This flash drive contains 12 video broadcasts on hazardous incidents.

The Maritime Confidential Hazardous Incident Reporting Programme

2016 Annual Digest of Reports, Insight Articles and Video Broadcasts

www.chirpmaritime.org

This publication is sponsored by:

The Sir John Fisher Foundation
www.sirjohnfisherfoundation.org.uk

UK registered charity number 277844

www.chirpmaritime.org

The Videos can also be downloaded from our website.

This flash drive contains 12 video broadcasts on hazardous incidents.
2016
Annual Digest of Reports,
Insight Articles
and Video Broadcasts

www.chirpmaritime.org
Introduction

Welcome to the first annual review of CHIRP Maritime reports, covering all the cases we published during 2016. We hope it will be the first of many.

There are a number of people to thank for the success of CHIRP Maritime, led by the management team of John Rose and Ian Shields, who are ably assisted by Stephanie Colbourne. Remarkably, they are only employed on a part-time basis and the amount of work they do is astonishing. The core team also has the support of the CHIRP Maritime Advisory Board (MAB), which is made up of wise men and women with vast experience, who vet the cases and offer their advice as necessary. Their efforts, however, would count for nothing without the reports sent in primarily by individuals and more recently by companies from around the world, and it is to all our contributors that this publication is dedicated.

Producing the various CHIRP newsletters, podcasts and videos and maintaining an effective website with a searchable database is not cheap, so we are also indebted to the sponsors whose financial contributions permit us to provide the service. Their faith in us, and the support they provide, allows us not only to function but also to reach more seafarers than ever before. And it is a generous contribution from the Sir John Fisher Foundation that has funded the production of this Annual Digest. We thank them all.

When I first went to sea, crew numbers were much bigger than they are today, and people tended to spend their entire careers as mariners. As a result, I sailed with people who were vastly experienced and I can recall a number of occasions when I was saved from disaster by the more experienced men around me. Nowadays, manning levels have reduced to a point where constant supervision of trainees is almost impossible, and crews tend to be less experienced anyway, so the risks are greater.

In my opinion, this is where schemes like CHIRP and the Nautical Institute’s MARS programme are most effective – as a way for young people to learn from the mistakes of others so they may avoid such mistakes themselves. We hope this digest will contribute to that aim by presenting the safety lessons learned by dozens of mariners in a single volume for the information of all seafarers.

It is worth repeating that none of this would be possible without the people who submit reports to CHIRP. It is only through them that we are able to function, and we urge all seafarers to participate. Your incident and near-miss reports may help prevent similar situations in the future, so by telling us what happened you are directly helping to save lives and improve safety.

Most of the reports we receive are from ocean-going vessels, although readers will note we are seeing an increasing level of contribution from the leisure and yachting sectors, which is most welcome.

Sadly, we still do not hear enough from some important sectors such as container shipping, bulk carriers, cruise ships, towage, offshore, super yachts, port operations and fishing. They are all high-risk pursuits, so we would urge anyone working in those sectors to consider reporting their accidents and near misses to CHIRP.

Reporting has never been easier or more convenient, and this digest contains information on all the ways you can contribute, so please bear it in mind.

We have chosen to divide the reports into themed sections, so similar topics are grouped together. This will make it easier for readers to identify topics that particularly interest them, and it also indicates at a glance the most common sources of incidents. Rather than having blank spaces, we have also included some reports from 2015 where space permits. Some reports could easily fit into two or more sections, but we have tried to select the most appropriate section for each report. For more detailed and focused searches, we recommend the searchable database on our website www.chirpmaritime.org.

Within most sections you will also find Advisory Board Insight articles that illuminate topics covered in that
section or provide additional information. They are included because we believe they will enhance the usefulness of the Annual Review, but please let us know what you think. Your feedback will help us make the review even better in the future.

There are appendices that contain some very important documents. We describe the MCA’s ‘Dirty Dozen’ – the twelve most common reasons why people react, or fail to react, in the way they do when facing a crisis at sea. We have analysed all the reports in the CHIRP Maritime database against these twelve factors, and the results are presented in our website. An awareness of the most common factors may well assist mariners in avoiding their own emergencies.

The appendices also contain 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 this continues.

Almost all the familiar sources of accidents and injuries can be found within these pages and you will see reports about basic safety, moorings, enclosed spaces, electric shocks, oil leaks and failures to observe the collision regulations. Old favourites such as the misuse of VHF are joined by new threats such as the improper use of ECDIS, but they all have the ability to teach us important safety lessons.

Older readers will probably be disappointed that so many cases within these pages sound depressingly familiar – despite numerous fatalities, people are still entering enclosed spaces without taking all the proper precautions, for example. There are no short cuts to safety, so please think before you act and make sure you return to your loved ones at the end of each trip in the same condition as when you left. They will appreciate it!

Finally, each copy of the Annual Review comes with a flash drive containing twelve videos we produced during the year.

The videos cover:
2. Unsafe practices in three rigid inflatable boats (RIBs).
3. Yacht close encounter with a ferry.
4. Incident in a Traffic Separation Scheme (TSS).
6. Possible Entry into enclosed spaces without full precautions.
7. Superyacht with a fouled anchor.
8. Power loss and poor communication on a Car Carrier as it approached a lock.
10. Flash fire – welding and painting.
11. Very near miss between yacht and merchant ship.
12. The control, management and use of ECDIS systems in ships.

We hope you will find the Annual Review and the videos helpful, but please let us know, and until next time we wish you a safe and rewarding 2017.

Bon voyage!

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.
# Table of Contents

## 1. PERSONAL SAFETY

<table>
<thead>
<tr>
<th>Article</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Disregard of Basic Safety Standards Onboard a Vehicle Carrier</td>
<td>7</td>
</tr>
<tr>
<td>02</td>
<td>Possible entry into enclosed spaces without full precautions</td>
<td>7</td>
</tr>
<tr>
<td>03</td>
<td>'Don’t Get Wet Feet’ – Embarkation and disembarkation risks</td>
<td>8</td>
</tr>
<tr>
<td>04</td>
<td>Safely moored?</td>
<td>8</td>
</tr>
<tr>
<td>05</td>
<td>Unsafe Vessel</td>
<td>10</td>
</tr>
<tr>
<td>06</td>
<td>Uncontrolled release of a blocked pipe</td>
<td>10</td>
</tr>
<tr>
<td>07</td>
<td>Who can undertake Resuscitation?</td>
<td>11</td>
</tr>
<tr>
<td>08</td>
<td>Safety Equipment – Working outboard</td>
<td>11</td>
</tr>
<tr>
<td>09</td>
<td>Advisory Board Insight: A step away from the ‘snap-back zone’</td>
<td>12</td>
</tr>
</tbody>
</table>

## 2. GENERAL SAFETY

<table>
<thead>
<tr>
<th>Article</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>MARPOL – Regulation versus safety culture</td>
<td>15</td>
</tr>
<tr>
<td>11</td>
<td>Thorough inspections reveal hazardous occurrences</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>Short sharp lessons</td>
<td>16</td>
</tr>
<tr>
<td>13</td>
<td>Flash Fire – Welding and painting</td>
<td>16</td>
</tr>
<tr>
<td>14</td>
<td>Correspondence: fire down below</td>
<td>17</td>
</tr>
<tr>
<td>15</td>
<td>An unattended galley range; risk of fire</td>
<td>18</td>
</tr>
<tr>
<td>16</td>
<td>Misuse of VHF radio communications and the COLREGS</td>
<td>18</td>
</tr>
<tr>
<td>17</td>
<td>Obstruction of emergency doors and hatches</td>
<td>19</td>
</tr>
<tr>
<td>18</td>
<td>Heard it all before ...</td>
<td>19</td>
</tr>
<tr>
<td>19</td>
<td>Handling and stowage of gas cylinders</td>
<td>20</td>
</tr>
<tr>
<td>20</td>
<td>Weighted monkey fist on heaving line</td>
<td>21</td>
</tr>
</tbody>
</table>

## 3. COLREGS – TRAFFIC SEPARATION SCHEMES

<table>
<thead>
<tr>
<th>Article</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>The Perils in Traffic Separation Schemes (TSSs)</td>
<td>23</td>
</tr>
<tr>
<td>22</td>
<td>Crossing in a TSS</td>
<td>25</td>
</tr>
<tr>
<td>23</td>
<td>The Perils in Traffic Separation Schemes (TSSs)</td>
<td>26</td>
</tr>
<tr>
<td>24</td>
<td>A Potential Close Quarters Situation in the Approaches to the Cape Roca TSS</td>
<td>27</td>
</tr>
<tr>
<td>25</td>
<td>Close Encounter Crossing a Traffic Separation Scheme (TSS)</td>
<td>27</td>
</tr>
<tr>
<td>26</td>
<td>Advisory Board Insight: Crossing Traffic Separation Scheme (TSS) Best Practice</td>
<td>29</td>
</tr>
</tbody>
</table>

## 4. COLREGS AND NAVIGATION – VARIOUS

<table>
<thead>
<tr>
<th>Article</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>Overtaking</td>
<td>33</td>
</tr>
<tr>
<td>28</td>
<td>A Crossing Situation – Collision Avoidance</td>
<td>33</td>
</tr>
<tr>
<td>29</td>
<td>A Very Near Miss Between a Yacht and a Merchant Ship</td>
<td>35</td>
</tr>
<tr>
<td>30</td>
<td>Collision Due to Dragging Anchor</td>
<td>36</td>
</tr>
</tbody>
</table>
5. MACHINERY AND DESIGN ISSUES

Article. 34 Exhaust Gas Heater Fire Suppression System – Large Ferry
Article. 35 Ship Approaching a Lock: Power Loss, Poor Communications and Design
Article. 36 Pipeline Pressure Surges
Article. 37 Accidental Release of CO₂ to an Engine Room.
Article. 38 Engineering Mishaps
Article. 39 Electric Shocks
Article. 40 Routine Inspection Reveals Hazards
Article. 41 Ouch! – Bad Ship Designs
Article. 42 Machinery Space Finger Injuries
Article. 43 BA Compressor – Union Coupling Failure
Article. 44 Grounding in the Mississippi River
Article. 45 No Warning Notice on Electrical Panel
Article. 46 Incinerator Door Security System
Article. 47 Cleaning of Moving Machinery
Article. 48 Self-closing Valves Wired Open

6. LEISURE AND YACHTING

Article. 49 Safety in Exposed Places
Article. 50 Close Quarters – Avoiding Action Required
Article. 51 A Fouled Anchor
Article. 52 Single Handed Yacht and a Small Cargo Ship
Article. 53 Rigid Inflatable Boat – Unsafe Practices
Article. 54 Advisory Board Insight: Staring at the Sea

7. APPENDICES

Appendix I: Acronyms
Appendix II: The Human Element and the ‘Deadly Dozen’
Appendix III: How the CHIRP Reporting Process Protects Your Identity
Appendix IV: An Appeal to Sea Fishermen
Appendix V: Near Miss Report Form
Appendix VI: CHIRP Maritime Videos
The Sponsors of this Report

All Charts used in this publication are subject to © Crown Copyright and/or database rights. Reproduced by permission of the Controller of Her Majesty’s Stationery Office and the UK Hydrographic Office (www.GOV.UK/UKHO).
This section features a number of familiar scenarios – a crew member leaning outside the ship’s bulwarks when working at a height, improper entry to enclosed spaces and a failure to understand what comprises an enclosed space, accidents during embarkation and transfer between vessels, unsuitable berths, the dangers of snap-back zones, a vessel with multiple serious deficiencies, and improper procedures for clearing a blocked pipe. Perhaps the most remarkable thing about the reports in this section is that nobody was killed and it is tempting to say some of them deserved to feature in the ‘Darwin Awards’!

There is no excuse for complacency, but everyone at sea needs to be constantly reminded to be on his or her guard and always to think about safety. Improper entry into enclosed spaces is the second-biggest killer of seafarers, yet we still receive reports of almost suicidal acts of stupidity. And for officers who are not sure, we repeat the comment in one of the reports below – a fresh water tank IS an enclosed space!

At the end of this section we include an interesting CHIRP Maritime Advisory Board Insight article about the potential inadequacies of snap-back zones. It invites you to think about better ways of ensuring safety during mooring operations, and is well worth reading and discussing with your colleagues.
1. Personal Safety

Article. 01
Disregard of Basic Safety Standards Onboard a Vehicle Carrier

Observed from a tug nearby standing by a vehicle carrier of 52,000 Gross Tons (about to leave harbour), a crewman onboard a vehicle carrier changed a stern light lamp, disregarding basic safety principles.

Extracts from the information passed to CHIRP. 'Whilst we (in the reporter’s tug) were waiting, we observed one of the crew members of the (ship) stand on the bulwark cap and reach overboard to change a lamp in the stern light which was above and inboard of where the crew member was standing. There was no life jacket or safety harness worn. Another crew member held the ankle of the crew member who was reaching out to the stern light. A slip or fall could have easily occurred resulting in certain injury'.

The lessons to be learnt

There is evidence here of a lax safety culture and standards. The ship was about to sail; it is likely that a pre-sailing navigation light check showed a malfunctioning stern light. Time was running short. A crewman was probably sent ‘at the rush’. Was there time for proper consideration of the risk; was this sort of work within the ship’s ‘permission to work’ framework? ‘Working at Height’ procedures were certainly ignored. Did the bridge know exactly when the man was over the side, and when back inboard?

It is to be assumed that there were no means of fitting the new lamp from inboard. Obvious design faults like this are becoming more common. Good culture and alertness were shown in the tug whose crew took the trouble to report this case.

CHIRP Suggests

Don’t be rushed into dangerous practices. Most of us have ‘been there’: there’s an unexpected problem, a tide or an ETA to make, a repair to be done quickly. These are the moments when corners are often cut; when it’s vital to pause, think, and ensure the right precautions are being taken. Maintain safety standards routinely. If this doesn’t happen, procedures are much more likely to be rushed or ignored when the unexpected comes up. If corners are regularly cut, ships’ crews stop noticing, and the ‘It won’t happen to me’ culture creeps in.

When the accident happens, it’s too late to reconsider.

The above article was published in MFB 42

Article. 02
Possible Entry Into Enclosed Spaces Without Full Precautions

A crew member reported entry into two enclosed spaces onboard a ship at sea, without the necessary precautions, and raised concerns about the safety culture onboard. The company stated that entry did not occur in either case; procedural lapses may have occurred, but appropriate follow-up action had been taken before receipt of the CHIRP report. The case shows how circumstances can be interpreted differently.

Extracts from the information passed to CHIRP. 'An Officer approached the Captain to discuss about two separate incidents in less than a week involving two different Officers gaining entry in to an enclosed space without adequate ventilation and safety equipment being present. Notably one Officer deemed a Fresh Water tank as not an enclosed space as there is a Goose Neck vent pipe attached to the tank. When asked about submitting a near miss form, the Captain told the Engineer that he would speak to the individual concerned'. (There were also concerns about whether the issue would be followed up, and lessons learnt at a later Safety Meeting).

The company responded. 'On both occasions NO entry was made, both occasions entry was stopped when it was noticed there had been a miss in our procedures ... A near miss was submitted immediately by the Master when this was brought to his attention. One of the incidents was brought to the attention of the Master 10 days after it happened ... Since this near miss we have done the following: conducted further training with all deck and engine officers and crew; we are currently creating an eLearning course to enhance the enclosed space training package we can give; we have adjusted procedures to fall in line with the updated COSWP requirements ... I am
happy that our safety culture is working ... the positive reaction to this incident was that we worked as a team, procedures were used, and no dangerous situation occurred'.

**The lessons to be learnt**

Notwithstanding the discrepancy between the report and the company’s comment, this case provides the opportunity to air this vital issue.

*Enclosed spaces are the 2nd biggest killer at sea.* Consequently the correct safety precautions are widely discussed. They are comprehensively described in the UK’s COSWPs for Seafarers, and they feature in the IMO’s SOLAS framework. From 1 January 2015, bi-monthly entry and rescue drills became mandatory. In addition remote testing equipment is mandatory onboard ships from July 2016.

The CHIRP Maritime Advisory Board’s conclusions on this latest case emphasised the following points: *‘If in doubt, treat a space as enclosed’*; for example the existence of a gooseneck vent on a water tank does not mean it is not ‘enclosed’. Nor is a space that is partially open necessarily safe. *A crew member can be overcome in seconds.* A meter around his or her neck will not necessarily prevent death, if the atmosphere ceases to have the required concentration of oxygen or contains toxic gases. Once again, *ship’s robust safety culture is crucial.* Competence, training and experience complement Safe Systems of Work, Permits to Work and risk assessments. Regular emergency exercises for confined space entry and rescue drills are vital in good safety management systems and practice. Beware of complacency; it leads to dangerous practices. Departmental briefings and debriefings, senior leadership by example, and consistent use of language (as in the word ‘enclosed’) are all important in building a good safety culture”.

**An enclosed space is one that:**

*IMO Resolution A1050(27):* has limited openings for entry and exit; has inadequate ventilation; and is not designed for continuous worker occupation

**CHIRP Suggests**

Can you ‘Walk the Talk?’ Double-check procedures. Practice regularly. Lead by example. Make sure everyone onboard knows this is the second biggest killer at sea.

---

**Article. 03**

*‘Don’t Get Wet Feet’ – Embarkation and Disembarkation Risks*

A major charterer and ship manager has reviewed incidents involving injuries while embarking/disembarking ships. Three are shared here; most of us will have seen near misses like this in the past.

- Disembarking from a vessel to a boat alongside, using the ship’s accommodation ladder; the person reportedly lost his balance while stepping on to the boat, and fell into the water.
- Descending the vertical jetty ladder to board a barge, a cargo surveyor lost his grip, hit the deck of the barge and fell into the water. He suffered a broken knee, and injuries to his leg and head. The surveyor was carrying sampling bottles in his jacket.
- While boarding a vessel using the ship’s accommodation ladder, the boat engaged in the transfer operation rose with the swell causing the person to be hit by the ship’s ladder. The person suffered a fracture to his leg.

**CHIRP Suggests**

- *Guidelines for some of these operations, as well as the equipment in use, are available. KNOW THE EQUIPMENT, KNOW AND OBSERVE THE GUIDELINES.*
- *Scenarios, equipment and environmental conditions vary. PAY ATTENTION; KEEP ALERT. This applies to both those that transfer and those that supervise the activity.*
- *DON’T TRANSFER, OR ALLOW TRANSFER, UNLESS IT LOOKS AND FEELS RIGHT. INTERVENE IF NEEDED.*

---

**Article. 04**

*Safely Moored?*

A passenger ship was berthed close to the stern of another vessel. As the passenger ship cleared the berth on departure, the distance between the sterns of the two vessels reduced to 20 metres. The other vessel (pictured) had crew standing by to tend ropes if required. As shown below, they were in extremely hazardous positions. Fortunately, nothing went wrong; but the combination of poor design, berths ill matched to ships and snapback hazards can be lethal.

**What did the reporter tell us?**

The moored vessel does not fit the berth since stern lines cannot be run and the back spring and breast lines have...
poor leads. This led to excessive strain being placed on the lines as the departing passenger vessel’s wake interacted with the moored vessel.

The design of the ship’s after mooring station appears poor; mooring lines may be at greater risk of parting due to the angled leads and the need to use roller leads across the deck. In this case the mooring bollards have not been employed. There is an apparent lack of general awareness; the officer and crew members had placed themselves within the after mooring ropes snap back zone at a time when the mooring lines were likely to come under surge load.

This is a good example of an inappropriate berth in relation to the size of vessel; it could have been refused. Ships’ mooring arrangements are designed for conventional long leads forward and aft. The use of stern (and probably head) lines in reverse direction as shown greatly increases the stress on mooring arrangements, and encourages premature failure with obvious safety implications. In this case the passenger ship’s manoeuvres at very close quarters may – through interaction and surge – have amplified the danger of mooring failure.

**CHIRP Suggests**

The whole mooring deck in this case is a “snap back zone” especially in such a confined area with multiple unconventional leads. Consideration may be given to identifying and marking alternative “tension spots”. These carefully considered relatively safe points for mooring parties to stand and operate will limit exposure to snap back and discipline crew to remain in sheltered areas to the maximum extent possible. Mooring lines may be subject to surge at any time; roaming and unauthorised movement on working decks should be

---

**The lessons to be learnt**

A charterer’s responsibility is to provide a safe berth for a ship. The Master’s right and responsibility is to refuse the berth where – based on observation, professional judgment, and the prevalent conditions – he considers the standard not to have been met. Commercial pressures can of course make this a challenging call; there are suggestions that inappropriate berthing is on the increase under the weight of increasing maritime trade and ship sizes.
Roaming ‘safe areas’ may well not be safe all of the time; snap back zones will vary according to leads and circumstances. For further information see Maritime FEEDBACK number 39, page 2; Code of Safe Working Practices for Merchant Seamen (COSWP) section 26.6; and the article on this subject published in the November 2015 edition of the ‘Safety at Sea’ magazine.

Safe “tension spots”, training and mooring discipline represent a safer way forward in mooring practice.

The above article was published in MFB43

Unsafe Vessel

A report was received on the poor condition of a vessel and the lack of support from the Designated Person Ashore (DPA).

What did the reporter tell us?
The general condition of the vessel is extremely bad with thick rust scale everywhere. The following items are defective: Nearly all the vessel certificates, including certificate of class, have expired. All safety equipment requires servicing, including all BA sets, which are defective. The rescue boat davit requires to be serviced. The liferafts are out of date. All medical stores are out of date with no order for replacements. All nautical publications are out of date and no company has been contracted to supply new chart editions or corrections. Several expired navigation charts have not been replaced. The manning level is below that required by the safe manning certificate. GMDSS outfit is still programmed with Old MMSI number. AIS has the wrong MMSI. All lifejackets have holes in them. Records are routinely falsified to show work carried out when nothing has been done. No proper navigation watch maintained while the ship is at anchor. We experienced severe shortage of food onboard. Crew is owed seven months wages. Bilges are routinely discharged during the hours of darkness. Galley waste is dumped overboard despite being less than one mile from shore. The vessel is entered into a P&I club. There is no support from the company ashore, the DPA does not have a deputy so when he goes on leave, there is no DPA, or any contact number. The accommodation is substandard with bunks not secured and two members of the crew are living in a container on deck.

