two vessels, we were 'pushed' off our intended track by about 3 nautical miles. As we were in the open ocean, we considered this the safest action given the complete ignorance of the other vessel in judging the situation.

Lessons Learned

- Never trust the give-way vessel (even in the open ocean). Remain vigilant and whenever it becomes clear that no actions are being taken on the other vessel, challenge her and carefully consider your own options.
- 0.2 miles passing distance in an open ocean situation cannot be considered as a safe distance for a fully laden VLCC. The inclement weather conditions were an additional factor.
- When ample sea room is available, stay well clear of other vessels. If it becomes clear that another vessel is not complying with COLREGS, consider your own options to avoid danger (always in accordance with COLREGS).
- Remember that Rules 13c and 14c explicitly state that when you are in doubt, you have to consider the position as an overtaking (or end-on) situation and act accordingly.

CHIRP Comment:

The Maritime Advisory Board commented that this was a good example of positive action by the stand-on vessel in a straightforward case of COLREGS violation. Regular readers of Maritime Feedback will be aware that **CHIRP** discourages the use of VHF for collision avoidance. In this case, however, the request was not likely to create a VHF assisted collision but was simply intended to request the other vessel's intentions, following which the Master of own vessel correctly decided to take early and ample action to avoid collision. **CHIRP** would additionally comment that in open waters there is absolutely no need for vessels to be in close proximity to one another.

The above article was published in MFB50

Article 28

Navigational Aids

OUTLINE: A report detailing difficulties approaching a berth due to issues with navigational aids.

What the Reporter told us:

Currently I am trading on a liner route between two ports. In Port A, we load pipes for discharge in Port B. The berth in Port A is located on the island of xxx. It is not a busy berth and it is now mostly used for the transportation of pipes.

There are two problems with this berth. The main leading line is mostly useless because the upper light is obstructed by a pipeline. According to a pilot, this issue was reported to the authorities six years ago, but it still has not been rectified. Another problem is the position of one of the buoys. The location of this buoy makes for a challenging approach in a strong northerly or southerly wind. I have already experienced several close encounters with this buoy, and it is not helped that the buoy is unlit. Re-positioning of the buoy would help a lot. (See pictures below).



Leading lights obscured by a pipeline, and a view of the approach to the berth – looking west.



Lessons learned

- Approach to the berth is difficult in some conditions.
- The position of one (unlit) buoy is not logical given the layout of the berth.
- Obstructed navigational aid has not been recognized and corrected, thus making navigation dangerous.

Further Dialogue:

CHIRP wrote directly to the port Operations Manager but received no response. We then wrote to the Chief Hydrographer for the relevant country, who immediately responded. **CHIRP** was thanked for the report and the email was passed to the proper department that supervises local port authorities and those responsible for fairways and nautical aids within their waterfront. No further comment from that particular department was forthcoming.

CHIRP Comment:

The Maritime Advisory Board commented that all information printed on a chart should always be up to date. In this case, the information relating to the leading lights was incorrect. Although the issue was stated to have been reported to the local authorities some years ago, it would appear that no action had been taken. It is irrelevant that the berth is now infrequently used – the point is that all information that is published on any chart should always be correct.

CHIRP has sighted the relevant chart and it is clear that the buoy mentioned in the report does appear to obstruct the approach, particularly when leeway sets you towards the buoy. Whilst the charted information is correct in this case, **CHIRP** can only agree that the approach does seem to be problematic.

As a general comment, there is always the option of reporting inaccurately charted navigational aids to the Hydrographic Office. In the case of British Admiralty Charts, the process is described in the link below and can be used by all mariners to report any updated information they may have. In addition, further information may be found in The Mariners Handbook – Chapter 8 (NP100)

https://www.gov.uk/guidance/use-of-third-party-data-and-hnotes#hydrographic-notes

The above article was published in MFB51

Article 29 _

Bridge Resource Management (BRM) – Misunderstandings and Protocols

OUTLINE: Two simple reports describing various BRM failings.

What the reporter told us (1):

After boarding this vessel, and conducting a comprehensive Master/Pilot information exchange, which included adjusting speeds during different parts of the pilotage, the pilot asked the master if engine revolutions could be increased to achieve a desired speed of 14.5 knots. The master replied "Yes". The pilot then asked whether any notice was required to reduce

RPM to manoeuvring speed, and the response was that no such notice was required. On this basis, the pilot asked the master to commence increasing RPM, which the master did.

After increasing the RPM, the master then advised the pilot, "Please give me 10 minutes notice to reduce RPM to manoeuvring speed", to which the pilot responded, "Please take this as 10 minutes notice to reduce RPM starting from now".

In a channel transit that takes 35 minutes, it is not operationally practical to give 10 minutes notice for RPM adjustment. The maximum practical time is 5 minutes with the caveat that in case of an emergency there will be NO notice given.

In this case, even though a robust master/pilot exchange was conducted and apparently agreed, the pilot and the master were obviously not on the same page.

Initial Report (2):

Just as the vessel was entering a channel where the underkeel clearance was only 1.3m, the master advised me that he was going to his cabin to carry out paperwork, and the chief officer would be on the bridge. I advised the master that we were entering the narrowest and shallowest part of the passage and that he must remain on the bridge. He agreed to this. The master was friendly and cooperative throughout.

CHIRP Comment:

The Maritime Advisory Board commented that these reports highlight both communication and standard operational procedure misunderstandings or failings.

Relating to the first report, there was quite a lot of discussion about the apparent misunderstanding between the pilot and the master. Perhaps with today's modern engines that have "run up" and "slow down" programmes, the master thought that there was no delay, but it would still take 10 or 20 minutes to achieve full speed or manoeuvring revolutions. In addition, there could have been a language barrier between the master and pilot where English was not their native tongue or first language. Whilst it is fully accepted that 10 minutes notice is a standard terminology for increasing and reducing main engine revolutions, does the modern load up / load down programme of an engine take this into account, or should we be asking "How long will it take to speed up / slow down to xxx knots?"

With respect to the second report, the standard operating procedures of a company should dictate that the master is not allowed to leave the bridge during critical sections of a passage, including critical pilotage areas. It is also important to highlight that the master should be well-rested at these times. It is disappointing that paperwork and administration is considered to have a higher priority than navigational safety. Personnel requirements at particular stages of a pilotage could form an integral part of the Master / Pilot Information Exchange.

The above article was published in MFB52

Article 30 _

Communications Issues

OUTLINE: Two reports outlining a potential for misunderstanding through a lack of closed loop reporting and vague instructions.

What the reporter told us (1):

This report concerns a failure to maintain closed loop communications, vague and open-ended instructions, and failure to comply with company regulations regarding usage of terms and language for standard procedures.

Whilst the vessel was preparing for sea, the master called the engine control room (ECR) from the bridge with an abrupt command, "ECR, start-up", before closing the intercom. When the master was challenged as to the nature of the instruction, the derisive tone of his reply was not conducive to a modern workplace. When giving the bridge confirmation that the engine was ready for sea, the chief engineer was continually met with monosyllabic answers before the communication was abruptly terminated. In such situations, the standard communications protocol would be to call the ECR, request a specific engine and thrust configuration, which would then in turn be repeated back, thus closing the communications loop.

Later during start up, permission was requested to clutch in the main propulsion plant. The standard operating procedure, according to fleet manuals, would be to briefly stop the cargo operations until it was ascertained that the clutch and pitch system was not causing uncontrolled movement of the vessel.

However, once again, the request to clutch in was met with an abrupt "Yes" from the Master before hanging up, even though the CCTV showed cargo operations were in fact continuing.

Further Dialogue:

Having checked that there was no conflict of personalities involved, it was confirmed that the motivation for the report was the strong possibility that a human error related incident would result from this kind of working behaviour. CHIRP wrote to the DPA who discussed this issue internally and responded. The report was acknowledged and followed up internally as per company procedures.

What the reporter told us (2):

I am reporting an incident where the main engine failed whilst going astern at a critical part of the passage. At the time, we were inbound approaching a turning circle prior to berthing. The engine failed to respond to the telegraph order and several bridge alarms were going off. The master and the bridge team gathered around the telegraph, talking to the chief engineer on the telephone. After approximately 2 minutes, the engine finally started going astern.

At that point, the tugs were not connected, and the aft tug reported that they had "no crew" (it was Sunday after lunch...), although there was a strong north westerly wind working in our favour. No pre-arrival engine test was recorded in the bridge or engine logbooks and the second mate was blamed because he had only recently joined the vessel.

CHIRP Comment:

Both of these reports reinforce the importance of teamwork, and closed loop reporting in all forms of communication, in order to ensure that messages are correctly understood.

In our opinion, a properly trained bridge team would not all gather around the telegraph and telephone but would respond to the potential threats by assuming individual functions such as: acknowledging the alarms; have one person checking the situation with the engine room; conducting a navigational check such as the possibility of anchoring and ensuring crew awareness, essentially mitigating the danger by supporting the master and preparing for an emergency scenario. The team would then continue to monitor unfolding events and assess and adjust their plans accordingly. These scenarios should all be practiced in table top emergency drills.

The fact that the engine was not tested at pre-arrival is testament to a company failing in its safety culture - as is the blaming of the second mate. The old expression "Say what you do, do what you say.... And then record it!" is particularly relevant here, and blaming an individual is not going to help. What is actually required is discussing what went wrong, then using the lessons learned to ensure that that there will be no repetition in the future.

Closed loop communication should be used in all aspects of our work and this is not limited to communications between the engine room and bridge – it applies equally to tool box talks, safety briefings, and all instructions. This is particularly relevant where the language being spoken is not the first language of either or any of the personnel involved.

CHIRP also notes that it is important to keep communications open at all stages of the voyage. Reports have been received where there is a distinct lack of communication between the bridge and the engine room particularly when under "stand-by" conditions. Sometimes, there is absolutely no communication between "Stand By Engines" and "Full Away on Sea Passage" or vice versa. **CHIRP** believes that, apart from common courtesy, the engine room have a *need* to know how approaches and departures from berths are progressing. As an example, why should the engine room be surprised if standby generators start up, when a simple communication would have informed them that deck lights had been switched on, bow thrusters were about to be used, or mooring machinery was about to be activated?

The above article was published in MFB 52



Collision Regulations – Several Near Misses

INTRODUCTION: CHIRP has received several accounts of navigational near misses from both the leisure and commercial sectors. Some of these have a common theme and thus, to avoid repetition, CHIRP comments may be found at the end of the section rather than on an individual basis.

Report No 1: A report describing a near miss between a yacht and vessel under pilotage highlighting differing perceptions of the same event.

What the Reporter told us (1):

Whilst participating in a local yacht race, we were running downwind with the incoming tide toward our next mark. We were flying a large and very brightly coloured cruising chute and doing approximately 6.5 knots over the ground. Visibility was hazy but about 2.5 miles. We suddenly became aware of a large vessel approaching rapidly from our port side. This was unusual as the ship was crossing from South to North outside of the usual shipping channels. Normally the only commercial vessels in this area are the local tugs and pilot boats. It was immediately apparent that we were on a potential collision course and with the wind and tide pushing us, we were closing rapidly. As the relative bearing was not changing and there was no sign of the ship (the give way vessel) taking any action, I called them on VHF Channel 16. I called them three times, asking them to acknowledge and make their intentions clear, but received no answer to any of my calls. We were on the point of doing a crash gybe when one of my crew said the ship's aspect was changing, that she was turning to port.

The ship passed about 100 yards ahead of us and as we crossed her stern, I noticed she was flying a pilot flag.

Lessons Learned:

- Never assume that the give way vessel will in fact give way. With some 35 years of sailing this is a lesson I have already learnt.
- Appreciate that VHF is a very poor method of communication because:
 - There is no guarantee that you are transmitting in fact we were, because I checked with another vessel in the race.
 - o There is no guarantee that anyone is listening, or that their VHF is on/working.
 - o In the case of ships versus small sailing vessels, sometimes calls may be ignored.
- That even a vessel carrying a local pilot, who should be well aware that sailing vessels are regularly in this area, may not obey the COLREGS.

Further dialogue:

CHIRP wrote to the Pilot Authority who responded as follows:

We have discussed this report with the pilot who was onboard the vessel, and he has offered the following comments;

- While approaching three yachts on our starboard bow, bearings were monitored for some time and the vessels tracked on ARPA radar. Two yachts passed well ahead of us and a third passed astern. The bearing of the third yacht was noted to be always opening.
- We had been steering a steady course since departing port and had a maximum speed of 8 knots. Why the reporter should state that the vessel appeared "suddenly", is difficult to understand. The visibility was actually in excess of 4 nautical miles that day, so we would have been visible to anyone keeping a lookout from the moment that it left port.
- We were monitoring VHF Channel 71, which is appropriate as it the VTS channel for that area. Had the reporter been monitoring that channel as per local General Directions, and made his call on that channel, he would have received an immediate response.

The reporter commented as follows;

- From my position (third yacht) the bearing appeared fairly steady, enough to concern me. All I wanted from the VHF call was confirmation of the vessels intentions and to know that he knew we were there.
- The vessel appeared "suddenly" to me because it appeared on a most unexpected course for commercial shipping in that area. Not a mistake I will make again.
- With my eyes about 6 feet above sea level, visibility, for me, was indeed only about two miles. I did not have the benefit of a view from 30 feet above the water.
- The local General Directions specifically exempt pleasure vessels, and therefore they are extremely unlikely to use VHF Channel 71. It is however, one of the channels we scan, so that we have an idea of what is happening in the area. If they had called us on Channel 71 we would have heard them. I never thought of calling on Channel 71. To me, Channel 16 was the logical channel to call on. I am concerned that the vessel was not apparently monitoring Channel 16. This has come as a real eye opener to me and calls into question, the very point of Channel 16 as a safety channel.