CHIRP contacted the third party ship managers –and received the following reply. “Your suggestions that safety standards and other matters concerning the operation of this vessel do not comply with obligations relating to this ship’s registration are not accepted. The vessel complies fully with all the requirements that the maritime authorities of the state have stipulated and which are periodically monitored and audited whilst engaged in activities within the confines of the country”.

CHIRP Comment
It should be noted that the vessel had undergone three rapid changes of Flag in the months prior to arrival at its current location. Compliance with both the ISM Code and the MLC 2006 Convention, including the Manila Amendments, appears to be woefully substandard. CHIRP tried to contact the local Port State Control but email/web site contacts are not functioning. Investigation into IMO records reveals the government authority has not conducted any Port State Control inspections for some considerable time.

CHIRP applauds the reporter for submitting the report. CHIRP has written to IMO’s Chairman of the Implementation of IMO Instruments sub-committee, sharing the issues that have been raised in this report.

The above article was published in MFB45

Uncontrolled Release of a Blocked Pipe

Near injury caused by little consideration of the risks involved being given when clearing a blocked pipe.

What did the reporter tell us?
A drainpipe was found to be choked: Initially the pipe was blown with air and even filled with water to check if the pipe was clear. A decision was made to clear the blockage by heating the pipe. The result was a sudden release of the clogged material, with the residual pressure causing the blocked material to hit the bulkhead. The person heating the pipe was standing clear but the person assisting was standing right in front of the pipe. Fortunately he had just moved to get some tools when the incident took place. The water used in the pipe converted into steam and released the clogged material under pressure.

The lessons to be learnt
The reporter advised the action taken to prevent similar accidents again:

Always keep clear of both the openings of the choked pipe being cleared. All the personnel are to be briefed regarding the consequences and to take preventive measure while carrying out such jobs.
The company procedure recommends hazard identification by the “brainstorming” method for proper risk assessment and the conducting of a toolbox meeting prior to undertaking any task.

**CHIRP Suggests**

Such brainstorming can form the basis of a toolbox talk. A culture that encourages toolbox talks would have improved the level of situation awareness and the identification of potential risks. After the first plan failed to achieve the required result, a second toolbox talk should have taken place to incorporate identified actions after a new risk assessment had taken place.

**CHIRP Suggests**

Toolbox talks should not be prescriptive but should be designed to stimulate thought and discussion over a wide range of circumstances as part of a good safety culture on board. Forms can be developed to support toolbox talks, by prompting participants to consider common hazard sources, such as heat, pressure, moving or falling objects, electricity etc. It is not necessary to keep and file such forms, if that risks them becoming ‘tick box’ exercises. It is more important that they encourage consideration of the hazards by those involved with the job. A good Toolbox Talk would identify hazards, which may then need to be subjected to a more formal risk assessment by a competent person or persons.

A good practice is a traffic light system adopted for a toolbox talk, whereby if there is no change to the planned work the status is ‘Green’. If one item changes the status becomes ‘Yellow’, i.e. stop and think before progressing and the moment a second item changes, the status becomes ‘Red’, i.e. stop work and reassess the risks.

**CHIRP Comment**

Preventative action is good practice but ship managers should be concerned over the lack of training/refresher training. Officers are required to have training as part of STCW Certification of Competence.

The above article was published in MFB 40

**Article. 07**

**Who Can Undertake Resuscitation?**

During a drill with a topic of "Rescue operation from an enclosed space", it was discovered that apart from the Master, not one crew member was able to carry out resuscitation.

**Causal factors**

Lack of knowledge and training; inappropriate work standards and guidelines.

**Corrective and Preventative action**

The issue was discussed with crew members on completion of the drill. Training on how to carry out resuscitation was carried out. A new poster regarding resuscitation was posted.

**CHIRP Comment**

Whilst the company procedures were in place, the implementation of these was not. The supervisor and fellow seafarers did not stop the person when starting to work over the side of the ship: The effectiveness of the safety culture onboard should be reviewed. The report should consider the design of the equipment – and the need for crewmembers to work over the side when rigging the pilot ladder. Also they should consider the effectiveness of wearing a life vest and a safety harness: It is good
practice to use double clip-on harnesses, so there is always one attached line when relocating the other (See advice in Maritime FEEDBACK 39 page 5), then if worn correctly there should be no possibility of falling into the water.

The above article was published in MFB 40

Article. 09

Advisory Board Insight: A Step Away from the ‘Snap-Back Zone’

The “Snap Back Zone” concept of a dangerous area of whiplash from a parting mooring rope has been enthusiastically embraced since its first mention. It is a catchy phrase that without doubt says it all and was immediately recognised by experienced seamen as a worthy means of highlighting this great risk to our teams and especially to younger seaman coming into the industry. Arguably, mooring ships is the most dangerous procedure seafarers do and this phrase captures just why this is so.

However, those of us who enthusiastically embraced this concept of risk now have cause for reflection: Snap back zone injuries continue. We may embrace modern mooring rope construction, design of systems, addition of tails and every worthy means to engineer a technical solution to provide enhanced safety. However experience tells us mooring ropes will always part and the danger will always be present. So, is the snap back zone concept working?

Particularly pertinent to our snap back zone dilemma has been our belief from the outset that highlighting these dangerous areas, by whatever means of painting lines, cordonning off areas and embracing a “full song and dance act” to raise the profile of the danger, may well have been worthy but misguided. Those of us who went down the painting lines route, well know the permutations of leads from any winch drum for either side of the vessel, the crossovers of each and the complexity of different port requirements. This has meant that the painted lines rapidly resemble a jumbled “Christmas tree” of warning areas. Painted highlighting of hazards as a warning does have its place: For example, the highlighted yellow/white painting of tripping hazards on the deck, or snagging equipment projections, which are especially important at night where even good deck lighting does not fully overcome the visual depth of field limitations of the human eye. However, for snap back zones, highlighting potential danger areas has actually encouraged over confidence that outside that area will be safe. Clearly ANY location within the mooring area MUST be treated as being in danger of a mooring rope snap back. If line marking is to be of any benefit at all, it would be a single line on the deck marking entry into a mooring area in its totality. This would be both simple and effective. If standing or working within the total mooring area, ANY mooring line failure can and will kill you!

So how do we go forward from this? We need to presume the danger to seamen of a mooring line failing under tension will always exist and accept that a tensioned line is always at risk of parting. The danger will never go away, so where the person is standing when the inevitable occurs must be the principal focus. In time, we continue to hope that engineering, design and the progress of the lessons learned will reduce the number of failures but we must psychologically accept that very few positions within a mooring area are comparatively safe.

Let us make a few key assumptions with which there may be general agreement:

■ The manning level for any mooring tensioning operation must be sufficient, with the operators competent to execute the work. This is a challenge in itself, especially in windy or tidal conditions, which give rise to rapid tensioning of ropes. This assessment of risk should be the subject of a bottom to top review from seamen to ship owners and Flag State Authorities. Minimum manning is just that and only that and is often relevant on a good day only.

■ The winch operator is generally in the safest position, providing he focuses on that job alone and does not stray from that position from start to finish of the tensioning operation. Design in recent years has seen some improvements in this area, with winch controls often not being in line with a mooring rope, with vision often restricted by the machinery itself. Clearly this is an advantage to avoiding the whiplash. However, the person in charge must have a clear vision of the winch operator.

■ The future design of mooring stations must pro-actively aim to reduce ships crew’s exposure to risk.

■ Conduct effective briefings through interactive tool box talks with the mooring party and ensure all know the intent and plan in respect of that particular mooring operation.

■ It is essential that there are proper agreed communications between the officer, or person in charge, the winch operator and any intermediate relay signaller if required (this level of manning is a necessity) by clearly visible hand signals or radio communications.

■ The officer, or person in charge, must at all times be in a position such that he has line of sight to the
mooring running ashore, the ship’s leads and the mooring winch operator, to ensure that signal relay will be maintained. Tensioning needs constant observation and control. It can be literally a killer to be distracted and become “hands on”. Maintaining an overview is essential at all times and being as well as standing as far away from the line as possible.

To move forward on this subject and to start thinking outside “the box” we need a few new ideas in the pot. From the perspective of safety culture we need to encourage an innovative approach, as only with new ideas, building on proven skills and experience, do we move forward.

Namely:

- An assumption that within the single highlighted mooring area warning line ALL areas are unsafe during tensioning and become the Snap Back Zone.

- Anywhere close to any lead, ship’s side or roller pedestal variety, poses the greatest threat due to complex snap back arcs, snaking or fouling. These areas are LETHAL.

- An appreciation that the officer, or person in charge, is often at the greatest risk. The very location for the best overview is often the area most exposed to the danger. We have all preferred to stand by the lead so we can best observe the mooring line inch in and out to monitor tensioning effectiveness. **THIS IS THE VERY WORST PLACE TO BE.**

So to encourage discussion, let us consider a single highlighted spot where the person in charge will stand for each tensioning permutation in a comparatively safe location.

1. There are certainly fewer of these than dangerous “Snap Back Zones”.

2. The location must be carefully considered for snap back safety, prior to any tensioning operation being conducted, and marked accordingly. Allow for Back Springs here, Breast lines there and Head/Stern lines. Either side of the ship.... Half a dozen highlighted “tensioning spots” at most.

3. Habitual and repetitive regime of where we place ourselves significantly reduces exposure to the variables. Apply a better control of a uniform standard as best we can.

4. These “Tensioning Spots” need to be as remote from the mooring lines as reasonably possible and yet still ensure the person in charge can maintain visibility and control of the operation. As regards the after mooring station, the Master, from the bridge wing, can communicate with the Mate aft; he/she can signal down to the aft main deck spring winch operator and leave the Mate to attend the poop. For the forward mooring station, the manifold or amidships location may well be a good option. Far from the winch operator and moorings but closer to the bollard or hook ashore, or fenders alongside, for the back springs. Most important of all we need to be assured of effective signalling/communications to the forward mooring station. Note these locations are only needed for the tensioning part of the operation as this is where the greatest risk of snap back exists!

So in summary we need to move away from the large number of “Snap Back Zones” and the implied safety that allegedly exists outside of the highlighted danger area. We need to move towards carefully considered mooring “tension spots”. These are the fewer, well-judged and firmly rooted locations where the risk is mitigated, controlled: Only then can we be consistently assured of a comparative lessening of exposure to snap back. Snap back will never go away but we may then have a better system in place to manage its effect when a rope does fail.

Can ”Tension Spots” replace the “Snap Back Zones”? The concept is believed to be a step away from the snap back danger and towards safer mooring tensioning locations. The challenge is for you to get your thinking caps on for the best places to place the ”Tension Spots”.

13
The first report in this section concerns two separate cases where people were ordered to disregard the MARPOL regulations. In one case they reported it, and in the other they refused, which does them great credit whilst showing their superiors in a very poor light. Sometimes it takes considerable courage to do the right thing, and that courage is seldom rewarded, but it is heartening to discover that people are still prepared to stand up for what is right.

We also include a report which demonstrates how deficiencies can be detected if people keep their wits about them, and others listing brief cases submitted to us. These may all be brief, but they are important and instructive nonetheless.

There are two reports of fires that should never have broken out, and it is worth noting that in one case the fire was fed by accelerants trapped between layers of paint – a reminder that a coat of paint should be allowed to dry properly before overpainting. There is also a report of a traditional galley fire almost breaking out, and only being prevented because someone saw the situation developing and did something about it. Vigilance should never be relaxed!

We have depressing reports of misuse of VHF radio and obstructions to emergency doors and hatches.

One common thread in this section seems to be that vigilance must be exercised constantly. If you keep your eyes open at all times, you may well see things which others have not noticed, and you may be able to prevent serious accidents. Perhaps companies should be required to reward people like the ones we meet in this section, whose powers of observation have prevented so many potential disasters.

We close the section with a thought-provoking report by one of our CHIRP ambassadors, Captain Arie Nygh, on the subject of dangerous heaving lines and how one New Zealand port is dealing with the problem.
2. General Safety

Article. 10

MARPOL – Regulation versus safety culture

CHIRP received two reports related to possible non-compliance with MARPOL.

What did the reporter tell us?
In one case an officer ordered a reluctant crew to throw oily waste and a broken washing machine overboard. The exact location is not known, but the crew were sufficiently concerned to involve authorities at the next port of call.

The other report involved the Master and chief engineer being requested by the shore to dump damaged oil drums "at a distance of more than 20 miles from the shore", with financial recompense; they declined.

The lessons to be learnt
The Maritime Advisory Board commented that failure to observe MARPOL, or indeed other similar regulations, was likely to be indicative of the level of general management and safety standards on board vessels or within companies. If either is found to have deliberately violated MARPOL, then P&I Clubs will not cover associated costs.

CHIRP Suggests

Obeying MARPOL rules is one thing; and it is necessary. However acting in the true spirit of MARPOL regulation in order to reduce disposal overboard to an absolute minimum (for instance by use of compactors or on board incineration) is a state of mind and shows a high level of safety and environmental maturity. This needs to come not only from on board management but also from the highest levels within companies themselves. Most have environmental policies; are these words to which we turn blind eyes, or do we ensure that standards are met?

The above article was published in MFB 43

Article. 11

Thorough Inspections Reveal Hazardous Occurrences

CHIRP regularly receives reports from vessels where inspections reveal defects that are then rectified prior to an incident occurring.

What did the reporter tell us?

REPORT 1: During inspection and cleaning of the anchor chain locker several links were noted to be twisted, the Bosun using a chain hook freed these up.

REPORT 2: An inspection revealed that a cofferdam adjacent to fuel tanks was not included in the list of spaces to be inspected. The vessel’s list was subsequently updated. Inspections also revealed that the evacuation stretchers for enclosed spaces from the bow thruster room and engine room were fitted with D shackles without security pins fitted – replacements were ordered.

REPORT 3: On a bridge, the X-band radar hadn’t located the nearest targets. Investigation noted that the magnetron’s planned life had been exceeded, hence its decreasing sensitivity. A replacement was ordered. Other items noted were lack of illumination of bridge wing repeaters, water inside both bridge wing navigation consoles, and frequent interruptions to the speed log data. All defects were rectified following remedial maintenance.

The lessons to be learnt

REPORT 1: With respect to the chain locker, CHIRP’s Maritime Advisory Board noted that twisted anchor chains are extremely hazardous should they "jump" on the windlass, and that any work inside a cable locker needs careful planning to avoid serious injury; particular attention to the communication between the locker and the windlass operator is also required.

REPORT 2: The importance of listing all enclosed spaces, and precautions to be taken, are emphasised. Enclosed spaces were mentioned in the last edition of CHIRP Maritime FEEDBACK on pages 6/7. No apologies are given for repeating the message; partially open spaces may still be dangerous and qualify for inclusion in the ‘enclosed space’ list. With respect to stretcher shackles an alternative to a split pin could be to mouse the shackle.

REPORT 3: Radar magnetrons’ performance should be checked at regular intervals to determine any fall off in performance and a replacement schedule can be entered into the planned maintenance system. This is also a matter of “knowing your equipment”.
**CHIRP Suggests**

Make inspections thorough, unpredictable, and a matter of the seaman’s eye. In other words we should all be noticing and rectifying shortcomings whenever we are about our business in ships. Alertness amongst crews, from the most junior to the more senior, should be rewarded and invariably acted upon. It is all about incident and accident prevention; if crews feel confident to report shortcomings, without fear of negative reactions, then safety culture is probably fit and well; the opposite is also true.

The above article was published in MFB43

**Article. 12**

**Short Sharp Lessons**

**CHIRP** has received several reports with quick lessons that can be learnt from each.

**What did the reporters tell us?**

**REPORT 1:** Life saving equipment: Three lifeboat incidents were reported. A hydrostatic locking device of a lifeboat release mechanism was found to be broken; a lifeboat release gear spring was missing from the release hook; and a freefall prevention device was not properly rigged during a drill.

**REPORT 2:** Clogged intake: During transit of a narrow shallow channel the engine room sea water intake became clogged with fish, with the potential for engine failure, grounding and closure of the channel.

**REPORT 3:** Machinery spaces: Four incidents were recorded in engine rooms of lower deck plates or manhole covers left open without any warning signs or guards. In addition two reports of safety chains to vertical ladders being unsecured were reported. All offered high potential for slips, falls and serious injury.

**REPORT 4:** Galley fire risk: A galley oven was left 'on' while unattended at night; it was discovered during evening rounds.

**The lessons to be learnt**

**REPORT 1:** Lifesaving equipment (including lifeboat release mechanisms) are not in regular use; and yet when they are required, the need for their perfect operation is instant and overriding. Thorough inspections and maintenance are of the highest priority.

**REPORT 2:** The sea suction incident quoted fish; other potential obstructions can include mud and plastic. Procedures should be in place to deal with blockages from these sources.

**PREVENTING LOSS OF SUCTION WHEN TRANSITING SHALLOW CHANNELS**

- Ensure high and low sea suction strainers are clean before transiting a narrow shallow channel.
- Have spare clean strainers and the necessary tools available.
- Ensure familiarity with changeover procedures for strainers when needed for cleaning.
- Consider switching from low to high suctions in the channel.

**REPORT 3:** Good housekeeping, planning, toolbox talks and supervision can prevent unguarded open plates and manholes. MIND THE GAP!

**REPORT 4:** An unattended galley poses a severe fire threat and risk to all on board. “Galley shut down” checklists, and provision of external main power breakers outside galleys, are suggested as good means of ensuring that drills are observed and risks of inadvertent failure to ‘switch off’ are reduced to the minimum.

**CHIRP Suggests**

Be ready for probable failures in particular circumstances. 99% correct operation of life saving gear and arrangements is not good enough; by definition, the requirement is 100%. Put another way, in circumstances in which you are unlikely to get a second chance; don’t make one necessary.

The above article was published in MFB43

**Article. 13**

**Flash Fire – Welding and Painting**

This article outlines the rapid outbreak of a fire onboard a vessel in a shipyard during welding operations. Several safety lessons emerge, including the risk of multiple paint layers retaining flammable products that may act as an accelerant.
What did the reporter tell us?
During welding operations, a fire broke out on the outside of a ship’s superstructure. Within two minutes the entire after side of the superstructure was on fire. Contributing factors are reported to have been the dozen layers of paint found to have been applied, with flammable components between the paint layers arising from allowance of inadequate time between the paint applications. The welding was conducted on the outside of the superstructure on a deck panel. Sparks dropped into a pile of rubbish that ignited; the fire quickly spread. There was no fire watch set by either ship’s staff or the repair yard. An attempt to extinguish the fire with a ‘high pressure cleaner’ did not work; the fire was later successfully put out.

Lessons to be learnt
This is a salutary report, reminding us of many safety principles applicable during hot work.

The UK MCA’s Code of Safe Working Practices for Merchant Seafarers (2015 edition) (“UKCOSWP 2015”) attends to this in chapter 24. Some key messages relevant to this particular case are contained in the text box below.

Some key messages (UKCOSWP 2015) relevant to this case: hot work.
■ Hot work should be subject to a ‘permit to work’.
■ Training should have been completed and in date.
■ Comprehensive precautions against fire and explosion should be taken. “No combustible solids, liquids or gases (should be) adjacent”.
■ Supervision and observation should be in place.
■ Suitable fire extinguishers should be to hand.
■ All adjacent compartments should be visited on completion.
■ Frequent checks should be made for at least 2 hours after completion of hot work.


We don’t have details of training levels, supervision, or the ‘permit to work’ (PTW) arrangements in place. However it is clear that precautions against the outbreak of fire were inadequate. There was a failure to clear the area of potential fire risks, no fire watch and no fire extinguishers to hand, which infers a hotwork’ PTW had not been completed, nor adequate supervision provided.

Of particular interest is the speed and spread of the fire, apparently caused by trapped flammable products igniting within the multiple paint layers. Several of the layers were presumably not recently applied, but all or some must have retained combustible products.

Paints are complex substances comprising many constituent parts; many of these can provide fuel to a fire, in particular solvents. These may not leave underlying applications of paint if ‘over-coating’ is done too quickly, or if faster curing coats are applied on top of slower curing ones. Incorrect coat thicknesses, or environmental factors such as excess temperature at the time of application, may also trap solvents. Product data sheets, application instructions and/or makers’ advice are essential to the understanding of risks; in the absence of these or in the case of incomplete historic data, good safety management practice is the appropriate course (including awareness of the generic risks). The key point is that paint in proximity to hot work should always be treated as presenting a high risk of fire. A clean area of work, clearance of rubbish, and paint removal in way of hotwork could have prevented this incident.

CHIRP Suggests
Take hot work seriously. It should never happen without the ship’s (and, if appropriate, the yard’s) leadership and management knowing about and owning the activity and associated precautions. Never treat it as routine. Follow a comprehensive check-off list every time, based on the UKCOSWP 2015 or equivalent guidance. Authorise and supervise the work properly, know what is flammable, remember adjacent compartments, remove everything flammable before work, be alert to the properties of paints in the vicinity, and ensure repeated follow-up checks.

The above article was published in MFB44

Correspondence: Fire Down Below
Further to the latest report in Maritime FEEDBACK 44, a reporter has shared with us an investigation into an incident several years ago, in which a spark from burning equipment landed on pipework lagging and the paint on top of that lagging caught fire. The lagging had been stripped to an extent but had not been stripped completely. The build-up of paint on the deckhead covering the insulation is believed to be the main accelerant to the fire spreading across the space. This was subsequently confirmed in a separate test that created a similar situation.

At the time of the incident, the individuals concerned were carrying out deck penetrations from the deck above down
to the room below in order to feed pipework through the penetrations.

Prior to the incident the pipe fitter supervisor had checked the area and shown the two pipe fitters the work and location that they had to complete the task. A burner and firewatcher were called in order to assist with the penetrations. The firewatcher signed out a ‘damping’ extinguisher in order to dampen the area directly below any penetrations, which were pop marked to show the exact location. He used this equipment for damping down all three penetrations. The Permit to work was followed and the local area cleared before work started.

The fire watch in the compartment below noticed black smoke and used the extinguisher in the vicinity of the smoke but the fire spread rapidly overhead. Consequently the fire alarm was sounded and the ship was evacuated.

What might have happened.

**Lessons to be learnt**

Galleys are high-risk areas. Power should be switched off at the end of each use, whenever the galley is left unattended, and at the end of each working day. The fitting of external galley power breakers, which do not require entry to galley spaces, is a wise additional precaution.

In this case an unattended leaking casserole represented a long-term hazard, indicating a poor sense of hygiene and awareness of risk.

**CHIRP Suggests**

*Maintain particular vigilance in galleys, and invariably include them in rounds routines by day and night.*

The above article was published in MFB44

---

**Article. 15**

**An Unattended Galley Range; Risk of Fire**

A casserole containing oil was left unattended in the oven or on the range; oil leaked through small holes at the side. This case is a classic near-miss. Fire did not break out, but it could easily have done so.

What might have happened.

**Lessons to be learnt**

Galleys are high-risk areas. Power should be switched off at the end of each use, whenever the galley is left unattended, and at the end of each working day. The fitting of external galley power breakers, which do not require entry to galley spaces, is a wise additional precaution.

In this case an unattended leaking casserole represented a long-term hazard, indicating a poor sense of hygiene and awareness of risk.

**CHIRP Suggests**

*Maintain particular vigilance in galleys, and invariably include them in rounds routines by day and night.*

The above article was published in MFB44

---

**Article. 16**

**Misuse of VHF Radio Communications and the COLREGS**

A reporter alerts *CHIRP* to the increasing misuse of VHF communications for collision avoidance.

A watch keeper maintains a VHF radio watch. He writes: "I notice that there is an increasing amount of (mis-) communication between vessels concerning collision avoidance... (sometimes) there is a continuous chatter of vessels making agreements". He asks 'what has happened to just sticking to the COLREGS'. He notes that there has been a huge increase in these "collision avoidance arrangements" over the last 10 years.
Lessons to be learnt

The reporter makes an important point; it recurs repeatedly in the reports received by CHIRP.

The COLREGS are based on the tried and tested practice of decades. They exist to make the correct actions clear, and were originally developed long before bridge-to-bridge voice communications became available.

They are thus unambiguous. It is the responsibility of all bridge watch keepers to know how to apply them instinctively, on the basis of observation primarily by sight and radar. They work effectively when ships in an interaction obey them; they also specifically address circumstances where one ship does not.

Of course VHF radio is used for the purpose of traffic management, for example in traffic separation schemes (TSSs). There can also be circumstances where – for some exceptional reason – VHF radio exchanges can assist deconfliction. If they are so used, neither ship should rely on the other to take the action 'arranged' until this is independently verified; indeed it should be assumed that the action has not been taken until it is seen to be happening.

The greatest risk attaches to 'arrangements' that are contrary to the COLREGS; these are hazardous.

Further risks of language confusion, mis-identification between the communicating vessels, distraction of other ships in the area and distraction from the officer of the watch (OOW)'s primary tasks all add risk to the use of VHF in collision avoidance. It is true that AIS has made identification of vessels easier, but at busy moments – especially in heavy shipping situations – mistakes can still be made. It can also be particularly tempting to use VHF when, as the stand-on vessel, we encounter give-way ships not taking the right action. However the COLREGS make quite clear what to do in this situation: 'take action to avoid'.

Finally the 'VHF in collision avoidance' habit can also erode the plain and absolute authority of the COLREGS in the minds of Officers of the Watch, and thus their instinctive and confident application of them. This represents a serious longer-term threat to safety at sea.

CHIRP Suggests

Doubt = danger. VHF communication in collision avoidance can increase doubt, misunderstanding, delay and distraction. Use it only in exceptional situations, and then with utmost caution. Apply the COLREGS, know them instinctively, and take early and substantial action in accordance with them when the circumstances of the case require.

The above article was published in MFB44

Article. 17

Obstruction of Emergency Doors and Hatches

What did the reporters tell us?

Two cases have been reported to CHIRP recently. In the first instance the supply door of a mechanical fan for a galley was found obstructed by wooden boards. The second report concerned an elevator's emergency exit to the open deck being obstructed from the outside due to the incorrect positioning of a locking pin.

Lessons to be learnt

REPORT 1: The obstruction could have prevented the closing of ventilation doors/flaps in the event of a fire. Additionally, there was reduced air intake when the fan was in use. This is a case of housekeeping and general safety awareness. Was this complacency or carelessness? All ventilation fans/flaps should be identified and marked; colour coding is a good method of doing this.

REPORT 2: The purpose of the emergency exit of the elevator is to provide means of escape for people in the elevator in case of emergency. The exit door should never be obstructed in any way.

CHIRP Suggests

The CHIRP Maritime Advisory Board emphasised that escape from an elevator should only be considered in an emergency. It also highlighted the occurrence of fatalities in connection with elevators, and the importance of taut procedures for use and maintenance, for example the locking out of all decks when an elevator is out of service. An incident report from the Nautical Institute Marine Accident Reporting Programme (MARS) 2015-55 refers: http://www.nautinst.org/en/forums/mars/mars-2015.cfm/201555.

The above article was published in MFB44

Article. 18

Heard It All Before ...

The following short reports highlight occurrences, which recur and will be familiar to many readers.

If this is so, then the question has to be “WHY?” are we not learning from previous errors?
What did the reporters tell us?
In REPORT 1, a bulldog grip U-bolt had slipped out of position on a lifeboat lashing. It was found that the grips were fitted incorrectly, and had also been subjected to wear and tear over a period of time.

In REPORT 2, oxygen and acetylene cylinders were not properly stowed and secured, and were about to fall onto the deck.

In REPORT 3, the boom of a main deck crane was heaved up, without taking out the securing turnbuckle, from the rest stand. This caused deformation to the plate to which the lug had been welded.

In REPORT 4, a fresh water generator was cleaned with chemicals without using facemask and rubber gloves.

Lessons to be learnt
REPORT 1: Routine inspections had been ineffective: the bulldog grip slipped, and had been incorrectly fitted. Wear and tear was evident.

REPORT 2: Routine checks should be carried out before, during and on completion of any job. Effective housekeeping can eliminate many hazards and help get a job done safely. Poor housekeeping frequently contributes to accidents by hiding hazards that cause injury or damage. Unsecured equipment, especially in heavy weather is a common case in point.

REPORT 3: Improper preparation, haste, and inadequate supervision were the probable causes. Every lifting operation using the ship’s crane should apply good seamanship practices, be properly planned within the prevailing conditions, and be appropriately supervised by a competent officer. The lifting appliance should be operated by a competent, well trained crew member.

REPORT 4: Face shields, aprons, and gloves should be provided at chemicals lockers and used by the crew when handling chemicals.

CHIRP Suggests
REPORT 1: With respect to the bulldog grips, vibration can be another cause of wear and tear. The UK MCA specifically discourages their use in Annex 18.2 of the UKCOSWP 2015, and prohibits fitting to lifeboat falls and lashings; similarly for rescue boats and lifeboat lifting gear. Would you trust your life to incorrectly fitted wires?

REPORT 2: Any unsecured equipment or incorrectly rigged lashings are hazardous in a seaway. The offshore industry provides plenty of examples of this through the Marine Safety Forum http://www.marinesafetyforum.org/index.php/safety-alerts. The risk of severe injury or equipment damage is high.

REPORT 3: For the crane boom incident, this is down to planning and supervision. The crane operator should respond only to the supervisor who should be using correct signaling techniques. UKCOSWP 2015 19.9 and 19.11.1 refers.

REPORT 4: Working with any chemical requires proper planning including the use of the Material Hazard Data Sheets that are supplied with chemicals.

A COMMON THEME. All jobs, whether routine or otherwise, should be planned and discussed in advance. Toolbox talks give opportunity for everyone to speak up over concerns and for the responsible person to brief the approach. View worksites to ensure that there are no hazards in advance. Ensure that jobs are effectively supervised.

The above article was published in MFB44 Article 19

Handling and Stowage of Gas Cylinders
We received correspondence advising that the article in MFB 44 should have made better use of the advice given in The UK MCA’s Code of Safe Working Practices for Merchant Seafarers (COSWP – 2015 edition). We accept this comment and incorporate this additional safety information in conjunction with a report we received on the use of a home-made tool to lift gas cylinders.

What did the reporters tell us?
- Oxygen & acetylene cylinders should be segregated and stored in separate cages.
- The cages should be locked for security (but with keys available locally in a break-glass box).
- The gas stores should segregate each variety of gas and cylinder sizes.
- The colour codes for the screwed caps on cylinders must follow the cylinder colour code.
- Cylinders should be placed on wood and not directly onto a steel deck.
- Cylinders should be individually secured, (with a quick release), to prevent any metal to metal contact.
- There should be a bulkhead or a three-metre separation between oxygen and acetylene cylinder cages.
The gases should be identified by signage with a ‘Danger – No Smoking’ notice.

If in doubt refer to COSWP Chapter 24.8.

We have since received a report whereby a ship was taking on board an acetylene cylinder. The cylinder arrived on a one sided protected pallet, not suitable for lifting. Since the vessel’s cylinder cage was located in the forward part of the vessel, the supervising officer decided to use an onboard fabricated lifting tool consisting of a U-clamp welded to a cylinder cap and then lifted it on board! Fortunately there was no incident in this case but accidents involving gas cylinders can cause serious injury or even death.

CHIRP Suggests
The approved method for moving single oxy-acetylene cylinders is by a dedicated trolley. The use of a homemade tool to lift gas cylinders is not in compliance with the COSWP, nor does it indicate the existence of a robust safety culture on board. This activity should have been stopped.

The above article was published in MFB45 Article. 20

Weighted Monkey Fist on Heaving Line

When undertaking annual competency assessments in a New Zealand port I witnessed a heaving line being thrown from the raised forecastle of a bulkier in ballast onto the foredeck of an ASD tug. It landed right beside the seaman on the tug.

Without a moment’s hesitation the seaman whipped his knife out and cut the monkey’s fist off the heaving line, then attached a new rubber heaving line weight to the ship’s line, tied the tug’s towline messenger to it and sent the whole lot back up to the ship.

After the towage was complete we cut the very heavy monkey’s fist open to find it had a large metal nut and bolt in its interior. If this had hit a tug crew member on the head it would have been lethal.

I was most impressed that the seaman was so proactive towards safe operations but even more impressed that the towage company had, at their own expense, manufactured a safe alternative to gift to the ship’s crew.

A large metal bolt & nut were hidden in the centre of the monkey’s fist! The yellow rubber replacement heaving line weight is designed not to injure tug crews & not to bounce when hitting the deck.

By Capt Arie Nygh
CHIRP Ambassador
Traffic Separation Schemes (TSS) have been around for a long time and the rules for using them are fairly straightforward – Rule 10 is hardly the most complex of the collision regulations – so why did we receive more reports in 2016 about separation schemes than any other COLREGS-related topic?

I do not know the answer to that question, but perhaps the reports below will at least illustrate some of the bad practices that should be avoided. They contain details of ships overtaking too close to other vessels, using VHF when it would be better to take action immediately, not monitoring the correct VHF channel, and crossing a TSS inappropriately.

There appear to be some themes, which emerge even from such a relatively small sample. I got the feeling that a number of the vessels involved were trying to doggedly follow their passage plan while ignoring the traffic around them, but it may also be that some officers are still reluctant to take avoiding action. Slowing down is one of the most effective forms of collision avoidance, but it also seems to be one of the most difficult for officers to consider. There are some cases here where slowing down would have removed all risk, yet it was not attempted.

We also find a number of cases where vessels allow themselves to be ‘squeezed’ by other ships in and around a TSS. It seems some officers have difficulty thinking ahead and devising tactics to avoid a close quarters situation. Similarly, there are cases where it seems officers do not appreciate that their actions will embarrass another vessel that is hemmed in and cannot manoeuvre freely.

On a happier note, there is one case where we received an excellent response from the company whose ship appeared to have caused a problem for the reporter. The company took the lessons to heart and did their best to ensure there would not be a repeat – exactly what CHIRP Maritime hopes to achieve with every report we publish.

The section concludes with another excellent MAB Insight article on the best practice for crossing a TSS. Judging from the reports, it should be required reading for every navigating officer.
3. COLREGS – Traffic Separation Schemes

Article. 21

The Perils in Traffic Separation Schemes (TSSs)

Over 400 commercial vessels pass through the Dover Strait daily; the statistics for Malacca (where 4825 Very Large Crude Carriers (VLCCs) alone transited in 2013) are similar. Other choke points are all getting busier.

By definition TSSs are established where traffic density is high and navigation constrained. These are therefore places where the dangers of navigation are amplified. At CHIRP we are reminded by a considerable ‘postbag’ in the last quarter of this fact …

What did the reporters tell us?

OVERTAKING IN A TSS. A VLCC heading north-east in the Sandettie TSS was overtaken at very close quarters (1–2 cables) by a container ship. This manoeuvre necessitated her passing F1 buoy, marking the separation line at a distance of about 50 metres. The manoeuvre took place at the entrance to the NE lane, where the VLCC and to an extent the overtaking vessel were heavily constrained by their draught. The container ship did not comply with guidance on the relevant chart and in BA5550 advising against use of the Deep Water Route (DWR) by vessels under 16 metres in draught, and to the dangers of overtaking.

Extracts from the information reported to CHIRP. The reporter commented: ‘I was contacted by large container vessel bound for Hamburg making 21 kts (ship name) astern of me on channel VHF 16 & 6 stating he would ‘squeeze’ past me at entrance to DW route. I responded that I was a deep draught vessel and could not deviate from my course. On approaching Sandettie SW buoy with F1 buoy right ahead, container vessel contacted me again on VHF 16 to request I alter my course to starboard to give him a little more room, I stated that with his draught (13m) he should not be using DW route and should pass south and east of Sandettie especially as two deep draught vessels were now using the DW route and also that he should not be overtaking in the DW route. I started my alteration into the DW route early to give a little more sea room as he passed very close on my portside. (Ship) was also extremely close to crossing into the SW bound lane when passing the deep draught bulk carrier ahead of me.

Many NE bound vessels with draught less than 16m use the DW route against recommendations, and are not questioned/advised by Griz Nez Traffic or Dover CG. This may be OK when no deep draught vessels are in or approaching the route, but to continue this practice (and overtaking) when the route is in use is asking for trouble’. The overtaking ship offered a different perception of some of the circumstances, but commented: ‘we certainly realize that the situation was more or less self-inflicted. It should never have taken place as good practice would have been overtaking the VLCC on her starboard side, allowing own vessel to make the planned alteration of course towards starboard – or by slowing down until ample room available’.

The lessons to be learnt

It is the obligation of the overtaking vessel to “keep out of the way of the vessel being overtaken ... until finally past and clear”. The distance at which the container ship, at speed, passed the VLCC (see photograph) was far too close. There was no spare room. Though we do not have tidal information (height or stream), which may have influenced decisions, it is clear that the VLCC judged he had little or no space to starboard. The OVERTAKING manoeuvre should not have taken place. Moreover, interaction will almost certainly have been
present; this can cause loss of heading control or – at the least – unpredictable rudder requirements to maintain course (dependent on ships’ sizes and speeds, and the depth of water in which they were navigating). Though not in itself a factor in the rights and wrongs of collision avoidance, it is a fact that a collision where this manoeuvre took place could have closed the strait to deep draught vessels bound NE, or at the very least obstructed the route, with major consequences.

Why did this happen? Was it inexperience? Was it a failure to think ahead? Was it a lack of prior planning?

Was it red-line-itis (the tendency once a passage plan has been ‘entered’ to follow it regardless)? Whatever the cause, the container ship’s managers did acknowledge that she could or should have slowed down.

**CHIRP Suggests**

*Passage planning and thinking ahead, the passage plan should normally conform to local routing and manoeuvring guidance (in this case applicable to use of the Deep Water Route), with alternatives available as appropriate.*

*Plan the TSS arrival: how, when, with what bridge manning, including decisions on the Master’s presence.*
Execution. Remember that a plan is a plan; a basis for change if real time circumstances demand. It is never a line to follow regardless, if 'the circumstances of the case' dictate something different. When approaching the entrance to a TSS – indeed whenever navigating in a TSS – Officers of the Watch (appropriately backed up with extra expertise to manage workload) should be planning how to 'slot into' the traffic flow from a distance; in the case of these two large ships from at least 10 nautical miles. Slow down if in doubt, always remembering the ship astern. Things can happen very fast. Inexperienced Officers of the Watch can be sucked into close quarters situations that never need to occur. Don’t overtake if there is not ample time to the CPA and space to do so, within the available safe straight part of a TSS; if at all possible the overtaking vessel should only pass on the starboard side of the vessel to be overtaken in order to permit flexible options and maximise searoom.

Masters, by order book or verbal instruction, can clarify their expectations and calling orders with respect to speed and course alterations, overtaking, traffic density and the like. Use your eyes. Look up and out. Use electronic aids, certainly; but do not depend on them alone. Think from the other ship’s point of view. Are you own actions obvious and clear? Or might they induce doubt?

Doubt = DANGER.

The above article was published in MFB 42

Article. 22

Crossing in a TSS

Ships crossing a TSS pass nearly head-on at very close quarters (about 1 cable) at an approximate closing speed of 35 knots. See the reporter’s comments below. The actual location is not revealed in order to preserve anonymity. We do not have an exact track chart, but the reporter’s reconstruction shows the following:

Excerpts from the information reported to CHIRP. The reporter commented: (Our ship) 'was crossing the TSS. We were approximately midway through the crossing, the (other ship) left the far lane’ (shown westbound in the diagram) ‘to cross the near lane’ (shown eastbound in the diagram). ‘The (other ship)’ steadied up on a course that led to both ships passing ... extremely close. The OOW on the (reporter’s ship) had not plotted the (other ship) and failed to notice that she had altered until it was very late. Instead of taking action he called the (other ship) and used valuable time before the two V/L’s passed less than a cable apart!’.

The lessons to be learnt

Extreme care is required when crossing a TSS. The red ship has positioned herself close to the separation zone to minimise any crossing risk with the other ships in her own lane, and correctly lines up at 90 degrees to the general direction of traffic flow. We do not have details of other shipping. However the effect of her turn is to place her nearly head on with the reporter. The closing speed is 35 knots. The range closes rapidly. The blue ship’s bridge team only notice the situation at the last minute, and then uses up valuable time on VHF radio with every chance of more, not less, confusion being created; the red ship was also very slow to react. Factors here may include overload on the bridges of both ships causing failure to appreciate the head on situation, and the choice by the red ship of the location for her crossing turn (for example if in the vicinity of a busy ferry route); this choice is at least a major, often the major decision when crossing a TSS.

CHIRP Suggests

Passage planning and think ahead. It is wise to plan a crossing manoeuvre where there is no reason to expect a higher than average number of other crossing vessels (for example at a known ferry crossing point). A good method is to identify a ‘crossing window’, marked on the chart in advance, within which the crossing should be conducted.

Masters should plan the moments and the circumstances in which they need to be on the bridge well in advance (see CHIRP’s Suggestions, in the previous article).

Execution. When preparing to cross a TSS, think well ahead. Assess traffic in the lanes, and choose – if you can – a moment to cross where a gap is likely to open or where you are unlikely to create crossing situations with more than one ship at a time. Throughout use the Mark 1 eyeball, combined with compass assessments of bearing movement if compass azimuth rings are fitted. Use Automatic Radar Plotting Aid (ARPA) trial manoeuvre to help decide the moment of turn, if not clear by other means. Use relative tails to help quickly to confirm new
**CPAs after the turn.** Use Automatic Identification System (AIS) in which other ships’ course alterations can become apparent almost immediately, and in which track data can assist in the assessment of a ship’s destination and therefore probable intention. Beware bridge overload, especially in heavy shipping and complex situations. Both are almost certain to apply in TSSs. Brief and motivate lookouts, and bring an additional officer to the bridge if in doubt. Be conscious of the speed at which events can unfold. At 35 knots closing speed, two ships close by over 2 nautical miles in 4 minutes. Dangerous situations, increasing the risk of misjudgement or a mistaken understanding of another ship’s intentions, can develop very quickly.

The above article was published in MFB42

**Article. 23**

**The Perils in Traffic Separation Schemes (TSSs)**

What did the reporter tell us?

The reporter’s ship, while heading NE in the Westhinder TSS, experienced a tight closest point of approach (CPA) with another ship in the opposite lane that veered slowly onto the separation line, before turning slowly back to his own lane. This happened while the reporter’s ship was being overtaken on his port side by a third ship with which the SW-bound ship placed herself for a period on a steady bearing.