I have learnt a few lessons from this, especially regarding expectations from VHF radio and how different views of the same situation may result in totally different perceptions.

Report No 2: Differing perceptions as to a safe passing distance between an overtaking vessel and a vessel being overtaken.

What the Reporter told us (2):

My vessel was departing from the port of Rotterdam heading for the Dover Strait. Our speed was about 8.2 knots with a course of 270°. After we passed the pilot cutter, I noticed two ships behind me which where both faster than us. Both ships where on my port quarter.

Firstly, I called the larger vessel to let them know that we would keep the south side of the traffic lane. She confirmed and altered course to starboard to overtake us on our starboard side. Then I noticed that the second vessel (a container feeder with a speed of about 14 knots) was about 1.8 miles away and was on a collision course. She was ahead of and faster than the first vessel. I tried to contact her on

VHF Channel 16 without receiving any answer. Then I tried to contact her on VHF Channel O2 (the working channel of Pilot Maas as we were inside their working area). As I still did not receive an answer I contacted Pilot Maas and advised them that the vessel was on collision course and that I was unable to reach them. Also, I requested Pilot Maas to advise them to pass on my starboard side as I was heading for the south side of the traffic lane. Pilot Maas replied that the ship had heard and that they would be altering their course to port (to pass us on our port side).

At 1.2 miles I saw she was altering to port but after a short time it became clear that she was trying to overtake me at 1.5 to 2 cables of distance. At that time, we were north of the Maas-Center light buoy at a distance of about 1.6 miles from the buoy. On the port side of the other vessel there was no other traffic.

Under the circumstances, a passing distance of 1.5 to 2 cables was, in my eyes, not a safe passing distance (if either vessel were to lose steerage there would not be enough time for the other ship to react).

In accordance with Article 2 of COLREGS I altered my course to starboard to make a passing distance of 2 to 3 cables. Still short, but I had the first vessel overtaking on my starboard side. I called the ship on my starboard side to advise them, and they confirmed that they would keep a safe distance.

After the vessel on our port side passed us at 2.4 cables, I turned back on course to give way for the vessel on our starboard side. The xx crossed our bow at about 1.2 nm and proceeded on a track about 1 mile north of ours.

CHIRP contacted the company of the vessel involved and spoke directly with the master concerned. The perception of the master was that he needed to make for the traffic separation scheme and avoid the third vessel. He also knew of the reporter's intentions. A desired safe passing distance of xx cables/miles is sometimes just not possible in high density traffic areas.

Report No 3: Disregard for COLREGS approaching a pilot station in the Bungo Suido - Japan

What the Reporter told us (3):

On 10 Apr 2018, we were in the Bungo Suido leaving Seki Saki pilot station outbound, whilst an inbound car carrier was north-west of us and heading to pick up a pilot.

We initially monitored the target at about 10 miles on our port bow, and then called them by VHF when they were 6 miles on our port bow showing a clear green sidelight. We assumed she had seen us as well, showing our red since visibility was good that night. Her distance to the pilot station was around 8 miles. Our OOW asked the inbound vessels' intentions? The OOW of the car carrier replied that they were approaching the pilot station to pick-up a pilot and requested starboard to starboard. My OOW responded that they, being the "give way" vessel should keep clear of us, not cross our bow and alter their course to starboard so that we pass port to port. He added that there was another ship on our port bow outbound and that we could not alter course to port. There was no reply to this.

We continued to closely monitor them, and we were amazed that they blatantly disregarded the collision regulations. They continued their course, started slowing down and we found ourselves in a collision situation. Just before they were 2 miles distant on our port bow, we requested their intentions again and when they replied they were maintaining course, we immediately went hard-over to port to pass clear.

The unsafe behaviour they displayed was both disgraceful and irritating. Heated exchanges ensued with the master of the car carrier. He was obviously incorrect in disregarding the COLREGS just because he was approaching a pilot station, especially since he was still 8 miles away from the pilot boarding ground. The actual pilot boarding ground was located about 5.0 miles west of the normal traffic lane.

Can you pass this to the company concerned as the vessel exercised exceedingly bad seamanship and blatant disregard of the COLREGS? He is a navigational hazard. CHIRP wrote to the company involved but they did not respond.

Report No 4: A blatant disregard of COLREGS in the Aegean Sea – superyacht under power and a general cargo ship.

What the Reporter told us (4):

M/V xx was detected at an approximate range of 8 miles on our port bow with a CPA of less than 0.35nm. The TCPA was approximately 40 minutes. We monitored her movements until her TCPA was approximately 25 minutes. We attempted to establish radio communication through both voice and DSC on a regular basis, but no response was received. Both our vessel and xx were travelling at about 9 knots, so I maintained my course and speed and continued to try to obtain radio contact. When the range reached 1 mile I began sounding my horn and prepared to take avoiding action. The range closed to around 0.5nm and I continued sounding my horn. We were observing through binoculars and in their deck lights a crew member was visible leaving the crew accommodation and rushing to the bridge. At this point the vessel made a bold alteration of course to port, put her stern towards us, steamed away from our track and slowed down. We maintained course and speed and passed with a CPA of around 0.5nm. I tried to raise the vessel on VHF again but still received no response. We continued on our passage safely, maintaining a proper look out with engines and steering at the ready.

Lessons Learned:

My experience of transiting this part of the Mediterranean has taught me that the standards of watchkeeping on many of the smaller merchant vessels in this area is very poor. They regularly ignore the rules of the road and rarely respond to the VHF when called if a close quarter situation is developing, as they do not wish to have to change course or speed to comply. There seems to be an apparent attitude that yachts should always give way regardless of the circumstances. My vessel is 50 metres and 530GT so not a small craft, but we regularly find ourselves in circumstances such as last night's events. We had some other traffic around us last night and would have created another close quarters' situation with other vessels had we slowed down or changed course. M/V xx had unrestricted sea

room to pass by our stern, but it appears she had no one on watch in the bridge if our observations through the binoculars of a crew member rushing to the bridge were correct.

Report No 5: A near miss in the English Channel between a yacht and a power-driven vessel. The actions or inactions of one impact upon the actions of the other.

What the Reporter told us (5):

My sailing vessel was crossing the English Channel, sailing northwards hard on the wind. The vessel xx was heading WSW. Our CPA varied between a couple of hundred feet and zero. This ship failed to respond to three VHF calls on Channel 16 and two DSC calls. Following a short VHF communication with another ship (which would otherwise have passed behind us) to inform him, we turned to starboard. We were then called by a third vessel asking us to confirm our intentions and explained that we would turn to port after passing the two ships so as not cause him to take action to avoid us.

Lessons Learned:

Do not assume that a ship has anyone on watch or willing to respond on VHF even when in close proximity with other vessels. Ships wishing not to be inconvenienced by having to change course and thus not answering VHF calls, be aware that in so doing you may cause inconvenience not just to one other vessel but to many.

CHIRP wrote to the managers of the vessel which failed to comply with the COLREGS, but they did not respond.

Report No 6: A report from a yacht outlining a near miss with a dredger followed by an official complaint where the follow up was considered to be less than satisfactory.

What the Reporter told us (6):

My husband and I were sailing west in our yacht when we saw a dredger astern of us in the main channel. Further back was an inbound tanker. We were just inside the channel, so we immediately changed our heading and moved outside the channel to let both vessels pass - we were under sail and goose winged. My husband then noticed the dredger was changing direction and was heading toward us, out of the main channel. At this point, we were a little confused and quite concerned. There was no communication from the dredger in any way via radio or by sounding of horn and he was approaching very fast. At this point we started our engine and went full throttle to steer hard to port (into the main channel) to get out of his way, which resulted in us gybing the boat. The dredger proceeded past us at full steam and crossed our bow, seemingly completely oblivious to us and then it re-joined the main channel.

As you can appreciate this was a very worrying situation that could quite easily have ended in disaster for us if we had assumed he was going to try to avoid us. It was as though there was no one on watch.

We officially reported this to the local Port Authority as a dangerous near miss, asking them to acknowledge this and advise what further action would be taken and if there was anyone else I should be informing. They responded to say that they had opened an investigation with the vessel concerned (and its company) to establish the facts using their own vessel tracking replay facilities.

We were quite encouraged by this response and iterated that the dredger made no attempt whatsoever to warn or contact us about their intentions. Just before we had to helm to port we were on a downward sail with sails goose winged and had we not turned to port, we would have been in the direct path of the dredger (they were the overtaking vessel).

The following is a precis of the response from the Port Authority;

The Master of the dredger came in for interview last week and we ran through the events as he recalled them.

- It was established that the bridge team of two were aware of yourselves and all the other yachts in the area and tried to carry out the difficult passage through you all as safely as possible, however, things didn't go as planned, which resulted in your report being raised. It was also confirmed by the Master that they were monitoring VHF Ch.12 and 16 throughout their transit but did not hear your calls.
- The Master was on the bridge with the Second Officer at the time you report the incident occurred, both were fully qualified with the appropriate certificates,
- The Master recalled there were quite a few yachts in the area but stated that he was maintaining a safe speed at the time and tried to carry out the difficult passage through the yachts as safely as possible,
- In the Masters' opinion there were no yachts that he passed in the area that he considered to be a near-miss situation.
- Unfortunately, we were unable to obtain a replay of the radar and AIS data from our own Vessel Traffic Services (VTS) system due to a technical issue and therefore did not have the opportunity to see for ourselves what actually happened that day.

We are satisfied that the matter has now been thoroughly analysed with the Master and also raised with the owners, therefore no further action will be taken by ourselves.

Further comment from Reporter 6:

This was quite nearly a disaster and could have resulted in loss of life and boat and it was through our actions alone that this was averted. In fact it was so close that if for any reason our engine had not started we would have been in serious trouble. It is bad enough when leisure boats disregard or don't know the COLREGS, but when those supposedly "trained professionals" in charge of vessels that could cause devastation flout the COLREGS, it just makes an absolute farce of them.

We wanted to bring this to your attention as we really feel this should be brought out into the open as we are sure we are not the only ones who have had to take evasive action. We all understand that the locality is a very busy area with lots of hidden dangers which makes it quite fraught at times. We all need to respect each other, after all it is supposed to be pleasurable and we enjoy being on our boats on the water.

CHIRP Comments:

The Maritime Advisory Board discussed each report in turn and noted that there were several themes running through some of the reports. Firstly, VHF. It was highlighted that the collision regulations are specifically designed to operate without the need for any VHF intervention. If you are the stand-on vessel then as soon as you think you are in doubt, then you actually are in doubt, and that is the time to take your own avoiding action or to reduce speed. It was also noted that a VHF conversation "requesting intentions" gives the other vessel the chance to say "No!". With respect to the third report, whilst "heated discussion" might make you feel better, it is certainly not advisable and concentrating upon the collision regulations rather than the VHF is by far the better option.

With the advent of GMDSS there is no legal requirement to monitor VHF Channel 16, although it remains a safety and distress frequency. It is important to note any specific working channel you should monitor in your operational area, and also to appreciate whether it is on a Simplex or Duplex frequency – for the latter, other vessels can hear you, but you can only communicate with the transmitting station. The MCA $\underline{MGN324(M+F)}$ Navigation - Watchkeeping Safety notice provides useful information.

Several of the reports allude to situational awareness. The perception of a safe passing distance has been described, and **CHIRP** highlights the need to always put yourself in the position of the other vessel(s). Any action taken should be early and substantial – full situational awareness would ensure that in the fifth report it would not be necessary to check the intentions of the other vessel. The perceptions of one person may not be the same as another, as illustrated in the visibility and risk of collision comments of the first report.

CHIRP notes that in an overtaking situation, where practicable, it is good practice to overtake to starboard keeping your own starboard side open.

In all of the reports, it is easy to simply look at the actions or inactions of the parties involved and apportion blame, but this does not identify the root cause(s) - which may lie in the qualifications and experience of personnel. In the case of the unmanned bridge, somebody had a certificate of competency, but that does not mean he was competent. Who went to the bridge in the fourth report? A deck officer or somebody less qualified? Hours worked in the past 24 hours, week, or month may also be factors as could commercial or time pressures, whether perceived or otherwise. Finally, several of the reports demonstrate a complete failing in human element aspects and safety culture.

CHIRP encourages reports of this nature – they come from many areas of the world and amply demonstrate that, in terms of best or good practice, we still have a lot to do.

The above article was published in MFB53

Article 32

INSIGHT

Navigation and Manoeuvring of a Ship from Pilot Boarding Area to the Precautionary Area in the Western Port of SHENZHEN

Abstract:

Pilotage waters in the Western Port of SHENZHEN are very congested with traffic, especially from Black Point to the Precautionary Area. There are three main fairways approaching Western Port; there is no central buoy; no Traffic Separation Schemes in the fairway and the width of navigable waters is restricted. In addition, these waters fall within two separate administrations and involve pilots from both Shenzhen and Hong Kong SAR. Careful procedures have been worked out to ensure this does not compromise safety. The aim of this paper is to act as a guide to ships' Captains as to which fairway to utilise when arriving or departing from Western Port, and for the safe manoeuvring of a ship within these restricted waters.

Document Keywords: Main Fairway, Black Point, the Precautionary Area, Tidal Stream, Communication, and Action.

1. Introduction



Figure 1 – Approaches to Shenzhen via three inbound Fairways.

The Western Port of SHENZHEN is located in the southern part of the Pearl River Delta in GUANGDONG Province, China. It lies on the eastern shore of the Pearl River estuary to Ling Ding Ocean, adjacent to Hong Kong. Its nearest berth is about 3 nautical miles from Black Point. With the exception of a small number of vessels (with a draft of less than 6.5m) approaching



via LONGGU Western Fairway, and deep draft vessels via the TONGGU Fairway, most vessels inbound to Western Port will approach via the UMSTON ROAD Fairway. In recent years, with the development of larger container ships, the density of fairway traffic has been increasing, with barges and fishing boats crossing randomly. There have been no significant changes to the navigable waters from Black Point to the Precautionary Area where there is an absence of separation schemes.

In the Precautionary Area which is fully defined in Section 4 of this paper, ships converge from five directions where the width of navigable waters in an east-west direction is about 0.45 nautical miles, leading to a heightened risk of collision. Action to avoid a close quarter-situation depends on good communication and co-ordination. Therefore, for the purpose of safe navigation, it is compulsory that a SHENZHEN pilot must board an inbound ship at the specified time and place.

This paper not only focuses upon the navigating and manoeuvring of a ship from Black Point to the Precautionary Area, but also introduces the applicable conditions of another important inbound route, namely the TONGGU Fairway, and additionally highlights key points of operation for an inbound ship at the pilot boarding area of GUISHAN Island. This will be helpful in assisting Captains to choose the appropriate inbound fairway and to appreciate manoeuvring and control in these waters.

2. General Situation of Pilotage Waters in the Western Port of SHENZHEN

2.1. Pilotage Waters

Pilotage waters in the Western Port of SHENZHEN include the fairway south from GUISHAN Anchorage, east from Black Point, and north to the BAOAN airport tanker wharf. Western Port has six regions: SHEKOU Harbour, CHIWAN Harbour, MAWAN Harbour, DACHANWAN Harbour, YOULIAN Shipyard and BAOAN airport tanker wharf.

The main fairway runs from Black Point to SHENZHEN Western Fairway Buoy No.7, where the maximum width of navigable water is 0.5 nautical miles, and minimum width is 0.4 nautical miles. The charted depth is from 12.0m to 16.0m, but the width of deep water in the fairway above 14.0m from Black Point to the Precautionary Area is only 0.3 nautical miles.

Since there is no central buoy or recommended route for inbound and outbound traffic, some vessels may navigate at their will and occupy the opposite fairway. At the same time, barges may cross the fairway at random, and in addition fishing boats routinely operate within it. All of these issues present collision risks to ship handling and may instigate avoiding action, which could result in a close quarter-situation with other ships.

2.2. Hydrology and Meteorology

2.2.1. Hydrology

- i. Tide: The tide in the waters of the Western Port of SHEN-ZHEN are half-diurnal - the maximum tidal difference is 3.44m, whereas the average is 1.36m.
- ii. The maximum velocity of a flood tide in SHENZHEN Bay is 0.78m/s, with a flow direction of 008°, and the maxi-

mum velocity of an ebb tide is 0.75m/s, where the flow direction is 167° .

iii. The maximum velocity of a flood tide in the main fairway is 1.48m/s, where the flow direction is 350°, and the maximum velocity of an ebb tide is 1.91m/s, with a flow direction of 150°.

2.2.2. Meteorology

- i. Wind condition: ESE and NNE winds prevail in SHENZHEN for most of the year, followed by NE and E winds. There is a NE wind in winter, and E to NE wind in summer these follow the monsoons. The mean annual wind above strong breeze is 7.7 days.
- ii. Precipitation: the mean annual precipitation is 1578.4mm, the maximum being 2634.1mm. The mean annual daily precipitation of more than 25mm is 22 days.
- iii. Fog condition: the mean annual fog day is 12 days, and fog with a horizontal visibility less than 1 kilometre is 6.4 days – this occurs mainly in winter and spring.
- iv. Air temperature: the mean annual temperature is 22.4°C, whereas extreme maximum is 38.7°C, and the extreme minimum is 0.2°C.

3. The Main Fairways to the Waters of Western Port of SHENZHEN

3.1. UMSTON ROAD Fairway

For an inbound or outgoing vessel via UMSTON ROAD Fairway, the pilot of SHENZHEN must board and leave the vessel near Black Point. Hong Kong and SHENZHEN Pilots do not normally meet each other on the bridge. With the exception of a closure of a port due to bad weather (e.g. typhoon approaching, poor visibility, etc.), there is no time restriction for incoming and outgoing ships (Ultra large container ships passing Tsing Ma Bridge may have to wait for a low tide in order to meet air draft restrictions).



Figure 2 - Umston Road Fairway

Due to the restriction of navigation within these waters and whilst taking into consideration the possible obstacles for safe manoeuvring, collision avoidance, and communication between vessels, a Pilot on the bridge should not disembark the vessel for any reason unless he has confirmed that the other Pilot is about to board the ship. Hong Kong pilots on the inbound ship will generally control the speed of the vessel and confirm on VHF 30 minutes in advance whether SHENZHEN pilot can board the ship on time. For outbound vessels, Hong Kong pilots will generally wait in the pilot boarding area on time.

3.2. TONGGU Fairway

A shipping company may consider applying for a pilot for a vessel calling at Western Port of SHENZHEN via TONGGU Fairway, based on the following reasons:

- An incoming vessel will not call at Hong Kong but transit directly to the Western Port of SHENZHEN.
- An incoming vessel will initially call at Western Port of SHENZHEN then Hong Kong.
- A departing vessel will not call at Hong Kong.
- Ultra large container ships may be restricted from passing Tsing Ma Bridge by their net air draft.
- To save on cost and time.

The TONGGU Fairway has been manually excavated, looking similar to a trapezoidal groove where light buoys are symmetrically set to port and starboard, with the lights simultaneously flashing on and off. The transverse width between two buoys is about 400m, which are fixed in shallow water. The navigable width is only about 270m where maximum charted depth is 15.8m, thus a ship proceeding along the fairway must maintain her position in the middle. In determining the specific timing for navigation within the TONGGU Fairway, the following should be taken into account:

- For ships incoming and outbound in the same direction, the interval should be at least 1.5 hours;
- Ships incoming and outgoing in the opposite direction should be at least 2.0 hours apart;
- Ships are permitted to navigate in TONGGU Fairway only after sunrise and before sunset, except Cruise Ships;
- During the period of slow flood and ebb tide, the timing is generally between 1.0 hour before high or low tide and 2.0 hours after high or low tide.

TONGGU Fairway only permits vessels navigating with a single direction during these specific times because of traffic control - thus ships should never meet with others on opposite courses or overtake the other in TONGGU Fairway. Regardless of a flood or ebb tide, the tidal stream affects TONGGU Fairway almost transversely, which has a great influence on safe manoeuvring of a ship, especially when proceeding at low speed.



Figure 3 - GUISHAN pilot boarding area

A vessel intending to use TONGGU Fairway must apply to GUANGZHOU Maritime Bureau and SHENZHEN Maritime Bureau at least 24 hours in advance and can only enter the fairway with their consent.

A vessel applying to use TONGGU Fairway must enter and leave it at the scheduled time and this is subject to restriction. If the schedule is not achieved, other vessels using the fairway may be affected. A vessel may be banned from using TONGGU Fairway in cases of serious violations.

An inbound vessel must arrive at GUISHAN Anchorage on time, and the pilot waits at the GUISHAN pilot boarding area in advance. Normally, it takes about 1 hour from GUISHAN pilot boarding point to the entrance of TONGGU Fairway. A vessel is not permitted to enter the traffic lane prior to a pilot boarding except in bad weather (e.g. strong winds or heavy swells). Otherwise, that vessel may be banned from entering the traffic lane by the GUANGZHOU Maritime Administration.

Before approaching TONGGU Fairway, a vessel must keep watch on VHF CH09 for supervision and advice from GUANG-ZHOU Maritime Bureau, whilst also keeping watch on VHF CH69 for any advice from SHENZHEN VTS.

An outbound vessel via TONGGU Fairway when approaching the intersection should note that it is not uncommon to develop a crossing situation with vessels proceeding via the LINGDING Fairway, where the waters are under the jurisdiction of GUANGZHOU Maritime Administration. If the vessel encounters a crossing situation with other vessels at the intersection, they should promptly communicate with them on VHF CHO9 as early as possible and take best action to prevent a close quarters-situation developing. If necessary, she may request GUANGZHOU VTS to intervene and co-ordinate the situation.





Figure 4 – TONGGU and LINDING Junctions intersection

3.3. LONGGU Western Fairway

A vessel with a draft of less than 6.5m inbound from the GUISHAN or DAYUSHAN Anchorage or outbound is not permitted to use TONGGU Fairway, so the LONGGU Western Fairway is an alternate to the waters of Western Port. There is no time restriction for a vessel proceeding via LONGGU Western Fairway.

The minimum charted depth in the middle of LONGGU Western Fairway is 4.8m, so larger ships using the fairway would normally have to wait for a high tide.

Vessels inbound to YOULIAN Shipyard or outbound from there usually utilize the LONGGU Western Fairway.



Figure 5 – TONGGU & LONGGU Western Fairway.

4. The Pilot Boarding Area of Black Point to the Precautionary Area

4.1. Complexity

Vessels inbound and outbound via the UMSTON ROAD Fairway will exchange a pilot in the waters of the pilot boarding area, sometimes there are as many as 8 compulsory piloted vessels of all kinds incoming and outgoing at the same time. In addition, quite a number of barges are waiting for opportunities to cross the fairway, whilst fishing vessels are also operating within it. This can result in very congested waters from Black Point to the Precautionary Area.

At present, no central buoy or Traffic Separation Schemes exist in the UMSTON ROAD Fairway. Ships proceeding in the fairway are free to navigate as they deem fit, resulting on occasion, in these vessels occupying each other's fairway. As required, all barges are fitted with AIS and VHF equipment, however identification is not always available on radar, and no response on VHF communication is a routine occurrence.

The Precautionary Area may be defined as being located at the intersections of SHEKOU Harbour, CHIWAN Harbour, the SHENZHEN Western Fairway and the TONGGU Fairway, which is about 2 nautical miles away from Black Point. The width of navigable water is only 0.4 nautical mile. Ships are converging from five directions in this area: northbound ships via UMSTOM Road Fairway, outgoing ships from SHEKOU Harbour, outgoing ships via CHIWAN Fairway, outgoing ships via SHENZHEN Western & Northern Fairway, and incoming vessels via TONGGU Fairway.

A ship may experience a crossing situation with others in the Precautionary Area, and in addition, barges heading north and south are also waiting for opportunities to cross the fairway near to the Precautionary Area. Therefore, the density of traffic in the area is the largest in the Western Port of SHENZHEN and this can result in close-quarter situations developing.

4.2. Particularities

Compulsory piloted ships: An inbound or outgoing vessel applying for compulsory pilotage service must exchange the pilot within the scheduled time. Vessels may be delayed from arriving at the pilot boarding area due to various reasons. As a result, other ships may have to wait for the pilot in this area.

A ship inbound to, or outbound from SHEKOU Harbour: Whether the tide is flood or ebb, tidal streams affect a ship almost transversely between CPV1 (virtual AIS) and buoy No.3.

A ship at the SHEKOU Container Terminal berth 8 may swing for berthing and/or un-berthing because of tide. The turning area is about 0.2 - 0.3 nautical miles from the wharf, which occupies the northern part of the Precautionary Area and seriously affects incoming and outgoing traffic via CHIWAN Fairway.

Navigable waters south of CPV1 (virtual AIS): The waters south of CPV1 (virtual AIS) belong to Hong Kong and are under the jurisdiction of the Hong Kong Marine Department. They continuously monitor and supervise all vessels navigating in UMSTON ROAD Fairway, and the SHENZHEN Marine Department can only support with a supervisory and coordinating role. UMSTON Road Anchorage: Is situated at the south-west side of the fairway (south of 22°24´.92N) and is under the jurisdiction of the Hong Kong Marine Department. Without exception, a ship is not permitted to anchor without a Hong Kong pilot on board, even for a failure of the main engine or other cause. There is no deep-water anchorage in the Western Port of SHENZHEN, which can increase pressure on the SHENZHEN pilots for the safe manoeuvring of a ship.

5. The Application of International Regulations for Preventing Collision at Sea

Without exception, the International Regulations for Preventing Collision at Sea apply to all navigable waters in the Western Port of SHENZHEN. When considering the complexity and particularity of the waters, all ships are required to communicate promptly on VHF in advance and co-ordinate each other's actions, so as to avoid a close quarter-situation if they determine that a risk of collision exists.

6. Safe Manoeuvring of a Ship

6.1 From Black Point to the Waters of the Precautionary Area Barges head north, south, and cross the fairway whilst fishing boats routinely operate within it, resulting in a potential danger to safe ship manoeuvring. Fishing boats normally operate at their will. Vessels may sound whistles to warn them to leave

the fairway as quickly as possible. For barges, calling and communicating by VHF as early as possible is helpful in coordinating each other's actions for safe passing. If a barge does not take action or fails to respond to a VHF call, a vessel will have to independently take best action to avoid a close quarter-situation adapted to the prevailing circumstances and conditions.