**Extracts from the information received by CHIRP**

At approaches to Westhinder, ship 2 in the sketch was observed in the SW lane off Westhinder light tower. Own vessel was proceeding in the opposite direction in NE lane, passing close to Bergues North buoy, being overtaken by a Ro-Ro ship (ship 3 in the sketch) on port quarter; (ship 2) was then observed turning slowly to port and crossing the dividing line into the NE lane with a CPA of 3 cables to own vessel and collision course with (ship 3 in the reporter’s sketch). I called on VHF 60, no answer ... eventually (place) approach contacted ship 2 on VHF16 asking what were his intentions and that VHF 60 must be monitored ... which then occurred, with (ship 2) turning back to starboard on the extreme edge of the separation scheme.

The reporter offered the view that ship 2 was not keeping a proper lookout, was not monitoring her position, and was in contravention of Rule 10 (TSSs). She also failed to respond on the VTS channel for that sector and placed own vessel and another in a potentially dangerous situation. He noted that the standard of English was poor in VHF communication, that he (the reporter) was tightly constrained to starboard by the Bergues North buoy, and that visibility was good.
**The lessons to be learnt**

We do not in this case have the identity of or comment from the third party (ship 2); so the exact circumstances onboard are a matter of conjecture. The most probable explanation of this event is a loss of concentration on the bridge. It is also possible, but there is no evidence, that a technical failure may have contributed: of automatic steering, or the steering gear itself for example.

A highly dangerous situation arose; had ship 2 progressed any further before her alteration back to starboard into the south west lane, she would have been at very close quarters with ship 3, and quite possibly in collision. We see again how quickly such a situation can develop, especially in dense shipping and constrained waters. The danger is further exacerbated when the constriction of a TSS brings – in this case three large vessels into close proximity with almost no sea room to spare: the "sandwich effect".

**CHIRP Suggests**

Traffic separation Collision Regulations (COLREGS). Ship 2 certainly contravened COLREG 10(b)ii ("... keep clear separation line") by encroaching on the separation line, and at least came close to contravening COLREG 10(b)I ("... general direction of traffic").

Other COLREGS. She also failed to take 'positive action in ample time', and was probably failing to keep a proper lookout. These failures may well have been exacerbated by overload, tiredness, distraction, undermanning, and/or failure to look up and out. Obviating these risks must be part of the passage planning process and supervision at the time.

Overtaking in a highly constrained part of a TSS or approaching a corner can be dangerous and reduces options. In this case the reporter's ship had no room to starboard as she approached the Bergues North buoy. Look and think ahead.

**Lessons to be learnt**

The report highlights the kind of relatively close quarters situations which may arise as ships shape courses for the entrances to TSSs. This process requires action in plenty of time, and a well considered assessment of other ships' intentions based on a good all-round lookout, so that – where other ships are present – an orderly separation of ships is already established before the scheme itself is entered.

The complication arises from what amounts to two simultaneous overtaking manoeuvres. The reporter is constrained to starboard, and will be for a long time as he gains less than half a mile per hour on the vessel on his starboard side. He could perhaps have minimised his constraints by instead 'slotting in' astern. 'The other ship' might have alleviated the reporter's concern by allowing more sea room, and could also have decelerated; we do not know how or if he was constrained to port.

**CHIRP Suggests**

Plan well ahead and keep a complete all round lookout when taking up position in an approach to a TSS; take account of the manoeuvring options of other ships. If overtaking, do it as quickly as possible. If sea room is at a premium, slow down and don't overtake. See 'The Perils in TSSs' (Maritime Feedback 42).

The above article was published in MFB 44

---

**A Potential Close Quarters Situation in the Approaches to the Cape Roca TSS**

**What a reporter told us**

A ship approaching a TSS, still at a distance of 12 nautical miles, is concerned by the actions of another vessel – on the reporter’s port quarter, probably overtaking – who is closing on a steady bearing. 'The other ship' alters to port at just under a mile, giving a CPA of 3 cables. The reporter who is himself overtaking another vessel on his starboard side with a speed advantage of 0.4 knots, slows down, and alters to starboard to open the CPA on 'the other ship', presumably under the stern of the one he was very slowly overtaking.

**Lessons to be learnt**

The report highlights the kind of relatively close quarters situations which may arise as ships shape courses for the entrances to TSSs. This process requires action in plenty of time, and a well considered assessment of other ships' intentions based on a good all-round lookout, so that – where other ships are present – an orderly separation of ships is already established before the scheme itself is entered.

The complication arises from what amounts to two simultaneous overtaking manoeuvres. The reporter is constrained to starboard, and will be for a long time as he gains less than half a mile per hour on the vessel on his starboard side. He could perhaps have minimised his constraints by instead 'slotting in' astern. 'The other ship' might have alleviated the reporter’s concern by allowing more sea room, and could also have decelerated; we do not know how or if he was constrained to port.

**CHIRP Suggests**

Plan well ahead and keep a complete all round lookout when taking up position in an approach to a TSS; take account of the manoeuvring options of other ships. If overtaking, do it as quickly as possible. If sea room is at a premium, slow down and don't overtake. See 'The Perils in TSSs' (Maritime Feedback 42).

The above article was published in MFB 44

---

**Close Encounter Crossing a Traffic Separation Scheme (TSS)**

A report of a near miss at a busy crossing section of a TSS, this includes an excellent response from the Third Party.

**What did the reporter tell us?**

Own vessel was proceeding in a lane of a Traffic Separation Scheme that was in close vicinity to a bank. A ferry was observed leaving Port A bound for Port B. Initially the closest position of approach (CPA) was 1.5 mile astern of me. At a range of about 4 miles he altered course 40 degrees to starboard, resulting in a CPA and bow crossing...
range of 0.2 miles. By the time the range was 3 miles, no attempt had been made to call me by VHF radio to advise his intentions. I called to ask for clarification of his intentions and was told he had altered course 40 degrees to starboard and wanted to pass ahead of me and that I was the give way vessel. I advised him that I could not alter to starboard as I was overtaking a small coaster doing about 8.5 knots and just 6 cables away on my starboard quarter; with no room to pass on the other side of the ferry due to the proximity of other vessels and transiting at a relatively slow speed.

He told me that I was the give way vessel, which is absolutely correct, and that I should slow down to let him pass ahead of me. This was at a range of 3 miles and he had made it into a close quarters situation by altering to starboard in the first place. Fortunately we were proceeding at slow speed around 10 knots and I was able to slow our ship down fairly quickly to allow a CPA and bow crossing range of 1 mile.

The lessons to be learnt

The reporter said, “Expect the unexpected!” This was an ill-advised manoeuvre at very close range, creating a close quarters situation when it was totally unnecessary. If he had maintained his initial course then a close quarters situation would have been avoided. This is a passenger ferry making a very dangerous and late manoeuvre.

Third party ship manager’s response:

Obviously our ferries have to cross the TSS as near as possible to right angles. That said, we do “shape-up” to avoid clusters of ships in the TSS, and this is normally done as soon as possible after leaving Port A so the other vessels have time to assess the intention of our vessel. However, that would not allow a 40-degree alteration to starboard to cross the TSS. The relevant extract of our company regulations state “When crossing ahead of another vessel, the bow crossing distance (BCD) is to be no less than 1.5 miles at all times unless navigational circumstances, such as concentrations of heavy traffic, prevent this safety margin from being achieved. BCD is the distance of own ship from the other vessel when crossing her projected heading line. The perception of the situation from the other ship’s bridge must be considered when assessing whether to pass ahead. It will be good practice to maintain a minimum CPA of 1.5 miles when crossing ahead of another vessel, particularly if it is a fast vessel. This will require a greater BCD than 1.5 miles.” I have reviewed now the Voyage Data Recorder (VDR) of this incident. I have also asked the senior Master to attend and reviewed this with him. I believe the report made from the reporter is accurate and our OOW could have made better decisions. The OOW on the ferry was faced with a number of vessels in the TSS lane and altered to starboard to head for a gap.

However by doing so he:

■ Gave way when he was the stand on vessel.
■ Ended up crossing the TSS at an angle.
■ Created another close quarters situation
■ Altered into the flood tide and so lost speed over the ground.

The OOW could have stood on and gone astern of the reporter’s vessel. This would have created another close quarters situation with a SW going vessel to the south, who would have then had to slow down or alter to starboard. However, this would have been preferable to the situation created. There were other learnings from the VDR which the senior Master is taking up with the bridge team. I apologise to the reporter and we will be addressing this and ensuring wider leanings from this. The OOW is hugely experienced having worked on this route for many, many years. Again there is a learning here that experience does not guarantee good decisions.

CHIRP Suggests

An excellent report and the response from the third party is an example of best practice and is to be congratulated. Their proactive use of VDR to investigate, follow up, and then use as a training tool is most commendable.

CHIRP thought there might be commercial and tidal implications that may have influenced the decision and the need to cross the TSS close to 90 degrees. CHIRP suggested employing better use of ‘Trial Manoeuvre’ exercises and perhaps the ferry OOW should have altered course to show the vessel a “green side light” and followed around the stern of the vessel.
**CHIRP** noted that Singapore since 2011 has advised that three all-round green lights in a vertical line should be displayed by vessels, to indicate their intention to cross the TSS. This signal will allow other vessels in the appropriate lanes to take actions if required and hence enhance navigational safety. The IMO Assembly Resolution agreed that this signal could be recognised. Discussion now concerns whether to insert a requirement into COLREGS Rule 10.

The above article was published in MFB45

**A General Comment on Traffic Separation Schemes**

The key message is: don’t become too ‘comfortable’ in TSSs. High densities of large, deep draught, heavy displacement ships – often at high speed, and often mixed with many other types of craft with differing manoeuvring characteristics – heightens the risk of collision. Things can change and develop fast. If, for example, we don’t notice an unexpected speed or course change almost immediately, collision can become inevitable or nearly inevitable very quickly and at considerable range. A VLCC may take 5 nautical miles to come to a dead stop, require 2 nautical miles each of advance and transfer for a significant turn, take 20 minutes or so to apply astern revolutions from service speed, and become almost entirely unmanoeuvrable once committed to a first major manoeuvre. Never relax vigilance.

The above article was published in MFB42

**Advisory Board Insight: Crossing Traffic Separation Scheme (TSS) Best Practice**

Safely crossing a congested TSS can be one of the most challenging navigational manoeuvres we undertake at sea. We all know that the COLREGS Rule 10 applies but experience has shown **CHIRP** the application of few underlying principles considerably reduces the stress of this evolution, improves safe passing distances and adds a layer of professionalism in the execution of safely crossing a TSS.

The following has drawn on a selection of professional mariners’ experiences and may be equally applied in all crossing TSS scenarios from the full routing, merging with a lane or indeed moving from one lane to cross another within the length of routing such as to a pilot station to maintain a booked ETA for example.

**The underlying principle**

Safely cross a TSS by anticipating timely crossing of a lane, matched to a predicted safe gap in traffic to ensure maximum bow crossing range (BCR) with opening bearings of oncoming traffic, leaving no doubt of intention and avoid a close quarters situation developing.

**Planning**

- Use the Automatic Rader Plotting Aid (ARPA) to plot ALL oncoming lane vessels you will need to cross a long distance ahead.
- Use the Time to Closest Point of Approach (TCPA) function to determine both yours and their ETA at the initial point of crossing at current speeds.
- Note that immediately recognised gaps in advance will change due to the differing speeds of the variety of oncoming traffic. Obvious gaps may disappear by the time you arrive and others open up. The biggest gap will be where the difference in TCPAs of oncoming traffic and your own vessel are GREATEST.
- The use of True Motion (TM) ARPA vectors assists greatly in anticipating TSS traffic movements.
- Use of Trial Manoeuvre function on the ARPA will assist you in identifying this safe BCR emerging gap in oncoming traffic in the lane.
- To allow the safest gap in TSS traffic for crossing then consider EARLY adjustment of own ship speed to enable timely arrival for the largest TSS gap in traffic to be created.

**Monitoring**

- If following a lane already and intending to cross the other slowly make your course towards the edge of the traffic separation zone on the nearest side to the other lane you intend to cross. Manage overtaking situations you are in to safely achieve it. This should mean any traffic overtaking your own ship at the point of crossing the TSS will always be on the far side of you and away from the start of your crossing turn.
- Monitor TCPAs of oncoming traffic in the opposite lane you will need to cross continually for predictability according to your plan. They can and will change if the other vessel acts differently than predicted and your TSS crossing plan may then have to change.
- Use Automatic Identification System (AIS) but with caution. The key vessels you will need to cross ahead of may be interrogated on AIS for destination and ETA. This will help you firm your crossing plan if it confirms what you predict and they are continuing within the
TSS. Beware oncoming vessels may also be wishing to exit the TSS at the same point you intend to such as to meet a pilot station and indeed “your” pilot station at a similar time. Thus timings will change and converging traffic will need to be identified early. Such AIS information may well be incorrect but it adds to your lookout and situational awareness.

**Execution**

- The best use of approach speed according to the planning phase is intended for the crossing turn to be executed in one seamless manoeuvre. It will be clear in intent to other traffic to achieve best safe BCR of oncoming traffic and put your vessel on a safe crossing ahead movement of bearing relative to the oncoming TSS traffic. As such, close quarters situations and Rule 10 concerns will be professionally avoided.

- When commencing your crossing turn...
  1. Make it EARLY and BOLD at the beginning to signal intent to oncoming traffic.
  2. Reduce the rate of turn to maintain control and closely follow the stern of the last vessel in the oncoming TSS lane that you intend to pass ASTERN of.
  3. Keep the stern of the vessel you are crossing behind, close on your bow, around one point or ten degrees in angle as you turn towards her but DO NOT allow your bow to cross her and confuse her with your intent.
  4. Follow the stern of the vessel you are passing behind in one large sweeping curve fine on the bow until you reach your right angle or ninety degrees ship’s head to that of the oncoming TSS traffic you intend to pass ahead of.
  5. Pass as close as is safe to the stern of the vessel you are passing behind to ensure maximum BCR of the vessel you are crossing ahead of... You will never collide with the vessel you are a passing behind even if close as they will be steaming directly away from you by this time. They will watch your manoeuvre clear in intent and know they are steaming away from you at all times as long as your bow does is not allowed to come too far in the turn as to be pointing towards or ahead of them.
  6. Closest behind the last means furthest ahead of the next.
  7. Merging with a lane still involves point of entry planning and timely arrival will ensure best BCR even if this manoeuvre involves safer turning way. The broad sweeping turn in this case to follow the stern of the vessel going ahead of you to show your intent to the crossing vessel on your bow that will then follow you up the routing.

**Completion**

- A point of caution on exiting a TSS to a nearby pilot station. To pick up a pilot may most likely need a reduction in speed. If there are delays at the pilot station there may be queued pilot boarding traffic and being at the back of that queue could mean your position being backed up into the TSS. If so ensure your clear the TSS lane and wait in a safe vicinity near the pilot boarding ground.

- If crossing both TSS lanes to move from one side of the scheme to the other you will need to do all of the above TWICE in relatively quick succession... As such the look ahead planning and monitoring is doubly critical.

**Finally ... Timing and speed**

- Remember timing is key to making all the above happen at the safest BCR opportunity. We create that timing by early adjustment of safe speed for the safest time and point of crossing matched to the optimum gap in traffic. The speed needs to be slow enough to match the timely arrival but then fast enough to cross the TSS quickly and effectively. Plan to arrive slowly to give your plan flexibility and adjustment then cross quickly if possible to be effective. Mindful you may then need to slow again immediately on TSS exit or to merge with other TSS traffic at then similar speeds and find a safe "slot" to follow others in the lane at similar speed avoiding any early overtaking traffic or navigation “squeeze” until the safety of that next manoeuvre has been fully assessed.

**Conclusion**

Safely crossing a congested TSS is all about timing... Planning ahead... Monitoring continually... Adjusting speed to match... One clear safe alteration of course signalling clear intent on an opening bearing from you and crossing ahead bearings from other traffic... Maintaining the maximum BCR by following tight around the stern of the vessel you are passing behind. Be aware other vessels may well be altering course unpredictably... just as you will be to them! Keep alterations of course to the minimum to make your intentions clear and all this follows from
preparatory best use of speed... Planning, Timing, Monitoring for changes, a single bold Alteration to show intent and achieve best BCR the outcome desired. In one word... Speed... Get that right and it all goes very well. If you are at the wrong speed at the wrong time you only have emergency close quarters alteration of course left and the middle of a congested TSS is an awful place to be doing round turns whilst shouting over the VHF and spilling one's tea.
This section contains some classic examples of COLREGS-RELATED incidents, plus some fresh cases involving ECDIS. It ranges widely, from a ship being overtaken from dead astern by a vessel that did not make its intentions clear, to a crossing situation where vessels disagreed over what constituted a safe passing distance. A near miss between a yacht and a merchant ship sheds light on the difficulty of detecting the lights of a sailing vessel at night, while a ship at anchor does not notice it is dragging despite two radar alarms. That ship deliberately immobilised its engines despite being anchored in a strong current, and the engineers were reluctant to use them because they had not been properly warmed through. Readers can ponder that old conundrum – is it better to decide against using the engines and risk damaging the ship in a collision, or risk damaging the engines to avert the collision? Sometimes, the correct answer only becomes apparent with the benefit of hindsight.

There are also two cases where ECDIS features prominently. They raise the familiar topics of training and familiarisation, and the different types of display that can be selected. One case features a navigator who wanted to sail through the Nab Tower and underlines the importance of proper passage planning and the need for careful checking by senior officers.

Finally, we include another very useful MAB Insight piece about manoeuvring in a seaway. It covers several of the points that have emerged in our two sections about COLREGS, and should be carefully studied by all deck officers, DPAs etc.
Article 27

Overtaking

What did the reporters tell us?
The reporter’s ship, a VLCC, sights an overtaking vessel astern at 3 nm closing on an apparent collision course in open sea. VHF calls elicit no response. The other vessel makes a small alteration to port and eventually passes the VLCC at a range of 5 cables, having crossed her stern.

Extracts from the information passed to CHIRP. ‘The (other) vessel was overtaking at a speed of 18.7 knots (own ship 11.1 knots) and appeared to be heading directly for my own vessel’s accommodation block. At this point, (the other ship) was approximately 3 miles away. Attempts to contact (the other ship) to ask for their intentions were met with no response. We engaged hand steering and put the second steering motor on in preparation for any required action on our part. (The other ship) was then observed to make a small course alteration to port, meaning she would pass close astern. Final CPA was 5 cables, which in open sea is both dangerous and unacceptable’.

The lessons to be learnt
A burdened vessel (in terms of the COLREGS) fails to make her intentions clear, thus introducing doubt into the minds of those on the other bridge. Though the use of VHF radio is not generally recommended in collision avoidance, the fact that the reporter’s VHF radio communication call went unanswered would have added further concern. Such doubt entered the mind of the ship being overtaken that she took steps to be ready for an emergency manoeuvre.

Safe distance. The overtaking Rule (13) requires the overtaking ship to ‘keep out of the way’. Even the passing distance (after course alteration) of 5 cables understandably seems too close to the reporter. This is often a matter of judgement and experience; a more objective way to think about it is to visualise what would happen if either ship had a machinery or steering breakdown. Would a close quarters situation be avoided by virtue of distance? If not, the CPA is too close.

It is usually bad practice, when overtaking another ship, to approach her from dead astern, if only because this may put the overtaker in the other’s ‘blind arc’. Again – always think: ‘what if I/she had a machinery breakdown?’ A CHIRP Maritime Advisory Board member, when reviewing this case, recalled an occasion at sea when a ship ahead experienced propulsion failure. Our expert altered course, overtook, slotted in ahead. His own ship then suffered a mechanical breakdown.

In this example it is not impossible that both ships were heading for the same waypoint, or converging on a likely point of shipping concentration. If so the overtaker should have been aware of the fact, and doubly alert. ‘Red-line-itis’ may also have been in play: ‘follow the planned track regardless’. Likewise dependence on bridge electronics may have dulled the judgement of CPA which would have resulted from visual assessment.

CHIRP Suggests
Don’t approach from dead astern when overtaking. Make your intentions clear in plenty of time. Avoid introducing doubt. Allow ample room. What would happen if either ship experienced a steering or propulsion breakdown? If a close quarters situation is the answer, too little room has been allowed. Keep a good lookout all round, including astern, and be aware of blind arcs. Monitor all vessels, especially those whose intentions are unclear.

The above article was published in MFB42

Article 28

A Crossing Situation – Collision Avoidance

A container vessel reported failure of a give way passenger ship – on the reporter’s port bow with a closest point of approach (CPA) ‘close’ on the starboard bow – to alter course to starboard for him when requested. A VHF exchange showed that the passenger ship considered the CPA safe. The reporter (having maintained course and speed) remained concerned, made a 360 degrees turn to starboard, and continued on his track, passing under the stern of the other vessel.
What did the reporter tell us?
The reporter considered that the passenger ship’s crossing ahead distance around 2 nautical miles and CPA around 1 nautical mile were too small; this is shown on the automatic radar plotting aid (ARPA) screen shot below. It depicts true vectors in this case.

VHF communications were promptly established. The exchange may be summarised as follows: reporter – “What are your intentions”; passenger ship: “I will maintain my course and speed”; “CPA less than 1nm … you are in breach of COLREG 15; advise you pass astern”; “negative … CPA more than 1nm; there is no risk of collision”.

ARPA screen shot shows true vectors

What did the passenger ship’s company tell us?
Company orders in the past have dictated a minimum CPA of 2 nautical miles ‘when reasonable and practical’. This stipulation has changed; the decision is now left to individual Masters. In this case the Master considered the situation safe, and stood on. Others might have acted differently.

Lessons to be learnt
Were the crossing and CPA distances acceptable?
It is proper that judgment ultimately lies with ships’ Masters given all the circumstances. That said, a minimum 2 nautical miles CPA in open water is widely accepted as good practice. In this case, with a crossing range ahead of 2 nautical miles, the CPA on the starboard bow of the stand-on vessel was bound to be around 1 nautical mile. The stand-on vessel had every right to express concern; in this event, it was incumbent on the other to act accordingly and to give way, even if she considered the stand-on CPA safe. This action would also have been consistent with traditional good manners and respect between seafarers.