Figure 6 – Black point to the Precautionary Area

Before approaching the Precautionary Area, a ship proceeding in the fairway should communicate on VHF with any other vessels which may pose a risk of collision and coordinate each other's actions in order to avoid a close quarter-situation developing.

6.2 A ship Inbound to or Outgoing from SHEKOU Harbour

Regardless of a flood or ebb tide, a ship inbound to or outgoing from SHEKOU Harbour will encounter predominantly transverse tidal streams in the fairway from CPV1(virtual AIS) to buoy No.3. Vessels should pay special attention in this respect in order to avoid losing steerage due to the strong tidal stream, stopping the engine is inadvisable.

The northern part of the exit Fairway is completely blind where it is obscured by berthed vessels at SHEKOU Container Terminal 7/8 and port cranes. A tug assisting as the pilot boat will alert southbound barges in advance and inform the pilot about traffic conditions in the waters of the northern part, so that the pilot can take prompt action in ample time.

A ship outbound from SHEKOU Harbour may proceed southward to UMSTON ROAD Fairway, westward to TONGGU Fairway, or northward to SHENZHEN Western Fairway & Northern Fairway. The navigable width of the exit fairway is only about 0.25NM, and so there can't be any other ship rendezvous at this exit.

Regardless of a flood or ebb tide and where operations, safety and circumstances permit, an outbound ship should proceed as close to the wharf side as possible. Speed should be controlled at 5-7kts whilst passing SHEKOU Container Terminal 6/7 so that navigation will not affect the safety of the berthed ships. Generally, a ship can take reversing action at 5-7kts. After making sure the fairway is clear, the vessel can increase speed and alter course as appropriate.

During the ebb tide, special attention should be paid to the transverse distance between the vessel and buoy No.1/ CPV1. For a ship southbound to the UMSTON ROAD Fairway, where the transverse distance is sufficient, the vessel should continually alter course to port where practicable, even if the ebb tidal stream is strong. This will help to avoid other ships approaching too close and remind them as early as possible of her intention to manoeuvre.

The northern part of the Precautionary Area is relatively spacious and in accordance with Part B of International Regulation for Preventing Collision at Sea, altering course to starboard or stopping, reversing or even stopping the ship is the best action to avoid imminent danger or collision.

6.3 An outgoing Ship via CHIWAN Fairway

A ship outbound from CHIWAN Harbour may proceed southward to UMSTON ROAD Fairway; westward to TONGGU Fairway; and northward to SHENZHEN Western Fairway & Northern Fairway. There is therefore no need to approach the Precautionary Area. The navigable width of the CHIWAN Fairway is only 0.1NM, thus under no circumstances can there be any vessels meeting at the exit of the fairway.

The starboard side of the CHIWAN Fairway is completely blind where it is obscured by berthed ships at the CHINWAN Container Terminal and port cranes. A tug assisting as the pilot boat will alert barges not to cross the fairway and inform the pilot about traffic conditions on the starboard side of the fairway, so that the pilot can take prompt action in ample time.



Regardless of a flood or ebb tide, an outbound ship should proceed as close to the wharf side as possible where operations, safety and circumstances permit. Speed should be controlled at 5-7kts whilst passing SHEKOU Container Terminal 8/9 so that navigation will not affect the safety of the berthed ships.

A ship berthing or un-berthing at SHEKOU Container Terminal 8/9 may need to swing and occupy the waters of the Precautionary Area due to a flood or ebb tide - this can seriously affect ships proceeding via CHIWAN Fairway. If this occurs, prompt communication on VHF combined with the need to co-ordinate each other's actions is required as early as possible.

The northern part of the Precautionary Area is relatively spacious and, in accordance with Part B of the International Regulation for Preventing Collision at Sea, altering course to starboard, stopping, reversing or even stopping the ship is the best action to avoid imminent danger or risk of collision

6.4 An outbound Ship via SHENZHEN Western Fairway & Northern Fairway

An outbound ship via SHENZHEN Western Fairway & Northern Fairway may proceed south-westward to the TONGGU Fairway, southward to the UMSTON ROAD Fairway, or eastward to SHEKOU Container Terminal.

An outbound ship proceeding south-westward to TONGGU Fairway will neither approach the Precautionary Area nor have a crossing situation with other incoming vessels but should be aware of barges and fishing boats operating near the entrance of the TONGGU Fairway.

An outbound ship proceeding southward to UMSTON ROAD Fairway will converge with outbound vessels from CHIWAN and SHEKOU Harbour. Prompt communication on VHF as early as possible is recommended and co-ordinated action taken as required. A ship with a draught greater than 14.0m should keep as close to the middle of the fairway as possible. The vessel should always maintain the transverse distance to CPV1 (virtual AIS) of not more than 0.35NM when abeam of it.

An outbound ship proceeding eastward for berthing at SHE-KOU Container Terminal, requires prior confirmation that there is no other ship entering or outgoing from SHEKOU Harbour during that period. However, she may have a crossing situation with other incoming vessels via the UMSTON Road Fairway, or outbound vessels via the CHIWAN Fairway. There is a requirement to communicate on VHF in advance and take co-ordinated action in order to control the ship speed at 5-7kts whilst approaching the Precautionary Area, and to make tugs fast early in order to assist the ship with steering. Not only is there transverse tidal stream in this area, it is also congested. The ship should try to keep in the middle of the fairway and only enter SHEKOU Harbour when it is safe to do so.

6.5 An incoming Ship via TONGGU Fairway

A vessel inbound via the TONGGU Fairway may proceed north-eastward to SHEKOU Harbour, northward into the CHIWAN Fairway, and north-westward to the SHENZHEN Western Fairway & Northern Fairway, or berth at CHINWAN Container Terminal. The TONGGU Fairway is under strict traffic control so that ships only navigate in a single direction and must pass within the scheduled time, so as not to disturb other ships using it.

Regardless of a flood or ebb tide, tidal streams affect vessels almost transversely whilst proceeding along TONGGU Fairway, thus vessels should not stop their engines in order to avoid losing steerage or being set off course and running aground (especially between buoys 17/18 and 22/23).

A ship bound to SHEKOU Harbour must cross the Precautionary Area and may have a crossing situation with ships outgoing via the CHIWAN Fairway, the SHENZHEN Western Fairway & Northern Fairway, and incoming ships via the UMSTON ROAD Fairway. Vessels should promptly communicate on VHF in advance and take co-ordinated action. The speed of the vessel should be controlled at 5-7kts whilst approaching the Precautionary Area, and tugs should be made fast early in order for them to assist the ship with steering. Not only is there transverse tidal stream in this area, it is also congested. The ship should try to keep in the middle of the fairway and only enter SHEKOU Harbour when it is safe to do so.

A ship bound to CHIWAN Harbour must cross the Precautionary Area and may have a crossing situation with outgoing vessels via the SHENZHEN Western Fairway & Northern Fairway, and incoming vessels via the UMSTON ROAD Fairway. This may affect a ship berthing or un-berthing at SCT8/9. If this occurs, vessels should promptly communicate on VHF as soon as possible and take co-ordinated action. In addition, vessels should confirm in advance that there is no other ship incoming or outgoing via CHIWAN Fairway at that time. The speed of the vessel should be controlled at 5-7kts whilst approaching the Precautionary Area, and tugs should be made fast early in order to assist the ship with steering.

A ship bound for the SHENZHEN Western Fairway & Northern Fairway will not approach the Precautionary Area but may have a crossing situation with outgoing ships via the SHEN-ZHEN Western Fairway & Northern Fairway, and incoming ships via the UMSTON ROAD Fairway or from SHEKOU Harbour. If this occurs, vessels should communicate on VHF as early as possible and take co-ordinated action.

6.6 An incoming Ship via LONGGU Western Fairway

An inbound ship via the LONGGU Western Fairway is usually bound to YOULIAN Shipyard. This vessel will cross the main fairway when able to do so, and then proceed in the same direction as other incoming vessels. The Pilot may control the ship along the western edge of the main fairway adapting to the prevailing circumstances and conditions if there are other incoming and outgoing vessels in the vicinity of the intersection. Vessels should promptly communicate on VHF as early as possible and take co-ordinated action.

An incoming ship via the LONGGU Western Fairway is likely to encounter a crossing situation with barges proceeding along the western edge of the main fairway – vessels should promptly communicate on VHF as early as possible and take co-ordinated action.



Figure 7 – Incoming vessels via LONGGU Western Fairway

6.7 An incoming Ship via UMSTON ROAD Fairway

An inbound vessel via UMSTON ROAD Fairway normally has a Hong Kong pilot on board, who will confirm prior to disembarking, that the SHENZHEN pilot is about to board the vessel. Through negotiation between the two parties, an inbound vessel will exchange her pilot before passing abeam of Black Point – without exception, an inbound vessel shall not pass 022°25.2N (Buoy CP9) if no SHENZHEN pilot is on board.

If there is an outbound vessel from SHEKOU Harbour, and a crossing situation is likely, a vessel should take prompt communication on VHF and take co-ordinated action. The inbound vessel should not impede the safe passage of the outbound vessel and should avoid crossing ahead of her when the circumstances of the case permit.

During the period of flood tide the maximum tidal stream is about 1.48m/s, with a flow direction of about 350°. A vessel will tend to drift to starboard due to the tidal stream and it may be difficult to control her position when stopping. The danger is that it is easy to develop a close quarter-situation with other vessels. Therefore, inbound vessels should confirm that the SHENZHEN pilot will board on her arrival at least 30min before scheduled. Otherwise, she should slow down as early as possible, and try her best to control her position in the waters south of Black Point.

At all times, inbound vessels should try to avoid occupying the navigable waters of outbound traffic so as to avoid the risk of collision.

Conclusions

The pilotage waters from Black Point to the Precautionary Area are relatively complicated – in particular, inbound and outbound vessels will probably converge in this area. The width of navigable waters is limited where the traffic separation schemes have not been implemented, and strong tidal streams, fishing boats or barges crossing the fairway present additional risks. All of these factors impact upon the safe manoeuvring of a ship.

The competent authorities should strengthen fairway supervision and ship-reporting systems, supervise the navigation dynamics of all ships in real time, and remind ships to maintain sufficient sea room between each other. If a ship is found to manoeuvre unsafely and/or approach a dangerous situation, VTS should warn her in good time and give a reasoned suggestion to avoid danger.

A vessel proceeding in the fairway shall strictly comply with requirements and procedures for inbound and outbound routes, be inspected and equipped with normal and emergency equipment, and shall at all times proceed at a safe speed adapted to the prevailing circumstances and conditions, whilst maintaining a safe distance from other ships.

Overtaking vessels shall not overtake without communicating, coordinating and without the permission of the vessel being overtaken. The vessel to be overtaken may take appropriate actions adopted to the prevailing circumstances and conditions to permit safe passing if she agrees.

Remarks:

- Buoy K1 was removed and replaced by virtual AIS on 25/June/2018
- (2) Refer also to Sailing Directions NP30 10th Edition (2016) pages 287 onwards

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6. YACHTS, FERRIES, FISHING AND RECREATION

This section includes a wide range of different reports, many of them distressingly familiar.

We begin with people working in potentially dangerous situations without wearing lifejackets, and the MAB have some pertinent comments about the need for proper risk assessment. We also have another report about yacht crews washing down without using proper (or indeed any) protective equipment. We can assume from the number of reports we receive that this practice is fairly widespread, yet it would be easy to do something about it if people were aware of the dangers.

We also learn about the practice of some ship chandlers of selling expired charts to yachts. This is extremely serious because the manufacturers generally only issue corrections to the latest version of a chart, but we give some useful advice on ways of checking that you have the latest version.

There is a report about a shore gangway being removed by workers who had no idea about safe practices, and we include some thought-provoking comments about where the responsibility lies. Finally, we discuss some abominable housekeeping at a fishing port, and point out that the port authority has a responsibility to all port users.



Article 33 _

Fishermen and Leisure Craft – Lifejackets

OUTLINE: Two reports highlighting the dangers of not wearing a lifejacket.

What the Reporter told us (1):

I have read with interest and concern that casualties involving fishermen not wearing lifejackets continue to occur with an alarming frequency. This is despite a number of regulatory authorities and charitable organisations raising continued awareness of the risks and resulting fatalities amongst fishermen.

Recently, I observed a local fisherman clearly demonstrating an example of what is wrong with the fishing industry. I attach photographs which help best explain my concern for his safety. In this case the fisherman returned to port safely, but it is sad to see that, despite the efforts to warn fishermen, there is still such a low level of personal safety awareness, not least in working without a lifejacket.





A small fishing vessel – the sole occupant is not wearing any floatation aid.

What the Reporter told us (2):

I observed a small boat used for angling, and it appears that they may have run out of fuel, or perhaps the fuel was contaminated. Either way, the boat was less than five cables from the entrance of the harbour they had just left. I watched as they drifted along the coast in order to make sure that they did not get into further trouble. Neither of the boat's occupants appeared to be wearing personal floatation devices, even though one of them was standing on the outboard stern platform!



A small leisure vessel used for angling – no lifejackets being worn.

As a basic precaution before departing for sea check your fuel quantity and, if you haven't used the engine for a long time, check the fuel quality for diesel bugs or water. Wear a life jacket and lifeline when working near the side and preferably at all times in a small boat. It may also be prudent to drop anchor until the engine is working again. In this case the depth of water was not deep, as evidenced by the fishing marker buoy.

CHIRP Comment:

The Maritime Advisory Board discussed these reports and commented that the main issue is not the activity that the fishermen were engaged in, but rather the problems that could arise if any of the occupants fell overboard. All fishermen should take their personal safety into account by conducting a (dynamic) risk assessment into the possibility of falling overboard. By "dynamic" we mean, if necessary, think about the logical steps that are required to complete an unexpected task and the associated dangers that may arise and take the time to mitigate the risk. In cases like this, working outside the gunwales / bulwarks of the vessel, IT IS YOUR LIFE AT RISK! The risk assessment might include the following;

- With the particular activity that you are engaged in, what could go wrong, and equally importantly what are you going to do if something does go wrong?
- If you fall overboard, how do you get back on board? For instance, does the boat have external grab lines or a rope ladder to aid boarding?
- In the event that you do fall overboard, a Personal Location Beacon (PLB) will increase your chance of a rapid rescue. These are small, have a battery life of approximately 24 hours, and should be registered with the Maritime Rescue Co-ordination Centre.
- A Personal Floatation Device (PFD) is an absolute must for all personnel involved in maritime leisure activities, and



in the commercial fishing sector. PFD's can be "constant wear" and must be worn outside any other clothing such as waterproofs. They do not obstruct any activity.

- Consider wearing buoyant clothing depending upon the activity, several types of buoyant clothing are available.
- For single-handed operations, who knows where you are and what time you are expected to return?

TAKE NOTE: If you do fall overboard then there is an immediate risk of cold shock – this is the immediate response of the body to a sudden unexpected immersion in water where the temperature is 15°C or less. The effect is short term, but the immediate response is gasping so instead of taking in air, water might be inhaled. In addition, the cold water immediately reduces circulation which can induce heart failure even in healthy persons. All of the foregoing affect your ability to swim back to safety and also affect your physical ability to pull yourself out of the water to save yourself. Remember, the longer you are in the water the weaker you will become. Therefore, a lifejacket is essential in order to allow this short-term response to pass and to increase your chance of survival. The following link has more information.

RNLI – Cold Water Shock

(http://completeguide.rnli.org/cold-water-shock.html)

There are many other aspects of personal safety which improve your chances of not falling overboard, and these could equally form part of a personal safety risk assessment. For example, non-slip paint on decks and appropriate footwear, and perhaps additional railings or temporary grab lines.

The following resources give additional valuable information to both leisure and commercial fishermen and expand upon some of the comments above. Reading and acting upon the contents is highly recommended in order to ensure your own safety, so that you return to your loved ones and do not become another unwanted statistic.

MCA - Fisherman's Safety Guide

(https://assets.publishing.service.gov.uk/government/ uploads/system/uploads/attachment_data/file/553544/ sept__16_Fishermans_Safety_Guide.pdf)

RNLI - Commercial Fishing

(https://rnli.org/safety/choose-your-activity/commercial-fishing)

MSN 1851(F) Code of Practice for the safety of small fishing vessels (less than 15m)

(https://assets.publishing.service.gov.uk/government/ uploads/system/uploads/attachment_data/file/656001/ MSN_1871_Complete.pdf)

MCA – Small craft codes

(https://www.gov.uk/government/publications/ small-craft-codes)

RNLI – Yacht sailing and motor boats

(https://rnli.org/safety/choose-your-activity/yacht-sailing-and-motorboating) With respect to the reporters' comments related to fuel, it is agreed that fuel quantity should be checked prior to departure. As reported, it seems to be quite incongruous that one would run out of fuel so soon after departure.

The above article was published in MFB52

Article 34

Yacht Safety

OUTLINE: A report outlining poor safety standards on large motor yachts

What the Reporter told us:

Whilst berthed alongside in Costa Rica, a yacht arrived on the berth behind ours. We then witnessed an all too familiar sight, common in the yachting sector. Crew members were repeatedly seen accessing the bow of the yacht when washing down - in doing so, they exposed themselves to considerable risk. Initially it was clear that the crew were not wearing any safety harnesses when working at height and outboard of any rails, even though they risked falling on to a concrete dock or into the sea. In addition, it was noted that the crew were all barefoot, and that they were working on an inclined brow that was covered in soap. Later it was learned that one of the crew members working on the same deck was actually the captain. Time and time again these incidents are being observed in yacht marinas, but it is hard to decide what to do, because gaining the crew's attention may cause them to fall.

Risk assessments and safe operating procedures must not only be in place but must be adhered to and policed by senior officers. Less experienced crew, or crew carrying out tasks temporarily in other departments will not have the same risk awareness and aversion when carrying out routine tasks. Quite obvious hazards are often overlooked by crew when they are concentrating on a task. Ultimately, the safety culture on board dictates everybody's approach to every task, no matter how routine it may seem.





Two examples of washing down and placing yourself in danger.

CHIRP Comment:

Having discussed this report, the Maritime Advisory Board agreed with the assessment of the reporter and in addition highlighted the importance of considering your personal safety. Whether yachts are large or small, whether they are operated as a charter for hire or crewed for an independent owner, these vessels require a consistent approach to managing safety on board. We recognise the aesthetics involved in maintaining these vessels and of course, decks regularly need washing down, but it is how these tasks are managed that is the important factor. The captain or skipper has a duty of care for all of his crew, and the crew themselves have a duty of looking after their own safety. It is suggested after looking at the two accompanying photographs, that a personal risk assessment could identify the following precautions to be considered when washing down:

- Use of non-slip footwear is recommended as opposed to working barefoot or wearing flip flops on a slippery soapy surface.
- Consider a waist belt harness when accessing areas where there is the potential to fall.
- Use of longer-handled tools and standing behind a rail is a simple and effective method to ensure your safety when accessing areas identified as potentially hazardous.
- In certain circumstances (but not always), a personal floatation device (PFD) may be helpful.
- Although both of these photographs were taken within a port, the timing and location of conducting such work should always be considered.

There may be other aspects which are specifically applicable to your vessel. At an on-board safety meeting or even at a coffee break why not sit down, examine the photos, and see how you can make improvements to ensure your own safety and avoid placing yourselves in the same sort of danger as highlighted in the pictures? We should also mention that there may be an element of duress involved which prevents people taking obvious and simple safety precautions. If you feel that the task you are being asked to undertake is inherently unsafe – DON'T DO IT.

REMEMBER – It is YOUR health and YOUR life at risk.

CHIRP Maritime would be interested in hearing from others with similar experiences relating to safety in general, in order to widen the debate and learn more safety lessons.

The above article was published in MFB52

Article 35 _

Expired Charts

OUTLINE: A report detailing the sale by a ship chandler of charts which had been superseded.

What the Reporter told us:

As a yachtsman who uses waterproof charts, I have become aware of ship chandlers selling out of date charts. At two marina chandleries in xx today, I discovered they were both selling an out of date chart some three years old, when the current chart is dated November 2017. This has happened time and time again with these chandleries with several different charts. I have spoken many times about this to the chandleries concerned and to the chart company. The chart company says that they inform chandlers of new chart issues and take back old stock so that the chandleries do not lose money. Apart from the consumer law considerations of selling out of date stock, there is the important maritime safety aspect of people buying what they think is a 'new' chart when in fact the chart information is not current.

Further dialogue:

Having discussed the report with the reporter the following is a précis of the dialogue with **CHIRP**;

There is no point in contacting the chandlers, I've tried it and the chart company has tried it. Occasionally there is a vague response from the chandlers, but the situation soon slips back to what it was before. To be fair to the chart company they are as concerned as I am, perhaps even more so because their good name is associated with this bad practice over which they have little or no control. The chart company advised me that they inform their outlets of new charts and encourage the outlets to send back the old stock of charts for a refund. Short of visiting each outlet and physically confiscating the old stock, there isn't much more they can do, although a stern letter from the head of the chart company to the heads of all outlets (I'm sure that the two chandlers I have encountered aren't the only ones) might have some effect.

Every so often, the chart company publishes corrections for each of its charts – this is done via the chart company website. They also have a printing history list of current charts. The chart company only issue corrections for current charts, so it is not possible to keep an old chart up to date, (otherwise nobody would buy a new one!).



Before retirement I was an airline pilot and am crucially aware of the perils of using out of date charts and almanacs - at sea and in the air the practice can kill. I am probably a bit of a geek (but hopefully not alone) in buying only what I know to be the current charts and then applying the corrections. However, there are other users, whilst not being deliberately foolhardy, who assume that buying a chart from a chandler will automatically ensure that they are getting the most up to date version. In the case of the two chandlers I mentioned and the out of date chart in question, the issue on sale was the May 2015 version, (and now not correctable), whereas the current one is November 2017. I was offered the older version in May 2018, so chandlers had plenty of time to withdraw the old stock and order the new.

Unless sailors (leisure, fishing and small commercial) actually check online to confirm the validity of what they are buying, they are erroneously trusting the chandlers to do the right thing and sell them the latest edition. Caveat emptor should not apply to safety. Are chart purchasers all aware of the availability of corrections?

CHIRP Comment:

The Maritime Advisory Board agreed with the sentiments of the reporter and noted that the obvious lesson to be learned from the report is to ensure that when purchasing electronic or paper charts, that they are indeed the latest edition. The vast majority of chart suppliers have websites where the latest editions and corrections of their products can be checked.

The Board also noted that counterfeit charts and counterfeit software have become increasingly prevalent. The following link, although only applicable to British Admiralty charts, may be helpful in raising awareness of the issue.

<u>British Admiralty – Guide to identifying counterfeit charts</u> (https://www.admiralty.co.uk/AdmiraltyDownloadMedia/A-Guide-to-Identifying-Counterfeit-ADMIRALTY-Products.pdf)

The above article was published in MFB52

Article 36 ____

Ship Shore Interface – Shore Gangway

OUTLINE: A report highlighting poor practice by shore workers whilst removing a gangway from the ship.

What the Reporter told us:

Recently, whilst in port on a cruise, the gangway was installed and removed by a road crane managed by the port. Just before the ship sailed, three personnel, (a crane driver and two stevedores), removed the gangway using the crane. I was on a balcony about four decks above the quay and alongside the crane. I have no professional maritime experience, but in the past I have managed heavy mechanical engineering operations, including crane operations. There was no apparent haste, but the two stevedores took a number of chances that I thought were avoidable:

• They were not wearing hard hats, and their heads were at times very close to the crane's heavy metal hook.

- The stevedore gave hand signals to the crane driver with very slight finger movements. I am unsure whether he was using a local system of signals, but the system that I am familiar with involves unambiguous signals using the whole arm.
- One of the stevedores walked under the load and briefly placed his hands under the load when positioning timbers, putting himself at risk if the load were to descend unexpectedly.

These were easily avoidable risks that could have been eliminated by the use of hard hats, clearer signals and staying out of reach of the suspended load. The risks were very small, but the consequences, if an accident did occur, could be serious.

Further dialogue:

CHIRP wrote to the shipping company concerned highlighting the report – the company are in the luxury area of the cruise sector. Means of access to the vessel is generally the responsibility of the master (and company management by association), but this report falls squarely on the port. It was queried as to whether "poor practice by association" was acceptable? The Company responded, welcoming the report and passed it to their QHSE department for information. They also gave a port contact and **CHIRP** wrote to the port manager but received no response.

CHIRP Comment:

The Maritime Advisory Board commented upon two aspects of this report. Firstly, everybody is responsible for the safety of all personnel whether they are ship or shore based. The stevedores have a duty of care to look after one another and to intervene if somebody is doing something in an unsafe manner. This is sometimes termed Stop Work Authority and encouraging this promotes a higher safety culture. Similarly, anybody who observes an unsafe practice can intervene.

In this particular case, it was commented that the cruise industry generally does not subcontract this type of job and that responsibility usually lies with the port. It was also noted that some ports operate at lower safety standards. However, remedial action in these cases could be encouraged if perhaps the master were to "note protest". Alternatively, a letter from the company to the port may encourage safer behaviour.

It was finally noted that the Reporter's comments are equally applicable to all lifting operations and that the Code of Safe Working Practices contains signalling procedures.

The above article was published in MFB53

Article 37 _

Fishing vessels – Housekeeping

OUTLINE: A report outlining significant housekeeping issues in a fishing port which appear to have become a "standard" of normal operation.

What the Reporter told us:

When walking from the ferry landing point, I was aware of the large amount of fishing equipment left discarded around the harbour. I attach photographs showing a mass of fishing equipment on both sides of the access route for passengers using the ferry.





Plenty of housekeeping hazards here - how many can you spot?

The large number of hazards can clearly be seen. Perhaps with **CHIRP**'s guidance and encouragement the port authority can be encouraged to improve their risk management and reduce the likelihood of injury to third parties using their facilities.

CHIRP wrote to the Harbour Authority but did not receive a response.

CHIRP Comment:

The Maritime Advisory Board commented that the report indeed shows significant housekeeping issues. There is a duty of care to protect everybody within the port and the fishermen. It was mentioned that the costs involved in simple housekeeping were far less than the costs associated with an accident, prosecution, or indeed litigation from a third party.

In the United Kingdom, the HSE document <u>Approved Code</u> of <u>Practice and guidance (ACOP)</u> covers safety in dock operations and is aimed at those who have a duty to comply with provisions of the Health and Safety at Work Act 1974. This includes people who control dock premises, suppliers of plant and equipment, dock employers, managers, safety officers, safety representatives and workers. It also advises upon the use of risk assessment and establishment of controls. In addition there is the MCA/DfT <u>Port Marine Safety</u> <u>Code</u>. Internationally, other countries will have their own legislation covering safety in ports.