A crucial principle is to think from the point of view of the other ship, especially if she is larger or more burdened. If she is concerned, doubt exists; **doubt = danger**. Mariners should also always consider how the position might look in the event of a machinery or steering gear breakdown, and stopping distances in such a case. From 1 nautical mile, very close quarters situations can develop very quickly.

Were the actions of the stand-on (reporter’s) vessel correct?
The reporter considered a risk of collision to exist; he was well within his rights to do so. COLREG 7 is quite clear: **“If there is any doubt such risk (of collision) will be deemed to exist”**.

In principle he could have slowed down, or he could have turned to port once the other vessel was across his bow (at which point a crossing situation would have no longer existed). What he could not have made is a turn to port before that time. In this circumstance a 360° turn to starboard is reasonable as an action of last resort. However caution is essential. Below a certain range, the manoeuvre can become dangerous. It must also take full account of all other vessels in the vicinity, including those astern and on either side, especially in constrained waters such as TSSs; situational awareness and orientation (in other words an alert all-round lookout) are therefore vital in such circumstances.

Notwithstanding these cautions, no criticism of the reporter is implied in this case; when the circumstances are suitable, a 360° turn can be safe, as in this instance; valuable time can be bought.

**CHIRP Suggests**

“If there is doubt, a risk of collision exists”. Thus it is incumbent on a ‘give-way’ vessel (and also a matter of good manners) in a crossing situation to alter if the stand-on vessel expresses concern. Doubt is always accompanied by danger and risk of miscalculation. Avoid use of VHF if possible; it can be a distraction from the correct actions when time is tight. Think from the point of view of the other ship; what may seem safe and reasonable to one may not from the other’s bridge. **Maintain the habit of constant ‘what if-ing’: “what if my steering gear failed now”**?

The above article was published in MFB 43
**Article. 29**

**A Very Near Miss Between a Yacht and a Merchant Ship**

A yacht at night under sail in light winds with a defective engine experienced a dangerous closest point of approach (CPA) with a merchant vessel. Several issues relating to application of the Collision Regulations (COLREGs) and interaction between large vessels and smaller pleasure craft come to light.

What did the reporters tell us?

A catamaran of some 33 feet was heading north-west for the Scilly Isles at night, making about 2 knots. Visibility was good, the sea state minimal, the yacht’s lights ‘burning brightly’; it was night. The yacht encountered traffic heading south for the Ushant traffic separation scheme (TSS), passing several ships without difficulty. He then observed a ship on his starboard bow, showing him a red navigation light, on a steady bearing by compass. His receive-only AIS system gave the CPA as zero in 6 minutes. A VHF call elicited no response. He shone a bright torch on his sail, slowed his boat, and altered to starboard (head to wind). The ship passed so close that he could – in his words – “feel the spray from his propeller as he passed”. A VHF exchange then occurred; the other vessel stated he had not seen the yacht’s light, and that the yacht had not been seen on radar.

What did the merchant ship’s company tell us?

The company carried out a detailed investigation which was shared with CHIRP. Key observations include the following: that the ship denied they had received a DSC call; and that the ship’s two watch keepers did not see any lights until sighting a red light at about 2 cables when the yacht was already abaft the port beam and drawing left. This was at about the same time as the VHF exchange between the two vessels took place. The company denied any failure of watch keeping, and pointed to some discrepancy in the positions reported (as evidenced by an ECDIS/ARPA screen shot).

The lessons to be learnt

COLREGs. The merchant ship did not detect the yacht. The reporter stated “I should have anticipated his lack of response earlier”; CHIRP agrees. As soon as it becomes apparent onboard a stand-on vessel that a give-way vessel ‘is not taking appropriate action in compliance with the COLREGs’, she is empowered to take the necessary avoiding action, as always ‘positive and ample’. The yacht’s manoeuvrability was very limited. An early action to put the ship on her port bow would have removed the existing danger. Ushant is a notoriously dangerous crossing point; it would have been prudent for the yacht to have her engine available, especially in light airs.

The detectability of yachts. We imply no criticism of the reporter in emphasising that many factors may make a yacht difficult to detect from the bridge of a ship which may also have to take action to manoeuvre while still at considerable distance. Many passive reflectors produce a poor return even in good conditions. The yacht’s lights may be relatively dim, appear intermittent, and be indistinct against background lights. The tricolour at the masthead, normally used when yachts are under sail, may be only intermittently visible by virtue of lower brightness and/or the violent swinging motion of the masthead which may easily travel through 60 degrees athwartships and 40 degrees fore and aft in a seaway. The diagram below demonstrates this.

![The risk of not seeing a yacht’s lights in a seaway](image)

Grateful thanks to Captain Dennis Barber (member, CHIRP Maritime Advisory Board) for this diagram.

In such conditions, yacht lights can appear as flashes on the bridge of a ship, and therefore be easily missed; they may also, given relative heights, be seen from a bridge at horizon level, giving the impression of a vessel at considerable distance. When suddenly the bearing and position of such a light starts to move rapidly, it is likely to be far too late to take evasive action.

The picture from the bridge of a ship. We imply no criticism of the ship in this case in stressing the need for an alert visual lookout. There have been cases where bright instrument lights at the front of bridges, together with an array of technical information sources, can distract the OOW from this primary duty. If, for example, it becomes a habit to rely on AIS to detect vessels and assess CPAs, by definition smaller vessels not obliged to carry AIS transmitters will not be detected.

The reporter has decided to fit a transmit and receive AIS system. This may be becoming an increasingly wise step to take, especially in busy shipping areas.

The use of radio/AIS. The UK Maritime and Coastguard Agency (MCA) provides clear operational guidance on the use of VHF radio and AIS at sea.

The two key points are: (1) although the use of VHF radio may be justified on occasion as a collision...
avoidance aid, the provisions of the COLREGs should remain uppermost (see the next article); and (2) there is no provision in the COLREGs for the use of AIS information; decisions should therefore be based primarily on visual and/or radar information.

CHIRP Suggests
A yacht may be very hard to detect at night and in bad weather; if in doubt, assume you haven’t been. Fit high power (e.g. LED) lighting conforming to COLREG stipulations where you can, consider burning normal navigation lights in place of the masthead tricolour, and take positive and ample measures in good time to avoid collision in accordance with the COLREGs if the need becomes obvious. If illuminating a sail, continue (if possible) for an extended period. Passive radar reflectors are unreliable; yachts should consider fitting active reflectors. In ships, remember there are vessels at sea which are not required to transmit AIS data, even if they can receive. In any event collision avoidance decisions should be based primarily on visual and/or radar information. All vessels should avoid buying up precious time communicating (or trying to do so) on VHF.

The above article was published in MFB44

Article. 30

Collision Due to Dragging Anchor
A vessel engaged in cargo operations with a barge, dragged anchor and collided with another vessel that was anchored astern.

What did the reporter tell us?
Vessel arrived and dropped anchor at Chittagong Roads for cargo operations. The Master, after assessing one tidal change, allowed the engine room to commence depressurising the boiler for survey. The boiler economiser door was opened, the main engine jacket pump was stopped and the valves for the jacket water were closed. During the night the Master relieved the 3rd Officer from anchor watch on the bridge as he was called to resolve a grab issue on deck.

The vessel started dragging anchor and this went unnoticed. There was an anchor watch alarm on the radar and this was acknowledged but not acted upon. Five minutes later the anchor watch alarm on the 2nd radar sounded and was acknowledged but again not acted upon. The Master was preoccupied with the grab issues and at this time the vessel had a stern speed of 0.9 knots. Shortly thereafter, the 2nd and 3rd officers came on the bridge to discuss the grab issues with the Master and there was no effective anchor watch in place, as all were engrossed in the grab issue.

At 0027LT, the ship that was anchored right astern, called own vessel on VHF radio, which was not answered. Subsequently there were calls from a 3rd ship to another vessel and a blowing of the whistle. When the Master heard the whistle he realised that his ship was dragging its anchor. By this time own vessel had a sternway of 1 knot and distance to the ship astern was 2 cables. The Master asked the vessel astern to move away, as own ship was having engine problems, which was refused. The main engine was used to make headway, but did not get sufficient rpm. The port anchor was dropped to arrest the drag but this was unsuccessful, so the port anchor was picked up. Vessel continued to use the engine, though at lower rpm and commenced to pick up the starboard anchor with 7 shackles in the water. Once the starboard anchor was aweigh, the stern speed increased but the engine rpm could not be increased sufficiently to arrest the sternway, resulting in own vessel’s starboard lifeboat deck area coming into contact with the other vessel.

The lessons to be learnt
Reporter’s suggestions to prevent similar incidents
Proper anchor watch must be maintained at all times, whilst vessel is at anchorage.

Main engine shall be kept on immediate readiness in crowded anchorages, or in anchorages where dragging is possible due to the nature of the bottom, the current, topography, etc.

If there is a need to immobilise the engines, a thorough risk assessment must be carried out, giving due consideration to prevailing circumstances and ships in the vicinity.

CHIRP Suggests
See Notice to Mariners advice on anchorage at the Port of Chittagong, whereby the ship’s engines are to be kept on standby at all times.

See also GARD P&I Club advice: http://www.gard.no/Content/20724691/Gard20Alert_Chittagong.pdf.

The above article was published in MFB45

Article. 31

The Control, Management and Use of ECDIS Systems in Ships
This article addresses aspects of the use of ECDIS in ships, drawing on a report about confusion between chart variants within a single ship’s system, brought to light when passage planning.
What did the reporters tell us?
During preparation of a passage plan for a forthcoming voyage, it was observed that one chart did not show all the information that had been seen when passing through the Suez Canal previously. There emerged considerable confusion on the source, date and identity of the right chart within the ship’s system. Space prevents detailed coverage. Eventually the correct electronic chart was identified by the ship’s provider, and supplied.

Lessons to be learnt
This article acknowledges and draws on the UK Nautical Institute’s "The Navigator" Issue 5, 2014, titled ECDIS.

Electronic Chart Display and Information Systems (ECDIS) are now widespread, but not yet universal. Younger seafarers might take them in their stride; older ones may feel discomforted without paper charts which they know from long experience they can interpret at a glance.

Standards and training. This article exclusively addresses IMO approved ECDIS. There are other less capable and unlicensed Electronic Chart Systems (ECS) which should not be used. In 2014, according to The Navigator (Issue 5), there were over 30 ECDIS manufacturers in operation. Their systems are far from standardised. This implies a major familiarisation task for navigators and Masters who may alternate relatively rapidly between different systems. A considerable number of accidents or near misses have been found to result from misuse of ECDIS, rather than from design failures. High quality training, meeting the requirements of the IMO model course, is essential. So is structured familiarisation with the capabilities and limitations of individual systems, accompanied by constant practice. The uses of ECDIS include active navigation (with or without automated satellite positioning input), pilotage planning and execution, and passage planning.

Passage planning. Failures in the past have resulted from errors such as the incorrect application of safety depths, safety contours, or alarms. Vessels’ data (especially draught) may have also been incorrectly entered, and automatic route check facilities may not have been used. Failure to check that charts are up to date, possibly through lack of familiarity with the automatic or manual correction procedures, presents serious risk, as it always has in the past. Passage planning should also be carried out on charts at scales which allow identification of the necessary levels of detail. Final visual checks along the whole of the tracks before voyages are essential, on the lookout for obstructions, shallows, traffic management systems and the like. In addition broader checks along tracks designed to identify areas of high shipping density or strong tidal streams for example (cases which may not be immediately apparent from the automated information) should also be made. The whole should then be briefed.
Increasingly, chart supply companies offer proprietary Back of Bridge Passage Planners to plan routes, and manage chart orders to cover these. The Appraisal, Planning, Execution, Monitoring (APEM) model (IMO Resolution A.893(21)), guidance on use of ECDIS (NP232) which adds a specific Review step to give APEM, and NP231 (electronic navigational charts – ENC) are essential reading. The appraisal phase should ensure that both the Planning Station and the ECDIS are updated to the latest catalogue provided by the chart supplier, while ensuring that the latest ENC updates are available.

For such a change to charting as identified in this case, UKHO Notice to Mariners (NtM) would inform users that the GB cells covering the Suez Canal were being cancelled and that they were to be replaced with Egyptian cells. This gives the mariner the advanced notice needed to remove superseded cells from ECDIS, and to order the necessary replacements when required for planning. Thus taut configuration control can be maintained. Less obvious to the modern ECDIS navigator might be the requirement for all transiting vessels to carry Egyptian issued paper charts for the Suez Canal, even if they are a fully digital navigation platform. Assessing all information here would include reading the latest SCA navigation circulars, where this information would be available, as well as NtM Section VIII for withdrawn and cancelled ENCs.

Active navigation, including pilotage. Many of the comments on ‘passage planning’ apply. It is well known that too small a chart scale may conceal crucial information including shoal depths and routing information. Both visual and radar fixes can be plotted on ECDIS charts in ways analogous to the paper method, and as quickly; but only – as in everything – with practice. It is essential – when conditions are benign – to practise the old skills as applicable to ECDIS. One day they will be needed, almost invariably in testing circumstances. Finally, use all equipment in the role that each piece is designed; for example an ECDIS display with an AIS overlay is not designed for collision avoidance.

The old and the new. Many of today’s potential electronic errors are just the current versions of the ones we knew with paper charts. For example, the correctly scaled and corrected charts were always crucial. Nowadays a generation of navigators used to Google maps may be tempted to unquestioning belief in the infallibility of information on screens, especially on bridges equipped with more automated information than ever before. This would be a grave mistake. On the other hand, younger practitioners can help older ones to learn and trust the new systems.

A fundamental principle of all aspects of navigation has always been the double-check; an inalienable instinct to question and to use all sources of information available. Does the depth tie in with the chart, and with the ECDIS position, and with radar information and with the ship’s estimated position, for example? If the answer is yes, all is likely to be well; if not, something is likely to be wrong. Always clarify what that ‘something’ is, slowing down, stopping or re-checking as appropriate.

Finally we must in 2016 confront the cyber threat; by no means is the maritime environment exempt. GPS signals can be corrupted, and ECDIS systems can be subjected to attack. This puts a double premium on the double-check.

See an article by Andy Norris in Digital Ship that develops this topic: http://www.thedigitalship.com/com.

No one wants to run his ship aground through the unseen insertion of malware, when a second glance out of the window would have put him right.

CHIRP Suggests

Training, familiarisation and practice are crucial. Take time to read and understand instructions and advice (see some of the sources listed above). Know your equipment. ECDIS displays don’t necessarily have to have a GPS input; they can be used exactly as paper charts have been, if necessary. The principles of safe navigation haven’t changed; just the means by which some of our information is displayed. Don’t trust automated displays, without a healthy instinct to cross-check. Remember the age old, gilt-edged, adage: “use all sources, and double check everything”. Keep on top of your configuration control.

The above article was published in MFB44 Article 32

You Won’t Nab this Pilot

When the pilot boarded the 200 metres long crude oil carrier, which was inward bound into the Eastern Solent waters, he was more than a little surprised that the
passage plan approved by the Master (and clear to see on ECDIS) showed the course passing directly over the Nab Tower, which is clearly marked on the chart.

CHIRP Suggests
This is a good example of why some ports have compulsory pilotage and shows the benefits of agreeing the passage plan between the pilot and the Master.

For more information on ECDIS near misses please read CHIRP Maritime FEEDBACK 44.

There was an apparent failure of the Safety Management System and its implementation on board. Every passage plan should be checked, agreed by the Master and then signed off by all of the navigation officers. In this case this clearly did not happen.

The above article was published in MFB45

Article. 33
Advisory Board Insight – Manoeuvring Issues in a Seaway

A number of reports have reached CHIRP that have been so similar in their outlines that the suspicion is that watch officers are reaching conclusions about the circumstances that have been wrong and have resulted in closer encounters than would normally be considered acceptable, hence the scenarios finding their way to the CHIRP Marine Advisory Board. All such incidents are followed up and usually explanations are provided that then reveal viewpoints of the different parties. Sometimes this requires further clarification but usually a number of conclusions can be reached at this relatively early stage. The number of reports received that display similar strategies however has prompted this article, in the hope that lessons may be learned by as wide an audience as possible.

Some typical scenarios are:
- Slow moving, usually very large and encumbered vessels being overtaken by faster, often similarly sized vessels;
- As above but further encumbered by draught restrictions and routing constraints;
- Vessels of any size being overtaken by others of any size but being exposed to potential collision by the lack of appropriate action by the overtaking vessel;
- Multiple vessel situations where overtaking and/or crossing vessels take inappropriate actions; and
- Manoeuvres that pass too close to the other vessel.

The link between all of the above is the development from a normal and relatively harmless situation to one that has become critical, which often requires action to avoid collision of not only the give way vessel but also that which is required initially to stand on.

The scenarios that are described below are fictitious but are built on real reports. The situations are deliberately anonymised but it is hoped will be sufficiently familiar to mariners to enable them to apply the principles discussed to their own situations.

Figure 1 is included to assist in the description. It is not to scale and is completely fictitious whilst representing reported events. The shaded areas depicted are the manoeuvring domains of the vessels, a concept that is explained later in the article.
**Scenario 1: Overtaking**

Vessel A – a VLCC or Cape Size bulk carrier proceeding at around 12 knots in or approaching a routing system and/or a deep draught restricted channel; being overtaken by Vessel B – a medium sized or large container vessel proceeding at 20 knots overtaking Vessel A.

The large differential between the two vessels’ speeds means that this scenario can develop very quickly.

Besides being the stand on vessel the large vessel A is encumbered by its speed, its draught and the need to maintain sufficient under-keel clearance. Its large displacement also causes a sizeable delay on any manoeuvring, especially since the ratio of engine power to displacement is likely to be much smaller in A than it is in B.

The overtaking vessel could also be encumbered by draught although it is unlikely to be as critical as it is for A.

It follows that apart from the right to stand on provided in Rule 13(a), A should not be relied upon to take rapid avoiding action.

It is often reported that B makes an alteration of course to port to leave A on the starboard side. The two vessels then very quickly draw level but then they are often navigating in disconcertingly close proximity. The large differential of speed rapidly causes B to draw ahead but it is also possible that the two large hulls might be close enough to experience hydrodynamic interaction. It is suspected that this may be the reality where reports of “aggressive” actions by vessels in this situation have been submitted. Interaction can become dangerous in that the effect of the rudder is increasingly nullified and can ultimately be lost completely with consequential loss of control, usually of the faster vessel, followed by the drawing together of the hulls into a collision.

The ongoing situation however also presents problems as the overtaking vessel, which remains responsible for
keeping out of the way “until finally past and clear” – Rule 13(d) – may meet further situations ahead that require action, represented in Figure 1 by crossing vessels C, D and E. The normal avoiding action for B of turning to starboard has been blocked by the presence of A and a dangerous situation can very rapidly develop.

**Scenario 2:**

Overtaking as above but A and B may be any size and the location need not be in traffic routing of any description. Vessel B follows close astern of A and passes close.

A number of traffic surveys by radar and AIS have shown that this situation can often occur. B is following A and closing. The two vessels however are following course lines that are virtually identical but B continues to follow A right astern. The speed differentials between A and B are such that B is overtaking A.

If the distance between A and B continues to close, the risk of collision escalates in inverse proportion to that distance.

If A is keeping a lookout around the full 360°, as would be correct, the closing of B may cause concern. If A stopped for any reason – such stoppages do occur – the closing speed between A and B would significantly increase and B would be left with less time to take appropriate avoiding action.

Reports suggest that B often leaves any action until very late, causing extreme discomfort and even alarm to A, which may be much less able to take action due to manoeuvring encumbrance (see Scenario 1).

The reasons for the identical course line could be various but there is suspicion that increased accuracy of GPS positioning coupled with following tracks based on waypoints that tend to be universally used (e.g. WP A in Figure 1), often places vessels in coinciding positions. This occurs more often than it would have done when the COLREGS were last revised before the introduction of high accuracy position fixing systems such as GPS. The ability of some auto pilots to steer on an input from GPS as an alternative to a compass is another possible factor. Further danger may occur when the autopilot is enabled to alter course independent of human involvement.

**Manoeuvring Domains**

In Figure 1 the vessels depicted are within a shaded zone. This zone is the manoeuvring domain. It represents the boundary of the minimum area within which a vessel can forestall its continued progress. The dimensions of the vessel’s turning circles to port and starboard determine the domain’s width. The domain’s length ahead is determined by the distance a vessel will progress after initiating a crash stop (Full Astern from normal sea speed). The zone either side ahead is determined by extreme rudder movements in combination with controls on engine movements that could also bring the vessel to a standstill.

Whilst some of these measurements are available from trials data it also follows that, particularly for very large vessels, the differences between their loaded and ballast conditions could give them very different manoeuvring characteristics for each of the different conditions. It should also be noted that for single (fixed pitch, right handed) screw vessels (e.g. the most commonly found and represented by A in Figure 1) the forward lobe of the domain will be biased to starboard whilst for a twin screw vessel it will be symmetrical (e.g. B, C, D and E in Figure 1). In right handed, single screw controllable pitch equipped vessels the zone will be biased to port as it would be for a vessel equipped with a fixed pitch left handed propeller. Mariners should always seek to maintain distances from other vessels that prevent these domains from crossing. If such crossing of domains does occur, avoidance options available to mariners rapidly diminish.

**Issues raised**

Evidence suggests that vessels are increasingly navigating between commonly used waypoints. Rigid adherence to the course line exacerbates the increased potential for collision that this “waypoint convergence” creates.

In congested and/or restricted waters vessels should be switched to hand steering. Auto-pilots should be disengaged from any GPS input for steering and should never be permitted to automatically alter course without the direct intervention of the responsible officer of the watch (OOW). Such devices are there to control the vessel in uncongested waters but even there OOWs should remember that the auto-pilot does not possess any lookout function.