The above article was published in MFB 53



The notice highlighted on the picture above states that fishing gear left here will be removed

The left-hand picture shows a large amount of discarded / old equipment close to the dock edge and the access ladder for crew. Fishing gear is permitted to be stowed there but the manner in which it has been done in this case generates plenty of safety hazards. Fishing gear is not permitted to be stowed in the vicinity of the area shown in the right-hand picture. The Harbour Authority notice was clearly not obeyed by fishermen or enforced by the Harbour Master.

A fishing vessel under repair, shown below, had an LPG canister and what appears to be gas cutting equipment discarded on deck and not stowed safely. There were no crew members onboard.



7. SAFETY CULTURE

This short but important chapter contains two reports which follow on from a report we published in 2017.

Readers may recall that a port wanted to stop employing a night watchman, but his presence was vital for fishing vessels attempting to enter the port. We cooperated with local concern groups, and together we were successful in having the decision overturned. The watchman remained, and this year we have received two reports of lives which have been saved as a result. This is concrete evidence that what we do can save lives, so please keep your reports coming in order to continue the good work.

We also feature a report about provisions which were found to be outof-date when they were delivered to a ship. This is unacceptable, and we give some useful guidance, as well as reminding you that provisions are not the only things which have expiry dates.

Finally, we include some good ideas received from a reporter under the heading of 'best practice'. Each year, we publish details of the good safety ideas we receive, but there are sure to be many more out there. Has your ship implemented some good new ideas? If so, please let us know and we will ensure that others may learn from them.

Our Insight article is about finding the root cause of incidents and accidents, so it contains useful guidance for us all and is important for anyone who is interested in safety. Originally published in Inter-Manager's Dispatch magazine, it asks whether our investigations are really getting to the root cause of incidents? We recommend it to you.



Article. 38 _

Correspondence Received – Manoverboard

Further to the article that **CHIRP** published in Maritime FEED-BACK 48 - "Loss of night watchmen in a harbour", we have received the following message relating to the same port.

Recently a night watchman saw a crew member attempting to board his boat which was moored in the harbour late at night. The watchman noted the apparent difficulty which the crew member was having trying to board his vessel, and so he proceeded to walk toward the vessel to make sure that the crew member boarded safely. The watchman was about thirty feet from the vessel when he heard a splash - the crew member had fallen into the harbour. The night watchman acted as he had been trained by raising the alarm, then he proceeded to help the crew member as best as he could.

The night watchman successfully managed to get the crew member out of the water and safely onto the pier. The crew member sustained minor cuts and bruising to his arm. Had the night watchman not been there, then the situation could have been far different. The Harbour Board requested that I thank **CHIRP** for their help in the matter of persuading the local authorities to overturn their decision to remove the night watchman.

CHIRP Comment:

CHIRP is very relieved that the crew member came to no harm and, further to the article in Maritime FEEDBACK 48, this report shows the true value of having the night watchman in place. Safety should always be given the highest priority and override cost savings. In this case, a life has potentially been saved.

The above article was published in MFB 50

Article. 39 __

Expiry Dates of Provisions and Safety Equipment

Outline: A report detailing the supply of out of date provisions. Similar lessons learned can be applied to safety gear with a shelf life or expiry date.

What the Reporter told us:

Upon loading provisions at Port A, the ship's crew discovered that a number of items had surpassed their expiry date.

The company conducted their own investigation and stated that expired provisions could lead to health problems, food poisoning and the risk of illness. They stated the resultant cause was improper control and/or standards of the supplier.

Expired or improperly maintained foods are a potential cause for health problems onboard. During delivery, strict preventive measures should be implemented at all times.

The handling, storage, preparation and serving of provisions and food must be in accordance with the company's procedures and instructions.

Upon delivery and prior to storage in the provision rooms, the expiration dates of the provisions should be verified. Expired provisions and those that expire within a short period must be returned to the supplier. If the ship has already sailed from the port, the company should be notified with necessary evidence (photos) as soon as possible.

Cooks and galley personnel must ensure that no expired foods are consumed. The consumption of foods should be arranged so as to prioritise items that have the earliest expiration date. The 'first in – first out' principle of stock rotation should be observed in the storage of all provisions.

CHIRP Comment:

The **CHIRP** Maritime Advisory Board discussed this report and expanded upon some of the comments from the company. Some companies have procedures in place where the master is provided with cash to pay for provisions and in this case the master often has a free rein to determine which chandler is utilised. The danger with this is that, inevitably, there is a cost versus quality argument – cheaper is not always better.

Other companies may well have their own list of preferred chandlers for various ports. If this is the case, those chandlers can be audited by the company to ensure that standards and expectations are maintained. Similarly, any complaints about expired provisions being delivered, can immediately be addressed by the company and acted upon by the chandler.

Expired provisions can, as the report states, lead to health issues. Items labelled "use by" refer to products which may perish fairly quickly – dairy products, salads, fruit, fresh fish and meats are all examples. Best before dates may often be found on frozen products, dry and canned goods. Ordering in sensible quantities, and utilisation of good stock rotation can all help in ensuring that standards are maintained and that all foodstuffs are kept in date. In addition, it should be noted that the temperature at which provisions are loaded is equally important from a health and safety perspective. Frozen provisions should not be accepted if the product is not frozen, and chilled products should be delivered between 0°C and +5°C. Finally, cross contamination between out of date or defrosted frozen and chilled products should be avoided.

A well fed and healthy crew is, in general, a happy crew.

As a general lesson, the Board also mentioned that the delivery of expired goods or those close to expiry is not confined to provisions. It may be equally applicable to medical stores, pyrotechnics, or indeed any safety equipment with an expiry date. It is worth noting that grinding discs may also have a use by date.

The above article was published in MFB51



Article. 40 _

Best Practice

OUTLINE: CHIRP regularly receives correspondence from the Training Managers of companies highlighting ideas and best practice which has been implemented in their fleets. We are pleased to reproduce a selection of the ideas that have been received.



Any safety chains or openings in handrails should be secured at all times when not in use. This ship has highlighted the safety chains and has reminded users to secure the openings after use.



Who hasn't seen lifebuoy lines get into a tangle which would cause problems if the lifebuoy needed to be rapidly deployed? Here is a simple solution where the rope is coiled in a container and "stored" ready for immediate release.





The garbage area on this ship is now highlighted, and they have fitted a small canopy above the drums so that the area is protected from rain and any soot from the funnel. In addition, they have placed additional waste bins in each cabin and public room specifically for plastic, in order to aid segregation.



On this vessel, the crew have placed boundary markings and KEEP CLEAR notices beside the Fireman's outfit lockers. The lockers should always be clear from any obstructions and this will asssit in getting access to the fireman's outfit and also gives space to change into the equipment in the event of a fire when time is of the essence.

Simple solutions do not have to be expensive or time consuming in order to be effective as shown in the examples above. Overall, the ideas stem from a positive safety culture, good situational awareness, and a healthy respect for housekeeping issues.

Is the standard this high on board your ship? If not then why not, and what are you going to do about it?

The above article was published in MFB52

Article. 41 _

Correspondence Received – Night Watchman

What the Reporter told us:

A year after a local authority abandoned cost-cutting plans to remove the night watchman at this harbour, an intoxicated man decided to go for a dip at about 1am but got into difficulty. The night watchman spotted him in the water and threw a lifebelt to him whilst raising the alarm to the Coastguard. The RNLI subsequently attended. They located the casualty who was using the life ring deployed by the night watchman. The casualty was brought aboard the lifeboat and transported the short distance to the shore where he was assisted by our crew members and passed into the care of the ambulance crew.

This incident illustrates the importance of having someone on hand at the quayside. It was only last year that the post was close to being scrapped, and given the increasing activity at the port, the role of the night watchman is vital. Another life saved by the night watchman - that's two this year. I think we all know alcohol and vessels just do not mix, and alcohol has no place on vessels or around harbours. I'm told by the RNLI that if it wasn't for the actions of the night watchman this guy would have lost his life.

Again, you and **CHIRP** were vital in keeping the night watchmen in their jobs and this shows the work you do has saved lives.

CHIRP Comment:

CHIRP was happy to have of been of assistance in ensuring that this important role was continued, and the value of the role has been categorically proven with the saving of lives. We would also reinforce the fact that alcohol and swimming are an extremely dangerous combination.

The above article was published in MFB53

Article. 42 _

INSIGHT Getting to the Root Cause

Originally published in the June edition of the INTERMANAGER "Dispatch" magazine -

In January of this year, I took over from John Rose as the Director of **CHIRP** Maritime, the world's foremost confidential hazardous incident reporting programme for mariners.

In a career that has spanned four decades, I have spent the last 20 years in the offshore industry on dive and subsea construction vessels, an industry that enjoys an enhanced safety culture, a culture borne out of necessity from the inherent dangers of the business: anchor handling; saturation diving; dynamic positioning and heavy lift operations. Now with **CHIRP**, I have returned to the world of global commercial shipping.

What I have found most disturbing, is that the reported incidents are very similar to those that were occurring when I first went to sea in the 1970's. Incredibly, some cases are worse, such as with lifeboats. Mariners are still dying in enclosed spaces, still dying in circumstances related to working at heights, still dying in mooring incidents and electrical/mechanical isolation failures. What's more, lifeboat incidents have increased to alarming levels that were not even considered a hazard 40 years ago.

So, what is going on? Or more to the point, what is not going on?

Why are these incidents still occurring when all the lessons have been learned? Why are the lessons not being implemented or acted upon? In my opinion, the fault clearly lies with the shipowner/operator; with those who choose to pay only lip service to their own SMS and view it as a necessary compliance rather than a professional enhancement; those who hold IMO conventions in contempt whilst presenting a veil of integrity in their pursuit of profit at a cost to the often vulnerable and dependent seafarer.

All too often, incident investigations focus only on the causal factors, the human element. All too often the seafarer takes the blame and in major cases the master is frequently held responsible. Those persons then face criminal liability. Yet the Master and crew must work within the parameters of the resources available to them. They can only operate within the endemic company safety culture. All too often the Master is restricted in his/her ability to make vital decisions based upon his/her perception of the reality and he/she may well be operating under duress.

CHIRP Maritime takes the view that root causes must be identified and acted upon. Certain questions need to be asked: What was the culture the master was forced to operate under? How suitable was the ship for its intended purpose? What budget did they have? How competent were the crew? How effective was the SMS? Most importantly, what support and guidance did the master receive from the shore management?

Most of us are aware that incidents are the result of a series of failings that, when aligned, result in the unfortunate event. Those failings need to be traced backward to the root cause. We believe that all too often, that root cause leads down the gangway to the shore management and that shore management must take their portion of responsibility for the failing.

In cases of major charges of criminal negligence against the master, those responsible ashore should be equally scrutinised and subjected to the same judicial penalties. Perhaps then, there will be a sea change that brings to a halt the routine isolation, scapegoating and increasing criminalisation of the master.

The challenge as I see it, is for **CHIRP** Maritime to continue to represent those who wish to highlight and share their experience with a view to enlightening others so that everyone might benefit. **CHIRP** will continue to challenge those who seek to avoid their responsibility and we will do this with the support of professional industry bodies and superior



shipowners and managers who recognise that critical introspection is a course to ethical and professional enhancement for the global mariner. In the meantime, CHIRP continues to expand and evolve as we are able to build on our growing access to world expertise and influence in matters of seafarers' health, safety and environmental impact.

And so the ancient struggle continues. The struggle between the shipowner and the seafarer, from the Plimsoll Line to the Manila Convention, it seems never ending.



Capt. Jeff Parfitt Director of CHIRP Maritime
APPENDICES

Appendix I: Acronyms

ACOP	Approved Code of Practice and Guidance	NM	Nautical Mile
ADA	American Disabilities Act	OCIMF	The Oil Companies International Marine Forum
AIS	Automatic identification system	OOW	Officer of the Watch
AM	Member of the Order of Australia	P&I	Protection and Indemnity Insurance
ARPA	Automatic Rader Plotting Aid	PFD	Personal Floatation Device
ASAP	As Soon As Possible	PLB	Personal Locator Beacon
BRM	Bridge Resource Management	PMS	Planned Maintenance System
CCTV	Closed Circuit Television	POAL	Ports of Auckland Limited
CHIRP	Confidential Hazardous Incident	PPE	Personal Protective Equipment
	Reporting Programme	RIB	Rigid Inflatable boat
COLREGS	The International Regulations for Preventing	RN	Royal Navy
	Collisions at Sea	RNR	Royal Navy Reserve
CPA	Closest Point of Approach	RPM	Revolutions per Minute
DPA	Designated Person Ashore	SIGTTO	The Society of International Gas Tanker and
DSC	Digital Selective Calling		Terminal Operators
ECDIS	Electronic chart data information system	SOLAS	International Convention for the Safety of Life
FR	Engine Room		at Sea (SOLAS), 1974 as amended
FU	European Union	STCW	The International Convention on Standards of
FPD	Fall Preventer Device	eren.	Training Certification and Watchkeeping for
GMDSS	Global Maritime Distress and Safety System		Seafarers (STCW) 1978 as amended
CPT	Gross Peristered Toppage	торл	Time to Closest Point of Approach
GIVI	(now CTCross Tonnado)		
ωс	(The) Human Element		United Kingdom Hydrographia Offica
	(The) Furnant Liement		United Kingdom Maritima Dilata Association
	Human Element Awareness Group	UKIVIPA	United Kingdom Manume Phots Association
HELIVI	Human Element Leadership and Management	05	United States
HMPE	High Modulus Polyethylene Rope	USCG	United Sates Coast Guard
HIW	Human Element, Iraining and Watchkeeping	VDR	Voyage Data Recorder
	Sub Committee – IMO	VHF	Very High Frequency (radio)
IMO	International Maritime Organization	VLCC	Very Large Crude oil Carrier
IMPA	International Maritime Pilots Association	VTS	Vessel Traffic Services
IRB	Inflatable Rescue Boat		
ISM	International Safety Management Code.		
ISWAN	International Seafarers Welfare and		
	Assistance Network		
IT	Information Technology		
LNG	Liquid Natural Gas		
LOA	Length Overall		
LPG	Liquid Petroleum Gas		
LSA	Life Saving Appliances		
Lt Cdr	Lieutenant Commander		
MAB	CHIRP Maritime Advisory Board		
MAIB	Marine Accident Investigation Branch		
MARPOL	International Convention for the Prevention of		
	Pollution from Ships, 1973 as modified by the		
	Protocol of 1978		
MARS	Marine Accident Reporting Programme		
MCA	Maritime Coastguard Agency		
MEG4	Mooring Equipment Guidelines 4th Edition		
	(OCIMF Publication)		
MEPC	The Marine Environment Protection Committee		
	– IMO		

- MFB Maritime FEEDBACK MGN Marine Guidance Note
- MLC Maritime Labour Convention
- MN Merchant Navy
- MNM Merchant Navy Medal



Appendix II: The **CHIRP** Maritime team

MEET TEAM MARITIME!

In last year's Annual Digest, we focussed on introducing some of our global ambassadors. This year we are looking at our Maritime Advisors. The three advisors that form the engine of **CHIRP** Maritime are tirelessly working below to deliver on our promise of confidential reporting and producing the quarterly Feedback and Annual Digest publications along with specific Insight articles.



First of all, we will introduce our latest recruit Howard Nightingale. Howard joined us during October 2018. With our continued success and expansion came an increased workload, and this meant that there was an urgent need to provide assistance to both the Director Maritime Jeff Parfitt and Maritime Advisor Ian

Shields. The requirement was for an Advisor who could easily move from below decks to the bridge, between the technical functionality of supporting lan with handling new reports and producing technical documents, to covering the Director at sponsor meetings and presentations.

Howard is a professional mariner with over forty years at sea. Signing on in 1971 as a Deck Officer cadet with BP he served the company for 10 years before moving ashore for a 5 year period with HM Coastguard. The call of the sea was never too far from Howard and he signed on again in 1986 this time entering the offshore sector and the fledgling specialism of dynamic positioning (DP certificate No. 266 - current certificate numbers exceed 30,000). Howard has spent over 30 years on DP dive and subsea construction vessels in the role of Chief Officer/ Night Master and has witnessed the evolution of dynamic positioning systems and the vessels. He has operated in the Arctic Circle, involved in the salvage of the nuclear submarine KURSK, and has extensive global experience ranging from the North Sea to the Middle East and Far East/ Australasian regions. Howard brings a wealth of knowledge and experience from a most challenging environment and we look forward to his contribution and with it, more engagement with the offshore sector.



Next up is Alan Loynd – our man in Hong Kong. Alan first signed on as a Deck Officer cadet with the Royal Fleet Auxiliary in 1969. Joining the Swire Group in 1975, Alan served on a variety of vessels including passenger vessels and general cargo. In 1987 Alan transferred to Hong Kong Salvage and Towage serving on seagoing

and salvage tugs as Master. Eventually he became Fleet Manager and also Salvage Master becoming an expert witness in Hong Kong arbitration cases. Alan became General Manager and Senior Salvage Master in 1997. At one point, Alan was seconded for 2.5 years to the Australian government to re-establish a nautical school at Tuvalu. In 2004 he became Executive Director to Australian Maritime Services.

As if Alan wasn't busy enough, he was a committee member of the Hong Kong Nautical Institute and was made a Fellow in

2000. In 1995 he was appointed by the Governor of Hong Kong and subsequently by the Chief Executive to be a member of the Pilotage Advisory Committee and PAC Working Group and served in this capacity for 12 years. During this period, he conducted numerous oral examinations for apprentice pilots sitting their pilotage qualifications, and for pilots seeking promotion.

Heavily involved in the International Tugmasters Association, Alan also committed himself to the training of local cadets and their education. In 2014 Alan became a **CHIRP** & MARS Ambassador and in 2016 joined our team as a Maritime Advisor. Phew... and that's only a potted history!



Last but not least is Ian Shields. Ian enjoyed a full sea going career in the Merchant Navy that spanned three decades from cadet to Master with Shell, commanding a variety of vessels from 10,000t to over 300,000t. Following this he was seconded to the office as a Fleet Trainer/Auditor specialising in

bridge resource management and root cause analysis investigations. At various times in his Shell career, Ian has also worked ashore as a Management Advisor compiling ISM systems; ISPS documents and training plans. In 2010 he was seconded from OCIMF to the Royal Navy as the first Merchant Navy Liaison Officer at UKMTO. This was at the height of the piracy in the Gulf of Aden, at one point operating out of the Dubai office developing ships briefing schedules and other processes which remain in place to this day.

From 2011 to 2015 Ian was a Technical Advisor with OCIMF, initially dealing with Security related matters then Nautical. He was a part of a team that wrote Best Management Practices (BMP4) and was solely responsible for its distribution to industry. He has also represented OCIMF at the IMO in relation to Private Maritime Security Contractors. He assisted with developing a best practice paper on navigational assessments; was Secretary to OCIMF committees related to navigation, Arctic, Maritime China; Polar Code and Human Element.

If that isn't enough, he joined **CHIRP** Maritime in 2016 as Maritime Advisor where he took on the responsibility of handling all the confidential reports. He compiles the quarterly Feedback publication and assists with compiling this Annual Digest. He writes and edits our specific Insight articles and checks the technical content of our publications for accuracy. On Merchant Navy Day, 3rd September 2018, Ian's "meritorious contribution" was honoured with the prestigious UK state award Merchant Navy Medal (MNM).

So there it is. Our three Maritime Advisors, each unique in their own way, bring a wealth of golden expertise which when combined with a commitment to give something back to the profession that shaped them and made them what they are, drive **CHIRP** Maritime onward and play a major role in delivering our objective. Here at **CHIRP** Maritime, we strive to represent those who need a voice, to challenge those who need to be challenged and to propagate the safety message for the global mariner in the firm belief that we can make a difference.

Jeff Parfitt, Director (Maritime) CHIRP Maritime, The CHIRP Charitable Trust

Appendix III: How the CHIRP reporting process protects your identity

Report processing flow – CHIRP Maritime



Guiding Principles: Confidentiality Protection / Non-Punitive/ No "Whistle Blowing"



The Maritime Programme – HOW IT WORKS

- Reports can be generated either online (through our secure website www.chirpmaritme.org, by email (reports@chirp. co.uk) as a written report (via post), or by telephone to the Charitable Trust's office in Fleet (+44 1252 378947).
- **CHIRP** currently receives confidential incident reports from professional and amateur participants in the maritime sector, throughout the world and across all disciplines. For all potential reporters, they can be reassured the identification of all reporters is always protected even if their reports are, ultimately, not used.
- Every report that is received is acknowledged and investigated, with feedback provided to the reporter before closure of the report.
- On being received, reports are screened then validated as far as is possible and reviewed with the objective of making the information as widely available as possible whilst maintaining the confidentiality of the source.
- Anonymous reports are not acted upon, as they cannot be validated.
- CHIRP is not a "whistle blowing" organisation.
- Each report is allocated its own unique reference identification. Data is entered into the internal network computer system.
- When appropriate, report information is discussed with relevant agencies with the aim of finding a resolution.
- Only depersonalised data is used in discussions with third party organisations and the confidentiality of the reporter

is assured in any contact with an external organisation.

- The report in a disidentified format will be presented to the Maritime Advisory Board (MAB). The MAB meets every quarter January, April, July and October. The MAB discuss the content of each report, they then provide advice and recommendations for inclusion in Maritime FEEDBACK. All reports are analysed for casual factors and potential risk.
- No personal details are retained from any reports received, including those not acted upon. After ensuring that the report contains all relevant information, all personal details of the reporter are removed with an acknowledgement email sent to close the report.
- After the return of personal details, *CHIRP* is unable subsequently to contact the reporter. The reporter may, if he/she wishes, contact the *CHIRP* office for additional information by using the report reference identification.
- The Maritime FEEDBACK publication is written by the Maritime Advisors with the assistance of volunteers from the MAB who are experts in the written article to be published. All published "Lesson Learned" are disidentified and therefore the possibility of identifying the Company, Ship or Seafarer reporting or involved shall be almost impossible. Finally, the depersonalised data is recorded in a secure database at the headquarters in Fleet, it can be used for analysis of key topics and trends.
- Disidentified data can be made available to other safety systems and professional bodies.

Director (Maritime) December 2018

Appendix IV: CHIRP Near Miss report form

Please use the online report available using mobile phone, tablet or personal computer at www.chirpmaritime.org or by email to reports@chirp.co.uk or use this hand written form.

	ANY ORGANISATION IN THE MARITIME INDUSTR
	PAGE 1 of
Name:	
Address:	
	Postcode:
Telephone Number:	
Personal e-mail for reply:	
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CHIRP Maritime REPORT FORM

CHIRP IS TOTALLY INDEPENDENT OF ANY ORGANISATION IN THE MARITIME INDUSTRY

DESCRIPTION OF EVENT

PAGE 2 of 2

Photographs, diagrams and/or electronic plots are welcome:

Your narrative will be reviewed by CHIRP who will remove all information such as dates/locations/names that might identify you. Please bear in mind the following topics when preparing your narrative: *The chain of events / type of communication / any decision making / equipment / training / situational awareness / weather / task allocation / teamwork / sleep patterns.*

The description of the near-miss / hazardous incident:

Safety lessons learned from the near-miss / hazardous incident:

Please place the completed report form, with additional pages if required, in a sealed envelope to: **The CHIRP Charitable Trust, Ancells Business Park, Ancells Road, Fleet, GU51 2UJ, UK** (no stamp required if posted in the UK). **Confidential Tel (24 hrs): +44 (0) 1252 378947**

Report forms are also available on the **CHIRP** website: **www.chirp.co.uk**

Appendix V: Our Publications



Reference Library



The link below will take you to the reference library page on the **CHIRP** website. From there you can download an Excel workbook which contains links to a comprehensive list of incident investigations, near miss reports and safety alerts issued by a selection of government maritime agencies and shipping industry sources around the world.

The library has been written in Microsoft Excel on a Windows 10 operating system – the browser used for links was Google Chrome. With these in place, all links should open automatically. It has been found that when viewing the files on an Apple Macintosh, that links to the internet tend to open correctly, but links to a specific PDF file do not open. If this is the case, then copy and paste the link into your browser – the requested file should then open.

We should emphasise that that the official source of information is the actual web sites of the Agencies included in the workbook. The links to these sites may be found at the top of each sheet of the workbook and should be consulted for the most current data.

The library is updated on a regular basis – any suggestions for further enhancements of the library will be very much welcomed.

Reference Library:

(https://www.chirpmaritime.org/reference-library/)

A list of all of the videos that **CHIRP** Maritime produced in 2018 is given below and we should thank our sponsors The Standard Club for financing this means of promoting awareness.

CHIRP Video Bulletin 12

Fishermen and Leisure Craft – Lifejackets, Yacht Safety, Expired Charts

CHIRP Video Bulletin 11

Emergency Procedures for Disable Passengers, Rudder Angle Discrepancies, Unauthorised modification

CHIRP Video Bulletin 10

Rescue Boat Lifting Strops, Overtaking or Crossing, Main engine failure, A brush with disaster

CHIRP Video Bulletin 09

Nav lights – can you see them, Watch your step, Swamping of a $\ensuremath{\mathsf{RIB}}$





Appendix VI: IMO Assembly Resolution A.1045 (27)

ASSEMBLY 27th session Agenda item 9 A 27/Res.1045 20 December 2011 Original: ENGLISH

Resolution A.1045(27) Adopted on 30 November 2011 (Agenda item 9)

PILOT TRANSFER ARRANGEMENTS

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization regarding the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

NOTING the provisions of regulation V/23 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its eighty-seventh session,

- 1. ADOPTS the "Recommendation on Pilot Transfer Arrangements", as set out in the Annex to the present resolution;
- 2. INVITES Governments to draw the attention of all concerned to this recommendation;
- 3. FURTHER INVITES Governments to ensure that mechanical pilot hoists are not used;
- REQUESTS Governments to ensure that pilot ladders and their arrangements, use and maintenance conform to standards not inferior to those set out in the annex to the present resolution;
- 5. REVOKES resolution A.889(21).

Annex

RECOMMENDATION ON PILOT TRANSFER ARRANGEMENTS

1 GENERAL

Ship designers are encouraged to consider all aspects of pilot transfer arrangements at an early stage in design. Equipment designers and manufacturers are similarly encouraged, particularly with respect to the provisions of paragraphs 2.1.2, 3.1 and 3.3.

2 PILOT LADDERS

A pilot ladder should be certified by the manufacturer as complying with this section or with the requirements of an international standard acceptable to the Organization (refer to the recommendations by the International Organization for Standardization, in particular publication ISO 799:2004, Ships and marine technology – Pilot ladders.)