In congested waters Masters should be mindful of increased workloads on OOWs as well as possible lack of experience and should ensure that their attendance on the bridge is available whenever such circumstances arise. For their part, OOWs should remember that their authority is delegated to them by the Master. He (she) remains ultimately responsible for their actions and should be called in good time to offer advice or take full control in the event that the situation is becoming too complex for the OOW alone.
OOWs on vessels required to give way should bear in mind that encounters may become more complex. Planning well ahead of the anticipated areas of interception should be considered together with the likely behaviour of vessels to be encountered well before an avoidance manoeuvre is initiated.

Masters and OOWs should be aware of the approximate manoeuvring domain, not only of their own vessel, but for other vessels in an encounter. Such dimensions can only be an estimate but navigating officers should be urged to learn the different variations. Opportunities to do this could be during their training when they could serve on a variety of vessel types or whilst at college, by comparison with other officers from different service experience.

When overtaking the relative overtaking speed between each vessel directly relates to the time and distance it will take for the overtaking vessel to move from safe position astern to a safe position ahead. When passing within a TSS lane or any confined waters the timing between starting and completing the overtaking manoeuvre MUST be carefully considered so that it falls entirely within a straight and clear section of water and be unencumbered by restricted sections or intermediate alterations of course. Within a TSS a typical section would be between the buoys marking the next leg of the navigational passage. A constriction of searoom whilst overtaking must be avoided. This especially so as to avoid overtaking and simultaneously altering course on a navigational leg at the same. Such overtaking and altering course around buoys creates a "sandwich" effect where the vessels have to calculate the time their commencing of turn for navigational purposes and also be restricted by close proximity to another vessel and the risk of collision. Only overtake when you can be past and clear before the next navigational alteration of course on a straight leg. If the relatively low overtaking speed does not permit this to be achieved then the safe option is to slow down a little, match the speed of the vessel previously being overtaken and to remain on their quarter all the way up the routing. The little time lost is not worth the considerably increased risk of prolonged overtaking and foreseeable constriction of searoom when it will be need most to maintain a safe CPA.

Whilst it is recognised that extreme movements on large engines can be damaging and therefore are likely to be discouraged, the Colregs do still include slowing and stopping as alternatives to course alterations. In areas of high congestion engines should be in a state of readiness that can respond to slowing and stopping movements.

Overtaking vessels should offset their course, preferably to pass on the starboard side of vessels they are overtaking (leaving the overtaken vessel to port) and should avoid following directly astern.

VHF and Colregs

Many reports are received at CHIRP that refer to VHF conversations between vessels during manoeuvres to avoid collision. The collision regulations are written to enable actions to be decided based upon the behaviour of vessels approaching one another and the ascertainment of a collision risk. There is very little provision for communication between vessels during these manoeuvres. It is restricted to sound signals, which most mariners of large powered vessels would recognise are of little use in open waters, especially with noise interference from large fans or funnels close to the bridge. Light signals however, are permissible in similar form to the sound signals i.e:

- one short or morse "E" - I am turning to starboard;
- two short or morse "I" – I am turning to port; and
- three short or morse "S" – My engines are going astern.

VHF is not mentioned and neither is AIS. The important points to remember are:

- Identification of vessels may be difficult to match between the VHF and visual and/or radar targets and mistaken identity is possible;
- AIS provides some measure of identification and also heading and destination information that can be helpful in advance planning but it involves time that can be better spent conducting manoeuvres; and
- VHF exchanges, if conducted properly, use up considerable valuable time that close to a manoeuvre would be better invested in the action of manoeuvring itself.

It is a fact that accident investigators often use the expression "VHF Assisted Collision" in similar fashion to "Radar Assisted Collision". Both expressions, whilst conveying a meaning that is understood by professional mariners, are inaccurate as it is the action of the operator not the equipment itself that causes the error.

Maintaining appropriate Closest Point of Approach (CPA)s

A minimum 2 miles CPA is best practice for all vessel sizes in open water. Where this is to be achieved in a fine crossing ahead scenario the minimum safe Bow Crossing Range (BCR) would be in fact TWICE that... If one vessel indicates discomfort as to what distance constitutes
minimum safe CPA it is incumbent on the other to act accordingly and to give way if they are the give way vessel, EVEN IF THEY CONSIDER SUCH A DISTANCE TO BE SAFE FOR THEM TO STAND ON.

**Round turns**

Round turns to avoid collision are not specifically prescribed in the COLREGS in action to avoid to collision. They may however be effective as an action of last resort. Caution needs to be taken however. A large vessel making way ahead with pivot point in a turn forward will always put her stern closer to the vessel she is turning away from rather than her bow. Inevitably the CPA will therefore always therefore be closer than the original ARPA prediction, especially in all aft vessels where the radar is mounted on her mainmast as with most vessels. This manoeuvre always puts the ship’s engine room and her most vulnerable part closest to the vessel she is turning hard away from. This is especially so at close range when the hard over round turn is an action of last resort. The manoeuvre also reverses the course which may have implications with vessels astern, such as in a TSS, that may well be at short and now rapidly closing range. The transfer distance in a reciprocal course turn will be high and may therefore impinge in TSS boundaries if applicable. A round turn is therefore a single last resort decision... It may well be a sound decision with no other option... However the decision will always be subsequently scrutinised and the question ask as to what else could have been done sooner.

We have all done round turns ... Our professionalism will always question what we may have otherwise done beforehand to avoid having it as the only option left. Experience tells us when you need to do one it is always means being closer to another vessel than we would have ideally wished... However when the circumstances are suitable, and it is safe to do so for buying valuable time and distance in a close quarters situation, it can be a valuable manoeuvre well undertaken.
In the first case opposite we learn about blocked fire suppressant pipes, which were fortunately discovered before they could contribute to a disaster. This is a clear example of how a CHIRP report can be used to educate other mariners so they can take preventative action on their own vessels.

In another case we learn how modern engines can delay the application of astern power, and how emergencies can be exacerbated by poor design. Bad design also features in a report about pilot boarding arrangements and the position of lights. Many of these problems would be avoided if owners arranged for experienced mariners to be involved during plan approval and at every stage of construction so that new vessels are delivered fit for purpose.

In our opinion it is high time that the people who are expected to sail on ships and make them work efficiently should be given more say in their design and construction – it costs money, but the cost is insignificant compared to the long-term benefits.

Pipeline pressure surges on oil tankers are covered and readers are reminded that, if in doubt, it is always possible to reduce flow rates. There are also useful lessons about electrical faults, avoiding electrical overload, and the need to preserve all your fingers when carrying out maintenance tasks.

The importance of constant vigilance is highlighted again in reports about faulty CO$_2$ systems and defective valves, and there are several references to the fact that a robust safety culture on board is vital.

There are lessons here for everyone and there is much which can be learned, so we urge you to study the cases carefully.
Article. 34

Exhaust Gas Heater Fire Suppression System- Large Ferry

In the course of work to fit exhaust gas scrubbers in a large ferry, pipes serving the exhaust gas heater fire suppressant system had to be cut; pipes/nozzles were found to be nearly blocked and thinned. This would have prevented the system from working as designed in event of fire. The cause was probably leakage past isolation valves allowing seawater to enter the ‘supply lines’. Salt then crystallized in the heat. The comprehensive report outlines remedial action.

Extracts from the information passed to CHIRP. 'Given the condition of the pipes and nozzles – had we had a fire in the exhaust gas heaters, it would have been very unlikely that the fire suppression system would have had any effect. The reason for the blocking of the nozzles is that it is suspected that the isolating valves on the fire main have been leaking past, allowing seawater to fill the supply lines and when reaching the hot environs of the exhaust gas heaters, the water has rapidly evaporated, leaving a build up of hard salts in the nozzles.

Heavily obstructed pipes – Ferry Fire Suppression System

We are proposing some modifications to the fire suppression system: The nozzles and pipe-work will be like for like, but with a different routing to allow easier access for inspection in the future. Pipes and nozzles will be galvanised. New valves will be fitted to the fire main at the branch off of the supply lines. The original valves are ‘globe’ valves; we intend to change these for stainless steel ball valves.

Immediately after the isolating ball valves, we will fit stub pipes with a further ball valve fitted on each line. This valve will serve two purposes:
1) to check for any water leaking past the isolating valves and
2) to connect an air hose and blow air up through the supply lines and nozzles to prove clear. This will be put into the Planned Maintenance System as a routine (probably monthly) job. These ball valves will have plugs fitted in the outlets at all times when not in use. The valves will be fitted with clear signage as to their purpose'.

Lessons to be learnt

This comprehensive report detailed how a fault, which could have had serious consequences, was discovered in the course of routine work. It then laid out the actions that were taken to rectify the fault (by the replacement of piping), and the measures instituted to ensure regular testing in both company ships fitted with the system.

A natural question surrounds the symptoms that might indicate such a problem in the making. For an emergency system, this may well be difficult. However it is crucial that all emergency systems have stringent inspection/test regimes, preferably controlled within the ships Planned Maintenance System, to ensure successful operation if required. The inspection/test regime may identify design shortfalls, as experienced in the report, which will initiate corrective action involving redesign, material selection, avoidance of water traps (u-bends) and improved testing techniques.

CHIRP Suggests

Take note of this case. Check similar installations in other ships, and ensure that regular and reliable inspections are followed. Watch for ‘out of sight, out of mind’. Emergency gear of all kinds, including fire fighting gear, is not in regular use; defects may therefore go unnoticed. And yet – when these equipment are needed – they are needed immediately and in full working order to save life. Invest in their maintenance.

The above article was published in MFB42
Article. 35

Ship Approaching a Lock: Power Loss, Poor Communications and Design

This article outlines a pilot’s experience on approaching a lock. Slow response to his order for astern power, poor communication and ship design issues all come to light.

What did the reporters tell us?
Whilst manoeuvring a large pure car carrier into a lock, with the stern tug at 100% arresting power, more deceleration was needed. An astern engine order was given, but the vessel was slowing very slowly. The pilot was not told that the main engine had failed to start twice. At this point the Master, rather distraught, asked if the after tug was pulling. In response to a direct question, the pilot was then informed that there was a problem with the engine. The pilot took emergency steps to stop the vessel by laying her against the rubber coping fenders to act as a friction brake. At this point the main engine started astern and the vessel was stopped and moored. Wind at the time was well under the limiting speed for sailing. The ship’s high minimum speed was another potentially complicating factor.

Visibility along the side of the ship was limited, and communications across the bridge difficult. The distance from centre line to bridge wing was of the order of 16 metres, and key instruments at the conning position were in three different positions.

What did the ship’s operators tell us?
For environmental reasons newer electronic engines have reduced fuel injection when starting up. If the engine misfires, it will automatically try again after 10 seconds with a slightly increased fuel injection.

According to the company’s internal report, that is what happened in the lock and is normal. When proceeding at a low speed in narrow waters, this can of course be seen as a potential hazard; the standard procedure is therefore to have the thruster(s) ready for use in addition to sufficient tugboat assistance (in this case three in total). The company believes that both of these requirements were fulfilled. All three control positions (centre line and wings) are identical.

With a beam of 36.5 metres, this particular vessel follows the ‘New Panamax’ standard. The company forwards the vessels’ details to agents in good time before arrivals.

Lessons to be learnt
Main propulsion. Modern propulsion systems with potential in-built delays and high minimum speeds present considerable complication and risk when manoeuvring at close quarters (for example approaching locks). The characteristics need to be carefully briefed and understood between Master and pilot in advance. A propulsion test should be part of pre-arrival checks. Communication. Very wide bridges complicate verbal communication; a procedure for conning and use of bridge wing control positions needs to be agreed and tested well in advance. This would have facilitated an alert to the pilot about the engine’s failure to engage astern. The Master-pilot information exchange is a crucial factor; see ‘CHIRP Suggests’ below. Visibility. Lack of clear visibility down the ship’s sides was a serious limiting factor for the pilot. He and the Master found they had to move rapidly between positions. Ship design. The reporter makes strong points in relation to visibility and communication on modern very large ships, minimum ships’ speeds, and the ‘engine fail start’ dimension which (though explained by the 3rd party) represents a major risk in close manoeuvring. Failure to share best practice and ship design implications are also suggested.

CHIRP Suggests
Give high priority to timely pre-arrival checks (control position change overs, and machinery control for example), and to a comprehensive Master-pilot exchange covering procedure, the sequence of events, engine control and limitations, the overall plan, recent defects and action in the event of potential failures. User input in design, and the practice of ships’ crews standing by on build, have in many areas been diluted; at the very least experienced deck officers including pilots should be involved in the design of conning positions, especially in major shipyards which build standard design ships. This should embrace issues such as visibility from bridge wings, and – more broadly – machinery control.

The above article was published in MFB 43

Article. 36

Pipeline Pressure Surges

CHIRP has recently received several reports relating to pressure surges in pipelines during tanker operations. The following reports show various scenarios where pressure surges can occur.

What did the reporter tell us?
One company noted an increase in loss of cargo containment incidents due to over pressurisation of pipelines during cargo operations, the incidents occurring during changeover of cargo tanks, blowing through cargo lines, and restarting cargo operations after a stoppage. Analyses
showed common factors are incorrect cargo line-up, inadequate ship/shore communication, and inadequate supervision.

Another incident occurred during a topping-off operation on a tanker where communication with the terminal failed.

Finally, whilst discharging, the manifold watch heard a change of flow and also observed a pressure increase, immediately reporting this to the Cargo Control Room. The Officer of the Watch simultaneously noted an increase in pressure and suspended the discharge. The terminal informed the vessel that the pressure increase was due to an uncontrolled closing of an automatic shore line valve.

**Lessons to be learnt**

Any pressure surge carries a high risk of causing damage to a pipeline and pollution.

Cargo operations should be monitored closely and effectively, with any change in flow pressure being reported and investigated. If any doubt exists, transfer rates should be reduced or transfers suspended until the causes are investigated and obviated.

Personnel involved in cargo operations should be fully aware of cargo line-up, tank changeover and blowing-through procedures.

Communications between all participants including terminals should be pre-tested and are vital at all times, particularly at critical stages of an operation such as topping off.

**CHIRP Suggests**

Full compliance with the ISGOTT ship shore safety checklist including repeat checks where required are important, as are thorough cargo planning and understanding of the planned operation by all personnel. Procedures for any valve manipulation should be checked prior to operation, and a responsible officer should double check cargo valve settings before starting/restarting of cargo operations.

The above article was published in MFB43

---

**Article 37**

**Accidental Release of CO₂ to an Engine Room.**

At midnight, during engineer handover, the main engine auxiliary blower fault alarm and a CO₂ high pressure alarm activated. CO₂ had been released and was visible; the engine room was evacuated. Upon investigation in the CO₂ room it was noted that the pilot operated section valve was in open position. After depressurisation, this was closed manually.

**Lessons to be learnt**

The O-rings of the valve assembly had become brittle, causing a leak to develop from the pilot cylinder. In addition, ball valves in the fire station were found to be leaking. This led to the activation of the CO₂. It was subsequently determined that the control valves of the pilot cylinder had not been inspected during an annual service, that the ball valves had never been pressure tested, and that the pilot lines had never been blown through.

**CHIRP Suggests**

The CHIRP Maritime Advisory Board highlighted that heat, humidity and time will degrade systems. Manufacturers should take this into account in the maintenance sections of their manuals, highlighting guidance on contractor and ship staff maintenance periodicities. Similarly, planned maintenance systems on board should be robust and comprehensive. For more modern systems, the increasing use of technology calls for specialist skills; these may be costly or in short supply. The UK Marine Accident Investigation Branch has encountered incidents of this type in the past.

**CHIRP has also received a separate report of an inspection during which manufacturers’ locking pins were still in place on the whole CO₂ system which was thus rendered ineffective.**

“Least used, most needed”. When a fire, flood, person overboard, or other major emergency occurs, the immediate response systems must work immediately, first time. There is no room for failure or delay. This account of a CO₂ system in non-operational condition amounts to a serious threat to life. The implications for installation, maintenance and system knowledge are clear.

The above article was published in MFB 44

---

**Article 38**

**Engineering Mishaps**

What did the reporters tell us?

In REPORT 1: During a new build sea trial, the low level alarm of a main engine lubrication oil sump tank sounded; yard staff noticed that 5-8m³ of oil had been lost. It was found that incomplete actuation of a 3-way valve at the oil purifier inlet was to blame for a slow but continuous
leak. This leak went unnoticed because, though the yard staff regularly checked the oil residue tanks, the measurements were not recorded.

In REPORT 2: During safety rounds in an engine room, a deck seal seawater pump was leaking. The pump was stopped and the valves were closed. In the absence of warning signs to this effect, another engineer later restarted the pump before repair.

In REPORT 3: A bourdon tube on a pressure gauge for high pressure cleaning oil on an auto backwash filter was found to be damaged. The damage was caused when the line pressure exceeded the maximum allowable pressure of the gauge. It had been replaced with a gauge of much lower specification. After it was put into service, the bourdon tube punctured, the pressure being well above the new gauge's limit; oil sprayed the surrounding area, with consequent high risk of fire.

Lessons to be learnt
In REPORT 1: Daily soundings of tanks need to be recorded; otherwise losses may be missed. Pre-planned responses and actions in the event of activation should be available for all alarms. Routine tests of alarms are crucial and should include checks of settings and thresholds where appropriate.

In REPORT 2: The occurrence could have caused both injury and equipment damage. It highlights the importance of the permit to work system, isolation procedures, “do not operate” notices and effective information exchange within spaces, especially engineering spaces at handover or following maintenance periods.

In REPORT 3: The potentially disastrous consequences of fitting of sub-specification gauges or components is clearly demonstrated.

Lessons to be learnt
In the first case, insulated gloves saved the engineer from injury. However several necessary measures were lacking (see below).

In the second case, the stand-by generator started automatically; power was restored. However the inspection and maintenance of cabling beforehand was below standard.

CHIRP Suggests
Electricity can be a killer; working with it demands the utmost respect. A risk assessment, electrical permit to work, isolation of the equipment by tagging or locking out, a toolbox talk and proper supervision should have been in place and would have mitigated all risks. The UKCOSWP 2015 chapter 14 refers.

Electrical cables should be inspected periodically. The inspection of generators is routinely covered by planned maintenance schedules.

However are procedures intelligently followed with the right supervision and training? Or do we blindly follow the worksheet (ticking boxes)? This is a continuously recurring theme.

The above article was published in MFB 44

Article 39

Electric Shocks
What did the reporters tell us?
The first report concerned an auxiliary feed water pump starter panel. An alarm sounded, indicating a trip, followed by a fire alarm; smoke was coming from the panel. Although there was no fire, the thermal relay unit and the electrical cables were burnt. No injury was incurred, thanks to insulated rubber gloves being worn. The cause was use of a metallic brush part of which touched two live wires.

There was no daily job meeting, meaning there was no opportunity to assess the risks.

The second case concerned a diesel generator tripping out on a cooling water temperature alarm. The stand-by generator started automatically; electrical power was restored. Subsequent investigation revealed that cable insulation had peeled off; two cables then made contact, leading to a short-circuit. Following the repair, all other generators were inspected and several damaged cables were identified that required immediate attention.

Lessons to be learnt
In the first case, insulated gloves saved the engineer from injury. However several necessary measures were lacking (see below).

In the second case, the stand-by generator started automatically; power was restored. However the inspection and maintenance of cabling beforehand was below standard.

CHIRP Suggests
Electricity can be a killer; working with it demands the utmost respect. A risk assessment, electrical permit to work, isolation of the equipment by tagging or locking out, a toolbox talk and proper supervision should have been in place and would have mitigated all risks. The UKCOSWP 2015 chapter 14 refers.

Electrical cables should be inspected periodically. The inspection of generators is routinely covered by planned maintenance schedules.

However are procedures intelligently followed with the right supervision and training? Or do we blindly follow the worksheet (ticking boxes)? This is a continuously recurring theme.

The above article was published in MFB 44

Article 40

Routine Inspection Reveals Hazards
During a routine inspection by a recently joined ship management team, it was noticed that a bunker Master valve showed 25% open, despite the valve being lashed ‘shut’ with rope. When the valve was checked, its handle and gearbox collapsed. The body of the gearbox was glued with plastic steel, and had been painted to conceal the problem; in addition a copper blank had been placed between the valve and the bunker piping system. The valve was in fact partly open with fuel oil in the line. Further
blanks were located at the manifold. The necessary replacement components were fitted in due course.

**Lessons to be learnt**
The company was correctly concerned with this report. It emerged that there had been no previous order for a new valve, no record or explanation of the blanks, and no discussion at the time with the company office or at ship staff handover.

**CHIRP Suggests**
The company took admirable steps to emphasise the importance of timely and open ship/shore dialogue. Frequent communication between the office superintendent(s) and the vessel can assist with this. In the first instance a material defect was concealed, and not rectified, with potentially severe consequences: pollution, injury, and/or pipeline damage. We may surmise, but cannot know, the original reasons. The case is a clear illustration of poor prevalent safety culture at the time.

*The above article was published in MFB44*

**Article. 41**

**Ouch! – Bad Ship Designs**

We encourage seafarers to submit examples of bad design. Please include photographs, since a picture speaks a thousand words! We can share two such reports with you here.

**What did the reporter tell us?**

A photograph of a poorly designed pilot boarding area. The pipes are tripping hazards and there is an irony of positioning them in an area that has a clear to read sign stencilled onto the deck telling people to keep the area clear. Also, please find attached a photo showing poor design onboard a ship I piloted. I am 188 cm tall and as you can see, the light fitting comes down to less than 180 cm right in the middle of the bridge toilet room. I have found this same situation on a number of vessels. Although it didn’t cause injury it has the potential to do so.