2.1 Position and construction

2.1.1 The securing strong points, shackles and securing ropes should be at least as strong as the side ropes specified in section 2.2 below.

2.1.2 The steps of the pilot ladders should comply with the following requirements:

.1 if made of hardwood, they should be made in one piece, free of knots;

.2 if made of material other than hardwood, they should be of equivalent strength, stiffness and durability to the satisfaction of the Administration;

.3 the four lowest steps may be of rubber of sufficient strength and stiffness or other material to the satisfaction of the Administration;

.4 they should have an efficient non-slip surface;

.5 they should be not less than 400 mm between the side ropes, 115 mm wide and 25 mm in depth, excluding any non-slip device or grooving;

.6 they should be equally spaced not less than 310 mm or more than 350 mm apart; and

.7 they should be secured in such a manner that each will remain horizontal.

2.1.3 No pilot ladder should have more than two replacement steps which are secured in position by a method different from that used in the original construction of the ladder, and any steps so secured should be replaced as soon as reasonably practicable by steps secured in position by the method used in the original construction of the pilot ladder. When any replacement step is secured to the side ropes of the pilot ladder by means of grooves in the sides of the step, such grooves should be in the longer sides of the step.

2.1.4 Pilot ladders with more than five steps should have spreader steps not less than 1.8 m long provided at such intervals as will prevent the pilot ladder from twisting. The lowest spreader step should be the fifth step from the bottom of the ladder and the interval between any spreader step and the next should not exceed nine steps.

2.1.5 When a retrieval line is considered necessary to ensure the safe rigging of a pilot ladder, the line should be fastened at or above the last spreader step and should lead forward. The retrieval line should not hinder the pilot nor obstruct the safe approach of the pilot boat.

2.1.6 A permanent marking should be provided at regular intervals (e.g. 1 m) throughout the length of the ladder consistent with ladder design, use and maintenance in order to facilitate the rigging of the ladder to the required height.

2.2 Ropes

2.2.1 The side ropes of the pilot ladder should consist of two uncovered ropes not less than 18 mm in diameter on each side and should be continuous, with no joints and have

a breaking strength of at least 24 Kilo Newtons per side rope. The two side ropes should each consist of one continuous length of rope, the midpoint half-length being located on a thimble large enough to accommodate at least two passes of side rope.2

2.2.2 Side ropes should be made of manila or other material of equivalent strength, durability, elongation characteristics and grip which has been protected against actinic degradation and is satisfactory to the Administration.

2.2.3 Each pair of side ropes should be secured together both above and below each step with a mechanical clamping device properly designed for this purpose, or seizing method with step fixtures (chocks or widgets), which holds each step level when the ladder is hanging freely. The preferred method is seizing (Refer to the recommendations by the International Organization for Standardization, in particular publication ISO 799:2004, Ships and marine technology — Pilot ladders, part 4.3a and part 3, paragraph 3.2.1.).

3 ACCOMMODATION LADDERS USED IN CONJUNC-TION WITH PILOT LADDERS

3.1 Arrangements which may be more suitable for special types of ships may be accepted, provided that they are equally safe.

3.2 The length of the accommodation ladder should be sufficient to ensure that its angle of slope does not exceed 45°. In ships with large draft ranges, several pilot ladder hanging positions may be provided, resulting in lesser angles of slope. The accommodation ladder should be at least 600 mm in width.

3.3 The lower platform of the accommodation ladder should be in a horizontal position and secured to the ship's side when in use. The lower platform should be a minimum of 5 m above sea level.

3.4 Intermediate platforms, if fitted, should be self-levelling. Treads and steps of the accommodation ladder should be so designed that an adequate and safe foothold is given at the operative angles.

3.5 The ladder and platform should be equipped on both sides with stanchions and rigid handrails, but if handropes are used they should be tight and properly secured. The vertical space between the handrail or handrope and the stringers of the ladder should be securely fenced.

3.6 The pilot ladder should be rigged immediately adjacent to the lower platform of the accommodation ladder and the upper end should extend at least 2 m above the lower platform. The horizontal distance between the pilot ladder and the lower platform should be between 0.1 and 0.2 m.

3.7 If a trapdoor is fitted in the lower platform to allow access from and to the pilot ladder, the aperture should not be less than 750 mm x 750 mm. The trapdoor should open upwards and be secured either flat on the embarkation platform or against the rails at the aft end or outboard side of the platform and should not form part of the handholds. In this case the after part of the lower platform should also be fenced as specified in paragraph 3.5 above, and the pilot ladder should

extend above the lower platform to the height of the handrail and remain in alignment with and against the ship's side.

3.8 Accommodation ladders, together with any suspension arrangements or attachments fitted and intended for use in accordance with this recommendation, should be to the satisfaction of the Administration3.

4 MECHANICAL PILOT HOISTS

The use of mechanical pilot hoists is prohibited by SOLAS regulation V/2 (Refer to SOLAS regulation II-1/3-9 concerning accommodation ladders).

5 ACCESS TO DECK

Means should be provided to ensure safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the head of the pilot ladder, or of any accommodation ladder, and the ship's deck; such access should be gained directly by a platform securely guarded by handrails. Where such passage is by means of:

.1 a gateway in the rails or bulwark, adequate handholds should be provided at the point of embarking on or disembarking from the ship on each side which should be not less than 0.7 m or more than 0.8 m apart. Each handhold should be rigidly secured to the ship's structure at or near its base and also at a higher point, not less than 32 mm in diameter and extend not less than 1.2 m above the top of the bulwarks. Stanchions or handrails should not be attached to the bulwark ladder;

.2 a bulwark ladder should be securely attached to the ship to prevent overturning. Two handhold stanchions should be fitted at the point of embarking on or disembarking from the ship on each side which should be not less than 0.7 m or more than 0.8 m apart. Each stanchion should be rigidly secured to the ship's structure at or near its base and also at a higher point, should be not less than 32 mm in diameter and should extend not less than 1.2 m above the top of the bulwarks. Stanchions or handrails should not be attached to the bulwark ladder.

6 SAFE APPROACH OF THE PILOT BOAT

Where rubbing bands or other constructional features might prevent the safe approach of a pilot boat, these should be cut back to provide at least 6 metres of unobstructed ship's side. Specialized offshore ships less than 90 m or other similar ships less than 90 m for which a 6 m gap in the rubbing bands would not be practicable, as determined by the Administration, do not have to comply with this requirement. In this case, other appropriate measures should be taken to ensure that persons are able to embark and disembark safely.

7 INSTALLATION OF PILOT LADDER WINCH REELS

7.1 Point of access

7.1.1 When a pilot ladder winch reel is provided it should be situated at a position which will ensure persons embarking on, or disembarking from, the ship between the pilot ladder and the point of access to the ship, have safe, convenient and unobstructed access to or egress from the ship.



7.1.2 The point of access to or egress from the ship may be by a ship's side opening, an accommodation ladder when a combination arrangement is provided, or a single section of pilot ladder.

7.1.3 The access position and adjacent area should be clear of obstructions, including the pilot ladder winch reel, for distances as follows:

.1 a distance of 915 mm in width measured longitudinally;

.2 a distance of 915 mm in depth, measured from the ship's side plating inwards; and

.3 a distance of 2,200 mm in height, measured vertically from the access deck.

7.2 Physical positioning of pilot ladder winch reels

7.2.1 Pilot ladder winch reels are generally fitted on the ship's upper (main) deck or at a ship's side opening which may include side doors, gangway locations or bunkering points. Winch reels fitted on the upper deck may result in very long pilot ladders.

7.2.2 Pilot ladder winch reels which are fitted on a ship's upper deck for the purpose of providing a pilot ladder which services a ship side opening below the upper deck or, alternatively, an accommodation ladder when a combination arrangement is provided should:

.1 be situated at a location on the upper deck from which the pilot ladder is able to be suspended vertically, in a straight line, to a point adjacent to the ship side opening access point or the lower platform of the accommodation ladder;

.2 be situated at a location which provides a safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the pilot ladder and the place of access on the ship;

.3 be situated so that safe and convenient access is provided between the pilot ladder and the ship's side opening by means of a platform which should extend outboard from the ship's side for a minimum distance of 750 mm, with a longitudinal length of a minimum of 750 mm. The platform should be securely guarded by handrails;

.4 safely secure the pilot ladder and manropes to the ship's side at a point on the ships side at a distance of 1,500 mm above the platform access point to the ship side opening or the lower platform of the accommodation ladder; and

.5 if a combination arrangement is provided, have the accommodation ladder secured to the ship's side at or close to the lower platform so as to ensure that the accommodation ladder rests firmly against the ship's side. 7.2.3 Pilot ladder winch reels fitted inside a ship's side opening should:

.1 be situated at a position which provides a safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the pilot ladder and the place of access on the ship;

.2 be situated at a position which provides an unobstructed clear area with a minimum length of 915 mm and minimum width of 915 mm and minimum vertical height of 2,200 mm; and

.3 if situated at a position which necessitates a section of the pilot ladder to be partially secured in a horizontal position on the deck so as to provide a clear access as described above, then allowance should be made so that this section of the pilot ladder may be covered with a rigid platform for a minimum distance of 915 mm measured horizontally from the ship's side inwards.

7.3 Handrails and handgrips

Handrails and handgrips should be provided in accordance with section 5 to assist the pilot to safely transfer between the pilot ladder and the ship, except as noted in paragraph 7.2.2.3 for arrangements with platforms extending outboard. The horizontal distance between the handrails and/ or the handgrips should be not less than 0.7 m or more than 0.8 m apart.

7.4 Securing of the pilot ladder

Where the pilot ladder is stowed on a pilot ladder winch reel which is located either within the ship's side opening or on the upper deck:

.1 the pilot ladder winch reel should not be relied upon to support the pilot ladder when the pilot ladder is in use;

.2 the pilot ladder should be secured to a strong point, independent of the pilot ladder winch reel; and

.3 the pilot ladder should be secured at deck level inside the ship side opening or, when located on the ship's upper deck, at a distance of not less than 915 mm measured horizontally from the ship's side inwards.

7.5 Mechanical securing of pilot ladder winch reel

7.5.1 All pilot ladder winch reels should have means of preventing the winch reel from being accidentally operated as a result of mechanical failure or human error.

7.5.2 Pilot ladder winch reels may be manually operated or, alternatively, powered by either electrical, hydraulic or pneumatic means.

7.5.3 Manually operated pilot ladder winch reels should be provided with a brake or other suitable arrangements to control the lowering of the pilot ladder and to lock the winch reel in position once the pilot ladder is lowered into position.

7.5.4 Electrical, hydraulic or pneumatically driven pilot ladder winch reels should be fitted with safety devices which are capable of cutting off the power supply to the winch reel and thus locking the winch reel in position.

7.5.5 Powered winch reels should have clearly marked control levers or handles which may be locked in a neutral position.

7.5.6 A mechanical device or locking pin should also be utilized to lock powered winch reels.

Appendix VII: IMO Assembly Resolution A.1108 (29)

PILOT BOARDING ARRANGEMENTS

ASSEMBLY 29th session Agenda item 10 A 29/Res.1108 14 December 2015 Original: ENGLISH

Resolution A.1108(29) Adopted on 2 December 2015 (Agenda item 10)

AMENDMENTS TO THE RECOMMENDATION ON PILOT TRANSFER ARRANGEMENTS (RESOLUTION A.1045(27))

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization regarding the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO the provisions of regulation V/23 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended,

RECALLING FURTHER resolution A.1045(27) by which it adopted the Recommendation on pilot transfer arrangements,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its ninety-fifth session,

1 |ADOPTS the amendments to the Recommendation on pilot transfer arrangements (resolution A.1045(27)), set out in the annex to the present resolution;

2 |INVITES Governments to draw the attention of all concerned to these amendments to the Recommendation;

3 [REQUESTS Governments to ensure that pilot ladders and their arrangements, use and maintenance conform to standards not inferior to those set out in the annex to resolution A.1045(27), as amended by the present resolution.

Annex

AMENDMENTS TO THE RECOMMENDATION ON PILOT TRANSFER ARRANGEMENTS (RESOLUTION A.1045(27))

5 ACCESS TO DECK

The existing paragraphs 5.1 and 5.2 are amended to read as follows:

.1 a gateway in the rails or bulwark, adequate handholds should be provided at the point of embarking on or disembarking from the ship on each side which should be not less than 0.7 m or more than 0.8 m apart. Each handhold should be rigidly secured to the ship's structure at or near its base and also at a higher point, should be not less than 32 mm in diameter and should extend not less than 1.2 m above the deck to which it is fitted; and

.2 a bulwark ladder, two separate handhold stanchions should be fitted at the point of embarking on or disembarking from the ship on each side which should be not less than 0.7 m or more than 0.8 m apart. The bulwark ladder should be securely attached to the ship to prevent overturning. Each stanchion should be rigidly secured to the ship's structure at or near its base and also at a higher point, should be not less than 32 mm in diameter and should extend not less than 1.2 m above the top of the bulwarks. Stanchions or handrails should not be attached to the bulwark ladder."



We are grateful to the following sponsors for funding the publication and distribution of this **CHIRP** Annual Digest 2018. They are:



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We aim to improve the safety of all individuals employed in or associated with maritime operations.

We manage an independent confidential reporting programme for the reception and handling of human factors and hazardous safety-related issues associated with the international maritime communities.



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