---

**CHIRP Comment**
The risks associated with the walkway design hazards had clearly not been reduced to ‘As Low as Reasonably Practical’ (ALARP) and creates an unacceptable risk of personal injury as a result of a slip, trip or fall. The risk should have been mitigated by a post build design initiative to have a grated walkway over the top of the pipes.


**CHIRP comment on the second photograph, the minimum head clearance at all locations onboard is stipulated as 2.1 Metres: This was not complied with in this case.**

*The above article was published in MFB45*

**Article. 42**

**Machinery Space Finger Injuries**

This joint article includes reports relating to fingers being caught in the belt of an air conditioning blower and fingertips amputated during maintenance of an auxiliary engine.

**What did the reporters tell us?**

(1) The electrical officer (E/O) and fitter were performing routine maintenance on the air conditioner blowers. After completion of greasing of the two blowers, the E/O switched on the power of the system to test the system. The no. 2 blower was observed by the E/O to be drawing excess current. To investigate the case, he switched off the power to the No. 2 blower with the intention to check the tension of the belt between the blower’s motor and the fan. For this purpose, after
the blower stopped, the E/O moved the belt of the
No. 2 blower with his right hand and pushed down
the belt with his fingers of his left hand while the belt
was in motion. While doing this action his left hand
fingers got caught between the fan pulley (on the fan
side) and the belt (see figure). This severed the tip of
the ring finger and the middle finger of the left hand
(at the top knuckle of each finger).

(2) Two ship’s staff were carrying out repairs to an
auxiliary engine as there was water observed in the
scavenge manifold. Whilst dismantling the protecting
ring of the cylinder liner of the auxiliary engine, four
fingers of the chief engineer’s (C/E’s) left hand got
cought in the tool he was using to pull out the
protecting ring, just as the piston accidentally moved
upwards. Due to miscommunication, the flywheel was
turned in the opposite direction, causing the piston
to move upwards and thus trapping the C/E’s finger
in the tool. The tips of all four of his fingers were
severed and the vessel had to be diverted in order to
medevac the C/E.

The lessons to be learnt
Report 1: All crew were briefed about hazards while
working with parts that may move or start auto-
matically and warned about the precautions to be
taken, especially when working around moving parts.
As a good practice, instead of fingers, it would be safer
to use a screwdriver, or socket drive end on the fan
pulley to check for free movement when testing the
tension, or freedom of the belts. All equipment should
be isolated and tagged out before personnel are
engaged in the repair work.

Report 2: A risk assessment should be carried out, with
the results and required safety precautions being
discussed in a toolbox talk with all those concerned in
the work. The supervisor should not get involved in the
work; instead he should step back in order to keep an
overview of the work being performed.

CHIRP Suggests
In all machinery space activities, allow time for toolbox
talks; ensure there is good regular communication; ensure
suitable gloves are used; provide proper supervision; and
ensure there is a “stop work authority”. These are all
highlighted as important precautions to take. The use of
a Permit to Work would introduce added controls to stop
machinery being operated without checks being in place.

The UK MCA’s Code of Safe Working Practices for
on Machinery and Power Systems”, provides important
general machinery advice.

The above article was published in MFB45

Article 43
BA Compressor – Union Coupling
Failure
Parting of an adaptor at 100-bar pressure, with potential
for serious injury.

What did the reporter tell us?
The officer was charging the lifeboat compressed air
bottle. During the charging, the union/adaptor between
the breathing apparatus compressor and the air bottle
disconnected and was blown away when the pressure of
the bottle reached about 100 bar. The maximum designed
pressure of the air bottle is 200 bars. Fortunately nobody
was injured, but clearly there was a possibility of a serious
injury occurring. The specification of the union/adapter
used on board was different from the original. The
union/adapter could not withstand the pressure because
it could not be tightened sufficiently. The failure to use the
correct adaptor was the result of improper management
of parts.

The lessons to be learnt
Lessons learnt – Confirm that all unions/adapters
between BA compressors and air bottles (such as for
lifeboats, SCBA, EEBD, etc.) are the correct design, as per the instruction manual on board. If the instruction manual is unclear, consult with your ship’s manager.

**CHIRP Suggests**

Proper parts and good maintenance is the first and most important control measure for the hose whip risk. When deemed necessary, an example of an additional control measure is “a length of suitable cordage, tie wrapped around the hose and secured, so as to prevent whipping should it fail at any point”.

It is most likely the connection was not manufacturer supplied and the connection thread, whilst fitting, was not the approved part and the thread may have had some slight unseen tolerance that caused the connection to blow at high pressure. CHIRP highlights the need for caution with all high-pressure equipment; when they fail it can have fatal consequences.

It is essential that only the correct manufacturer’s approved components are used on both the compressor and the connection with the air bottle.


The above article was published in MFB45

---

**Grounding in the Mississippi River**

Ship grounded as the result of a blackout.

**What did the reporter tell us?**

The vessel was en route to the discharging terminal with a pilot onboard when there was a blackout and a loss of propulsion. The emergency power was restored within 18 seconds, the main power restored within two minutes and the main engine made available again within four minutes. The engineering team reacted very quickly and promptly. The Master, in discussion with the pilot, decided to beach the vessel to keep the channel clear of any traffic until power could be restored and engines tried out fully. USCG and Flag State Administration were informed. Onboard Investigation by the port engineer revealed that, due to an oversight, the standby generator had not been kept on ‘Auto’ during the passage. The blackout was caused by the concurrent operation of deck machinery and engine compressors, without there being sufficient reserve electric power to cope with this load.

The third generator should have been kept on load; in anticipation of the additional bow thruster load being applied during pre-arrival testing that took place ahead of the imminent vessel berthing. The inexperienced Master panicked and in an effort to show his command to the pilot, called the engine room six times within three minutes, asking each time for the chief engineer to answer him and thus diverting the focus away from the emergency at hand. The beaching could have been avoided as the emergency power was restored within 20 seconds and emergency steering was available, of which the Master and the officer of the watch were not aware. The weather and visibility at all times was good. There was no pollution, injury or damage to the vessel or the environment.

**The lessons to be learnt**

During critical passages, sufficient reserve power should be available at all times and it should be ensured that the ‘Auto Start’ function is available should the power demands so require.

Testing of the bow thruster, or other machinery, should be conducted in sufficient time and in open waters, where sudden load changes do not jeopardise the safety of the vessel, as is the case in confined waters.

Emergency drills should include the testing of steering on emergency power and all members of the bridge team should be aware of the location of these switches.

Blackout simulation drills and the actions to be taken in confined waters, including the steps to be taken when the vessel grounds, should be part of realistic drill scenarios.

Calm, concise and precise closed-loop communication is essential in emergency situations. A good understanding between heads of departments is invaluable at such times. How well this is done in an emergency depends entirely on how well and efficiently the two departments communicate during routine times.

**CHIRP Suggests**

CHIRP noted the breakdown of the safety management system and appreciates the way the reporter identifies the need for full teamwork and training, including the need for regular drills to be conducted that involve both the bridge and engine room teams. Having a coherent, workforce-owned procedure for the efficient pre-arrival testing of the main engine and other essential equipment is also identified here as being critically important.

The company Standard Operating Procedures (SOP’s) should always include a ship specific, workforce owned,
**pre-arrival checklist that contains the requirement to always conduct a pre-arrival and pre-departure briefing to ensure that the whole team (deck and engine) has a shared mental model of the operation to come and thus bring about effective and efficient teamwork.**

See also:

1. **USCG Code of Federal Regulations 33. 164.25..... No vessel may enter, or be operated on the navigable waters of the United States unless the emergency steering drill has been conducted within 48 hours prior to entry and logged in the vessel logbook.....**
3. **SKULD P&I Club briefing “USA, MISSISSIPPI: HIGH RIVER SEASON – RISK OF GROUNDING” (March – May) when stronger currents may be experienced.**

The above article was published in MFB45

**Article. 45**

**No Warning Notice on Electrical Panel**

What did the reporter tell us?

During the overhauling of the Heavy Fuel Oil (HFO) transfer pump, the 2nd Engineer instructed the Electrician to isolate the power of the pump and display the “warning notice” on the electrical panel, “Do not touch under repair”. However, later when he inspected the panel, the 2nd Engineer realized that the electrician failed to implement his instructions. There was a risk of an accidental start of the motor, resulting in an injury to the personnel working on the pump.

The SMS states in the section "Execution of maintenance work, based on the PMS" that all mechanical and electrical power connections must be isolated prior to work commencement and relevant "DO NOT OPERATE" tags must be posted at the control positions. The relevant work permits must be issued in this respect. There is also allowance for the fact that prior to work commencement and depending on the nature/type of the inspection/repair/maintenance work, there might be the need, to isolate/lock out and tag vessel’s equipment, valves, mechanical or electrical power connections, breakers, switches etc. In that case, a "DO NOT OPERATE" tag has to be posted so as to prevent unauthorized use.

With a view to facilitating the uniform implementation of the above requirement onboard the fleet vessels, the Company issued a standard format for the "DO NOT OPERATE" tags. Laminated reusable tags (in A5 size) have been prepared and will be forwarded to all fleet vessels (8 pieces per vessel).

**Lesson Learned:**

It is important that the above procedures have been communicated effectively to all crewmembers and are implemented strictly at all times onboard.

**CHIRP Comment:**

The qualification of the electrician was questioned (ETO certification). The 2nd Engineer appreciated the high risk associated with electrical equipment and did well to check but it is unclear if the work had started before he checked. It appears this was an ad hoc check and not driven by the SMS procedures. CHIRP is concerned the preventative action of an A5 size notice was short term and inadequate. A better approach would be to amend the design of the electrical panel casing and install a multi-lock system, or ‘Lock out for life’ system, that creates a physical barrier, before operating the related electrical system.

The above article was published in MFB40

**Article. 46**

**Incinerator Door Security System**

What did the reporters tell us?

During a Port State Control visit to the ship, it was noted the security system of the incinerator door was disconnected.

**Causal factors:** Failure to follow planned repair/maintenance instructions on defective equipment. Inadequate guidelines listed in manuals.

**Preventative action:** All waste oil incinerator alarms and trip devices were tested as per the monthly checklist and all were in operational condition, without remarks. The main cause of the problem was two small securing bolts, which keep an interlock plate connected to the door. They were not found during the investigation and probably fell down into the incinerator furnace. This in turn was caused by a wrong size or a bad thread condition that allowed them to unscrew due to vibration or heat effect.

The repair was put in place immediately and additionally LOCTITE glue used for better securing of these small bolts. The officer in charge and the incinerator operator were instructed to check all safety devices on the incinerator every time before operation.
**Cleaning of Moving Machinery**

**What did the reporters tell us?**
After completing repairs, the engine crew were cleaning the booster pump of a generator. Rags that were used for cleaning were caught and then stuck in the pump’s shaft bearing. The pump was running throughout the cleaning work.

**Lesson Learned:**
This incident highlights the hazards involved in moving machinery. The movement of machinery parts – if not properly guarded – may have the potential to cause injury, for example by entanglement, friction or abrasion, cutting, shearing, stabbing, or puncture, impact, crushing, or drawing a person into a position where injury can occur.

As such, this hazard must be identified during the relevant safety “toolbox” meeting prior to the work, where the job-specific Risk Assessment/Job Hazard Analysis will be carried out and appropriate measures taken, with the aim of minimizing risk. In this particular case the cleaning work should not have been carried out with the pump running (Hazard Elimination) and in addition, as a second safety barrier, appropriate power isolation/lock out should have been made prior to the cleaning work commencing.

**CHIRP Comment:**
The reporter has provided an appropriate list of lessons learned. However, the company should apply a Permit to Work system for this type of work, together with a ‘Lock out’/’Tag out’ system. This should be combined with checking the effectiveness of the SMS and any related training provided.

**Self-Closing Valves Wired Open**

**What did the reporters tell us?**
During a morning inspection of the engine room it was noticed that a self-closing cup valve on the Heavy Fuel Oil overflow tank was in the ‘open’ position and tightened in position with wire. This was an improper attempt to save time/effort.

**Lesson Learned:**
Self-closing cup valves for the engine room tanks must never be inhibited but must be able to operate freely at all times.

The observed practice is totally unacceptable as it could have serious consequences for the vessel and is contrary to Company’s instructions and SOLAS requirements. There are a number of risks associated with this bad practice including the following:
(a) Overflow of the tanks into the engine room.
(b) Fire hazards in case of oil overflow.
(c) Release of dangerous vapours in the engine room.
(d) Flooding of the engine room in case of an emergency (e.g. grounding) etc.

Chief engineers should ensure that all self-closing devices operate properly and then instruct the engine crew to ensure/verify free operation of the devices whenever they use them.

Ensure that a warning note is provided next to the closing devices stating the following: “Self-closing devices should NEVER be inhibited”.

**CHIRP Comment:**
The lessons learned and preventative actions are appropriate. The value of routine inspections is clearly demonstrated.

The above article was published in MFB 40
The leisure and yachting markets are expanding rapidly throughout the world so more people than ever are discovering the delights of going out on the water. We are grateful that a number of them have submitted reports to CHIRP, and hope even more of their colleagues will contribute in future.

This year we learned about the danger of forgetting to wear a lifejacket, especially in a small boat, and also encountered a crew member who thought he was Tarzan of the Apes as he cleared a fouled anchor. There is often a fine line between a desire to solve a problem and crass stupidity, and ‘Tarzan’ probably crossed that line. As a first-trip cadet I was told “one hand for the ship and one hand for yourself”, and it is still good advice.

A ship dawdling off the pilot station caused problems for one yacht, while a single-handed sailor caused problems for himself by failing to see an approaching vessel. In my opinion, CHIRP has been rather gentle in its admonition that “caution should be exercised when sailing single-handed”. I have seen professional mariners sent to prison for failure to keep a proper lookout, so it always disappoints me that single-handed sailing is even permitted, but what do you think?

We conclude this section with another Advisory Board Insight article, this time about eyesight.
Article 49

Safety in Exposed Places

Failure to Don a Lifejacket During a Seamanship Evolution.

This report concerns a commercial yacht (2000 GT). The yacht’s tender was to be moved away while the yacht shifted her anchorage berth, after deterioration in the weather. The Mate decided to move the tender himself, and boarded her without a lifejacket. A crewman noticed the error, and a lifejacket was then worn; but not before the Chief Mate had boarded the tender in a 1.5 – 2 metre swell. Wind Force 6.

Extracts from the information passed to CHIRP. 'Whilst the vessel was at anchor ... the decision was made to move to a different anchorage around the headland ... Before we could move, the tender which was located at the stern needed to be moved alongside so that it can be boarded and moved away whilst the vessel hauled anchor. Four crew were present for the task to be completed and the Chief Mate explained what we were going to do. Once the tender was alongside the Chief Mate decided that he would board the tender and move away. The pilot ladder was to be used for boarding on the starboard side. The Chief Mate forgot to put on a lifejacket whilst he was holding on the pilot ladder waiting to board the tender which was riding up and down these 1.5 – 2 metre waves. Once onboard the tender one of the deck crew shouted to him that he needed a lifejacket whilst in this swell. One of the lifejackets located in the tender was used during the short passage around the headland'.

The lessons to be learnt

Seafarers with experience under sail have a good saying: 'the time to reef is the first time you think of it'. All too often, for reasons which are easy to imagine (laziness, urgency to get the job done, complacency, lack of imagination, lack of experience, shortage of crew), this doesn’t happen. Very much the same applies to anchorages; if you start to think an anchorage may be becoming untenable, it almost certainly is.

This incident arose from a need to shift berth in worsening weather; it may well be that it would have never occurred if the move had been done earlier. Equally it may be that, when the need arose, there was urgency and limited time for planning. Thus the Mate, perhaps lacking a spare hand while the Yacht weighed, felt he needed to move the tender away himself. There is a sense of rush; the tender must have been moving fairly heavily against the yacht, but the Chief Mate boarded without his lifejacket. This was certainly hazardous. A procedure should be in place.

On the other hand there are signs of a positive safety culture in this account. A crewman felt confident enough to alert the Chief Mate, pointing out his error; and the Chief Mate responded. If there had been a generally lax culture, it may well be that neither would have happened.

CHIRP Suggests

Act EARLY in unexpected circumstances or worsening conditions. Most seafarers have slowed down too late in worsening weather, pressed on when he or she shouldn’t have, weighed too late as an anchorage starts to become untenable, or (in a sailing ship) reefed too late. Many accidents and near misses at sea could be avoided by acting early. This does three things:

1) it allows time for considered planning and execution without rush;
2) it avoids the need to cut corners; and
3) it minimises the need to do things in marginal or dangerous conditions. If urgent or emergency actions must be taken, keep cool, remember drills, and apply safety procedures. In other words, even in difficult conditions, proceed deliberately to the maximum extent possible. Promote a positive safety culture. There is a clear sign of a positive culture in this vessel, even if an initial mistake was made. Culture comes from the top; if standards are reviewed, explained, and followed as a matter of course throughout a vessel, they will be maintained and respected. The opposite is true. If the ‘don’t bother about that’ culture is tolerated for a moment by the leadership, it will become the norm.

The UK COSWP for Merchant Seafarers 2015 is crucial and readable on this vital subject. See the extract overleaf.
Close Quarters – Avoiding Action Required

Outline: A report of a near miss between a yacht and a large car carrier. This report appears to relate to a speed management issue, arriving too early for a pilot.

What did the reporter tell us?

Own vessel (yacht) was on passage just south west of the Isle of Wight under sail on course to enter the Needles Passage. Visibility was very good with a light SW wind calm to slight sea. My course over the ground was 334° Magnetic and my speed over the ground was 6.6 knots. Over the course of approximately 45 minutes we became aware of and monitored the progress of a large car carrier. Soon after first noting his presence he altered course from approx. NE to approximately NNW. This put him on a parallel course to us with him approximately 5 miles astern and on our port side. We continued to monitor the ship, which also appeared to be shaping a course for the Needles. We were not unduly concerned, as it appeared that he would pass clear down our port side. At approximately 1740 hrs, the ship began a turn to starboard, which meant that he was now on a converging course with an estimated closest point of approach of less than 200 metres. I called the ship and identified myself as the yacht on his starboard bow and asked what his intentions were. The response was to continue on his course to Nab Tower. He did not seem to appreciate our position relative to his own, as he came back and asked if we were the yacht ahead of him. I replied that we were and were unhappy with his course of action. He responded that he was continuing his turn. At this point my crew decided to take avoiding action started the engine and turned hard to starboard and completed a 360° turn, taking us first away from the car carrier and then around his stern. I called again and informed him that I was extremely unhappy with his actions and his failure to keep a clear lookout. I informed him that I had a full AIS track recorded and that I intended to file a report. We continued to track his progress by AIS and observed him carrying out a series of unusual changes of course. My concerns are that visibility was extremely good and he should have been able to see us for at least 10 miles. We were under full sail, carried a radar reflector and so should have been easily visible to him. He was overtaking and made no effort to communicate with me or alter course. No sound signals, or any attempt to call me by radio, were made. His attitude on the radio did not give me any confidence that he had seen me or taken any account of my progress when beginning his turn. Had we not been keeping a good lookout and monitoring the progress, the potential for a collision was significant. Screen shots of our track and his track are produced below.
The lessons to be learnt

Reporter stated; Main lesson learned was to make contact with a vessel with unclear intentions earlier. CHIRP regrets that despite phone calls made and emails sent, the ship managers failed to respond. The car carrier’s OOW response to the VHF call is indicative of a poor safety culture onboard. The report is a good example of where the use of VHF might not have worked earlier, because since the OOW’s response was poor when the vessels were close to each other, it is likely to have been poor when the ships were several miles apart.

CHIRP Suggests

CHIRP does not accept the reporter’s lesson learned relating to the use of VHF and does not encourage the use of VHF for collision avoidance purposes. CHIRP believes the yacht would have benefited from the use of an AIS transponder.

This appears to be a speed management issue for the car carrier arriving too early for the pilot. The ship was most likely in a ‘holding pattern’ and would have benefited from enhanced Bridge Resource Management, thereby avoiding the apparent loss of situation awareness.

See also the MAIB report into the grounding of the Pride of Canterbury “The Downs” – off Deal, Kent 31 January 2008.

The above article was published in MFB45

Article 51

A Fouled Anchor

A superyacht, while weighing, found her anchor fouled. While she was operating propulsion at very slow speed, a crew member jumped into the water, climbed onto the anchor to clear the fouled line, and was then recovered as the yacht gathered way.

What did the reporter tell us?

A crew member was seen on the starboard side standing on a ledge just above the waterline with no lifejacket or safety harness visible; he was hanging on to a single line from above. He balanced there for some time, before jumping into the sea and swimming up to the bow. He then climbed onto the anchor. The foredeck crew then continued raising the anchor whilst the man was busily working to clear the fouled rope. Once he had cleared the anchor, he jumped back into the sea, drifting back down the starboard side of the yacht which was underway at slow speed. He was then recovered on board; the vessel departed.

Note man on starboard platform

What did the vessel’s management tell us?

The vessel’s management were grateful that CHIRP had forwarded the report, and outlined a reactive process of which the aim is to ensure that health and safety awareness is improved onboard, that such unnecessary risks are not taken in future, and that a comprehensive drill is in place in the event of future fouled anchors.

The lessons learnt

The day was sunny; the conditions fair. Obviously a fouled anchor was not in the plan; so it is easy to visualise a quick reaction to the situation without proper safety arrangements in place.

The hazards are clear. A particularly serious one is entanglement in the fouled line while the man was attempting to clear it from the anchor to which he himself was clinging. It is not obvious whether the line was under tension or whether it was light or heavy. However a sudden increase or release in tension could have had the man trapped under water or potentially towed astern near the propellers. The vessel was operating propulsion at the time. It is not clear whether the man on the anchor was continuously supervised or not. He certainly should have been; it is very unlikely that he was visible from the bridge. He was not wearing a life jacket and did not have a lifeline/harness other than the line onto which it is reported he was hanging. These are severe safety lapses.

All was well, but it might not have been: a classic near miss in a realm of seafaring where the relatively relaxed routines of recreational boating in good weather can start to dilute the procedures necessary in larger vessels. Was an operational risk assessment undertaken?

The vessel’s management has responded positively to CHIRP; their comments are welcome. They outline a comprehensive procedure which will be employed in future cases of fouled anchors. This procedure will include provision of a rescue boat (all crew donning life
jackets), stationing of two crew members at the bow (for the anchor winch and to observe the boat), and VHF communications between boat, bow and bridge. The procedure will engage one tender crewman in release of the fouled line (ensuring it is not electrical) while the other manoeuvres. If this approach does not achieve the aim, boat and crew will be recovered, the anchor let go again, and commercial diver assistance sought.

**AN OPERATIONAL RISK ASSESSMENT**

In urgent situations, an abbreviated but considered risk assessment against a checklist can be undertaken. Its key elements include:

- **The aim.** How necessary is its achievement?
- **The hazards** what is the likelihood and severity of potential harm
- **Who may it harm?**
- **How may it be done to minimise risk?**
- **How may unavoidable risk be mitigated?**
- **In the event of harm, what preparedness is in place?**
- **AND AGAIN – HOW NECESSARY?** Pause/consider. Don’t get overtaken by the rush of the moment.

**CHIRP Suggests**

*Maintain professional standards; this depends on safety culture which itself in turn depends on the lead given by the Master and officers. Carry out a risk assessment and briefing before taking action in unusual circumstances; these may be short and crisp if need be, provided they are considered and conducted against a checklist (see above). Guard against cutting corners when the atmosphere is relaxed. Remember key safety principles: for example the wearing of life jackets always in exposed places, life lines, provision of a safety boat and supervision of risky work. Remember ubiquitous risks at sea: for example lines under tension, drowning.*

The above article was published in MFB43

**Article 52**

**Single Handed Yacht and a Small Cargo Ship**

An honest and frank account of a near miss between a yacht and a small cargo vessel, with several safety learnings identified by this experienced sailor.

**What did the reporter tell us?**

I have 30+ years experience of sailing small boats. Recently on a passage from Ramsgate to Harwich on a cloudless day, the planned route was to pass through a channel in the sand banks off the Thames estuary called the Fisherman’s Gat. The wind’s strength and direction was such that, in order to reach the Fisherman’s Gat on time, I had to motor-sail with the auto-pilot steering the boat. There were no other vessels in sight when I started the engine, and the risk of going forwards to rig a motor-sailing cone was pointless when there was nobody to see it.

When there was about four miles left to run, I automatically looked around to check if there were any other vessels on the deserted sea, and then went below into the cabin to check the boat’s progress on the chart. Checking the boat’s progress properly may have taken four or five minutes, possibly longer.

When I returned to the cockpit, I was shocked to see the stern of a small cargo ship perhaps 100 metres away and moments later my boat crossed over its wake. This is the nearest I’ve ever been to any cargo ship. My normal response is to make a big and obvious course alteration if I’m likely to get within half a mile of any ship.

The ship that I never saw was, at a guess, doing 15 knots. If it was doing 15 knots and visibility was four miles, the bridge crew had my boat, with its sunlit white sails, in sight for about a quarter of an hour. The aluminium mast and copper wiring in the boat’s hull provide a good radar return at four miles.

My boat’s VHF radio is normally always turned on when at sea, but was turned off because I’d got fed up with the constant incomprehensible chatter in French on channel 16. I can thus not know if any attempt was made to contact my boat.

If the ship’s bridge crew intended to frighten me by allowing such a close encounter to occur, they definitely succeeded. However, I view it as a very dangerous way to teach a single-handed skipper a lesson about the need to keep a good lookout. The ship could have, as the least inconvenient action to the bridge crew, sounded its whistle rather than remain silent.

I hope that this account will make for interesting reading by bridge officers who have experienced small sailing boats failing to respond to the presence of their ship. There are many small vessels with a single person on board, including fishing boats with one person working in the stern whilst an auto-pilot steers the boat.

Clearly, I was the major ‘fault factor’ in this matter, but I was left wondering why the ship came so close to me when a small alteration of course would have widened the clearance when it was obvious that there was nobody in my boat’s cockpit.
The lessons to be learnt
Questioning why the reporter got so dangerously close to the cargo ship, he came to the following conclusions:
Humans do not have necks that can turn through 180° in either direction. When I automatically scanned the horizon, I did so whilst seated on the starboard side of the cockpit with my back to the east. When I’d glanced around the boat, the far distant cargo ship was directly behind me, out of sight, and I thus believed that there were no other vessels to consider. This was how it had been for well over an hour. I saw what I expected to see and didn’t have any reason to make a second check when I stood up to go below into the cabin. Visibility was about four or five miles.

My boat does not carry any form of AIS receiver. (Yes – this deficiency will be rectified.)

CHIRP Suggests
CHIRP complemented the reporter on the honesty and the lessons learned. Complacency and a lack of situation awareness were the main causal factors.

CHIRP expresses that caution should be exercised when sailing single-handed and highlights the associated high risk, not least because of the speed at which risks can materialise. See also MAIB Safety Digest 2/2016 Case 7 ‘Look out by all available means’.

CHIRP questions the reporter’s assumption that the yacht is visible at four miles distance, see MFB 41, pages 3 and 4 and comments on radar identification of yachts with GRP structure and alloy masts. Also as a general comment, yachts typically have white or light coloured sails; these are not easy to see in rough weather or restricted visibility and

CHIRP notes that lifeboats in World War II had red/orange sails to assist with their identification.

The above article was published in MFB45

Article. 54

Rigid Inflatable Boat – Unsafe Practices

Three Rigid inflatable boats (RIB’s) were observed off Plas Newydd on the Menai Strait ‘show boating’ with a full load of passengers. Two boats were cutting across each other, the third boat was being used as a filming platform but was also joining in. One RIB turned into a standing wave and ‘hooked’ and two passengers were thrown out of the boat. The passengers were recovered and the three boats returned to the pier at Menai Bridge. A Paramedic attended the scene and one person was taken to hospital with a suspected dislocated shoulder.

As a result of this report, CHIRP made an investigation and established the RIBS do not fall under the MCA’s jurisdiction but that of the local authority that being the Anglesey County Council. They confirmed the incident had been reported and the concerns discussed with the Harbour Master for Caernarvon. Also the Marine Accident Investigation Branch had received notification from the owners, as per Merchant Shipping Act 2012 (Accident Reporting and Investigation). The parent company was most forthcoming about the incident and the remedial work they have put in place. These include replacement RIB’s, with each having improved securing measures on the aft seat and passengers now being issued with automatic inflatable lifejackets, not the manually operated ones provided at the time of the incident.

CHIRP wrote to the film production company and advised that in the future, management should, as a duty of care for their employees, ensure all safety precautions are clearly understood before taking to the water.

CHIRP Comment
The response by the third party RIB owner was complete: the causal factors were identified and a remedial action plan put in place. Readers are advised to read the MAIB report on ‘RIB Milly’ resulting in 2 fatalities. Also the Norwegian report on the accident with a chartered RIB in Olden, Stryn Norway, where one person died.


CHIRP wishes to bring attention to a quote in the report of the trials taken to reenact the incident: During the runs it was noticed that the boat took up a high angle of inward heel when it was turned. It was also noted that when turned tightly at certain speeds the RIB’s heel angle would increase until the aft end of the hull lost grip in the water and slid sideways, leading to a ‘hook’.

The hook rapidly took the boat from its original course as the hull executed a sideways slide across the water, until the boat’s keel gripped and the sideways motion was suddenly stopped, causing the craft to roll violently upright from its banked attitude.
The driver and co-driver reported that they needed to be well prepared for this hooking action by being seated, braced and holding on to handholds, as the forces generated were considerable. The driver suggested after one test turn that an increase in RIB speed of 5 knots would have been sufficient to result in his ejection from the boat, despite being prepared.

CHIRP noted in the short video accompanying the MAIB report, “when the RIB ‘hooked’ it returned 30 degrees to the upright in less than 0.5 second”.

Modern RIB’s are getting bigger and faster, with very fast-acting engine controls. The risk when operating these craft is much greater than in the past and an operator mishandling the craft can result in catastrophic consequences.

The above article was published in MFB 41

Advisory Board Insight: Staring at the Sea

Good vision has long been an essential requirement for a career at sea. Testing was introduced some 150 years ago.

The eye is only the first stage in effective visual recognition of danger. Much depends on the brain for analysis of what is seen. Cognitive aspects of vision feature regularly in reports of incidents and damage, as do the external conditions of visibility, levels of lighting and glare. By contrast, visual defects are now rarely noted, although they were prominent in the past.

The visual task of navigation has changed markedly, with the ability to correctly read instruments and displays now playing a large part, but distant vision under challenging conditions remains important, especially for seeing small craft and for the detection of floating debris.

Current eyesight testing uses long established measures of acuity and colour perception under conditions of good illumination. Eyesight standards on which certificates are issued have changed little from the time when navigation lights were wick lanterns burning kerosene and bridges had next to no lighting other than the compass binnacle. Evidence from naval vessels and fast craft does indicate that more sophisticated testing could have benefits where very rapid decision taking is needed, but this has not been investigated for other ships.

Blurred lines

An unanswered question is whether current criteria for the issue of fitness certificates are too stringent, or whether they fail to test the visual functions needed for the present day navigational lookout duties. Testing is not consistently applied internationally and this affects acceptance of fitness certificates. Also some of the test methods used are of uncertain predictive value in terms of capability to work safely. This may lead some who do not meet criteria being allowed to work in vision-critical tasks while others are denied a career at sea or have it terminated prematurely.

What is needed is not just fair and uniform application of existing criteria but also a concerted effort by the maritime sector to fund and support studies to ensure that vision standards really do meet the safety requirements of modern shipping and ensure that all those who can safely do so are able to work at sea.

Vision, the performance of both the eye and the brain, can still become a significant issue in the aftermath of a maritime disaster and detailed investigation both of the incident and the underlying vision science can contribute to improved safety.

The yacht Ouzo was crewed by experienced yachtsmen but lost with all hands in the English Channel on 20 August 2006. Investigators concluded that a large passenger ferry, Pride of Bilbao, had collided with or swamped Ouzo. As always, multiple factors were involved, but the ability of the officer of the watch to see the yacht was a major focus of inquiries. The state of his dark adaptation was considered to be questionable, especially to see the navigation lights on a relatively small yacht. Particular attention was directed to his glasses, which had photochromic lenses that were likely to have been transmitting less than 100% of the light to his retina.

However, the state of his dark adaptation was probably far more significant, given his time on the bridge, the lighting
level there and the existence of high levels of lighting on the decks to the rear of the bridge.

**Ergonomic factors**
The findings from this incident led the UK Maritime & Coastguard Agency to commission a study to look at visual performance and ergonomic aspects of modern bridge lookout duties.

Its findings indicated that light sources from chartrooms and equipment in the bridge had sufficient intensity to limit dark adaptation, as did the pattern of duties, which could involve time in lit parts of the ship while keeping watch. Handover times were often too short to ensure dark adaptation and the period required to adapt increased with age. Seeing the navigation lights on large vessels was unlikely to be compromised but small craft could easily be invisible, while also being less reliably detected by radar.

Understanding of the complexities of the visual requirements on today’s merchant ships remains limited. Will it take more disasters to make the industry recognise that, despite increased instrumentation, visual performance is a key factor in maritime safety and cannot be guaranteed unless its dimensions are investigated and the results used to form the basis for lighting specification, patterns of work and individual criteria for capability?
### APPENDIX I: Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIS</td>
<td>Automatic identification system</td>
</tr>
<tr>
<td>ALARP</td>
<td>As Low as Reasonably Practical</td>
</tr>
<tr>
<td>APREM</td>
<td>Appraisal, Planning, Execution, Monitoring</td>
</tr>
<tr>
<td>ARPA</td>
<td>Automatic Radar Plotting Aid</td>
</tr>
<tr>
<td>ASD</td>
<td>Azimuth Stern Drive</td>
</tr>
<tr>
<td>BA</td>
<td>Breathing apparatus</td>
</tr>
<tr>
<td>BCD</td>
<td>Bow crossing distance</td>
</tr>
<tr>
<td>CHIRP</td>
<td>Confidential Hazardous Incident Reporting Programme</td>
</tr>
<tr>
<td>COLREGS</td>
<td>Convention on the International Regulations for Preventing Collisions at Sea 1972</td>
</tr>
<tr>
<td>CO₂</td>
<td>Carbon Dioxide</td>
</tr>
<tr>
<td>CPA</td>
<td>Closest Point of Approach</td>
</tr>
<tr>
<td>ECDIS</td>
<td>Electronic chart data information system</td>
</tr>
<tr>
<td>EEBD</td>
<td>Emergency Escape Breathing Devices</td>
</tr>
<tr>
<td>ENC</td>
<td>Electronic Navigation Chart</td>
</tr>
<tr>
<td>ETA</td>
<td>Estimated time of arrival</td>
</tr>
<tr>
<td>GMDSS</td>
<td>Global Maritime Distress and Safety System</td>
</tr>
<tr>
<td>IMO</td>
<td>International Maritime Organization</td>
</tr>
<tr>
<td>ISGOTT</td>
<td>International Oil Tanker and Terminal Safety Guide.</td>
</tr>
<tr>
<td>MAB</td>
<td>CHIRP Maritime Advisory Board</td>
</tr>
<tr>
<td>MAIB</td>
<td>Marine Accident Investigation Branch</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978</td>
</tr>
<tr>
<td>MABS</td>
<td>Marine Accident Reporting Programme</td>
</tr>
<tr>
<td>MCA</td>
<td>Maritime and Coastguard Agency</td>
</tr>
<tr>
<td>MFB</td>
<td>Maritime FEEDBACK</td>
</tr>
<tr>
<td>MGN</td>
<td>Marine Guidance Note</td>
</tr>
<tr>
<td>MLC</td>
<td>Marine Labour Convention</td>
</tr>
<tr>
<td>NM</td>
<td>Nautical Mile</td>
</tr>
<tr>
<td>NtM</td>
<td>Notice to Mariners</td>
</tr>
<tr>
<td>OOW</td>
<td>Officer of the Watch</td>
</tr>
<tr>
<td>P&amp;I</td>
<td>Protection and Indemnity Insurance</td>
</tr>
<tr>
<td>RIB</td>
<td>Rigid Inflatable boat</td>
</tr>
<tr>
<td>SCBA</td>
<td>Self-Contained Breathing Apparatus</td>
</tr>
<tr>
<td>TCPA</td>
<td>Time to Closest Point of Approach</td>
</tr>
<tr>
<td>TSS</td>
<td>Traffic Separation Scheme</td>
</tr>
<tr>
<td>USCG</td>
<td>United States Coast Guard</td>
</tr>
<tr>
<td>VHF</td>
<td>Very high frequency (radio)</td>
</tr>
<tr>
<td>VLCC</td>
<td>Very large crude oil carrier</td>
</tr>
</tbody>
</table>
APPENDIX II: The Human Element and the ‘Deadly Dozen’

THE DEADLY DOZEN

TEAMWORK
How Well Do You REALLY Work Together?
- Ensure shared mental model
- Beware “group think”
- Encourage challenge
- You can be in more than one team at a time

FATIGUE
Just Tired OR Dangerously Fatigued?
- DON’T accept it – it’s a killer
- Leads to accidents and ill health
- Ever present danger at sea
- Learn about cause, effect and prevention
- Recognise it, report it, manage it – effectively!

COMPLACENCY
Is Everything REALLY OK?
- Never assume all is OK
- Follow procedures – they work!
- Use checklists
- Seek input from others
- Early action avoids later difficulties
- Check your situation – CONSTANTLY

LOCAL PRACTICES
Efficiency OR Dangerous Shortcut?
- Don’t cut corners
- Follow procedures – they are there for a reason!
- Beware local norms becoming the “new standard”
- Poor or inadequate procedures? – report them
- Be alert to Efficiency-Thoroughness Trade Off

FIT FOR DUTY
Are you REALLY fit to work?
- Avoid alcohol and drugs – they are major killers
- Illness can impair judgement and thinking
- Injuries can be distracting

CULTURE
Do You REALLY have good safety culture?
- Applies to individuals and whole teams/organisations
- Does everyone really care about safety?
- Do you have a Just Culture?
- Do you strive for continual improvement?

CAPABILITY
Is Your Team REALLY Capable?
- Check training and qualifications and experience
- Regularly assess capability
- Provide on-board training, mentoring, coaching
- Ensure any capability gap is addressed

DISTRACTIONS
Multi-Tasking OR Dangerously Distracted?
- It happens very easily
- Personal as well as job distractions
- Use checklists and “Red Zone” techniques
- If distracted – go back 2 steps
- Be assertive – insist on calling back when convenient

SITUATIONAL AWARENESS
Do You REALLY Know What’s Happening?
- The big picture AND fine detail
- Constantly update your awareness
- Actively seek input from others
- Never assume another’s intentions
- WHIM – ask: “What Have I Missed”?

ALERTING
Do You REALLY Speak Up When You Should?
- Vital skill – use it effectively – encourage it
- Be positive and constructive – propose solutions
- Some may find it difficult to do
- It’s not a threat – it’s teamwork
- Be assertive – it can save lives!

COMMUNICATION
Do You Really Understand Everyone?
- Message understood? DON’T assume – Check
- Use closed loop communications
- Words are only 30% of communications
- Remember effect of tone and body language
- Different cultures may interpret things differently
- Watch out for accidentally causing offence

PRESSURE
Just Busy OR Dangerously Overloaded?
- Good pressure can improve performance
- Too much leads to stress – always bad
- Don’t let pressure lead to taking short cuts
- Ensure adequate resources – people, time, tools
Definitions:

**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.

**LOCAL PRACTICES** – efficiency OR dangerous short cuts?
Behaviour and actions applied locally that differ from the official documented practices. Also known as procedural violations.

**TEAMWORK** – do you work REALLY well together?
Working together effectively towards a shared common goal.

**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?

**PRESSURE** – busy OR dangerously overloaded?
Real and perceived demands on people. Do you REALLY have the resources you need.

**DISTRACTIONS** – multi-tasking OR dangerously distracted?
An event that interrupts your attention to a task.

**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.

**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.

NB. Full definitions – see MCA Maritime Guidance Note MGN 520(M) issued December 2016.
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

- Report can be generated either online (through a secure website www.chirp-maritime.org and select tab “Submit a Report” or www.chirp.co.uk/submit-a-report/online), by email (reports@chirp.co.uk) as a written report (via post/Freepost), 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 disidentified 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 disidentified 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) January 2017*
They often operate in relatively small vessels with very small crews, in severe weather and operating conditions.

The word gets around about accidents and near misses. The vast majority of fishermen have themselves witnessed lesser accidents or ‘near misses’. **Maybe you have narrowly avoided injury yourself?**

**Will you help** us reduce experiences like this by spreading the word about near misses you have seen or been involved in? A ‘near miss’ shared and reviewed can directly prevent an actual accident in similar circumstances later; death, injury, damage, loss can all be avoided. You can best help to do so – make a real difference – by letting us at CHIRP know about ‘near misses’.

### SOME STATISTICS

In 2016 the UK Marine Accident Investigation Branch (MAIB) has so far published three related reports: one on a collision between two fishing vessels, with the loss of one of them; another on the capsize of another fishing vessel while attempting to recover a fouled trawl, and a third on fire in and sinking of a twin-rig prawn trawler.

In seven reports in 2015 relating to fishing vessels, accidents included two men overboard, the disappearance of a vessel and subsequent crew rescue, two founderings, and two scallop dredger incidents involving winch drums and severe injury. All were serious. **THREE RESULTED IN DEATHS**

Across Europe as a whole – to take another example – 13% of casualties and incidents across the maritime sector occurred in fishing vessels, with the majority of these cases arising in trawlers and dredgers; onboard these vessels, the highest number of incidents arose in engine rooms, on ‘boat decks’, and ‘overside’.

*Sources: UK MAIB reports; EMSA’s Annual Review of Maritime Casualties and Incidents 2015*
APPENDIX V: 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 using this hand written form.

CHIRP Maritime REPORT FORM

CHIRP IS TOTALLY INDEPENDENT OF ANY ORGANISATION IN THE MARITIME INDUSTRY

Name:

Address:

Postcode:

Telephone Number:

Personal e-mail for reply:

1. CHIRP is a reporting programme focussing upon safety related issues in COMPLETE CONFIDENCE. Your personal details are required only to enable us to contact you for further details about any part of your report. Please do not submit anonymous reports.

2. On closing this Report, NO RECORD OF YOUR NAME AND ADDRESS WILL BE KEPT.

On receipt of this report CHIRP may seek your approval to contact the owner or manager of your vessel, or if your report relates to non-compliance with regulations, those of a third party. The identity of you as the reporter is never disclosed.

On completion of our review, if your report relates to safety issues that may apply generally to seafarers, it may be considered for publication in MARITIME FEEDBACK. Reports may be summarised. THE NAME OF THE REPORTER, THE NAMES OF VESSELS AND/OR OTHER IDENTIFYING INFORMATION ARE NOT DISCLOSED.

PLEASE COMPLETE RELEVANT INFORMATION ABOUT THE EVENT/SITUATION

Date of the incident:                                                                Time (local/GMT):

Your vessel name:

Flag:

IMO number if known:

Vessel type:
(Tanker, bulk carrier, cruise, ferry, fishing, yacht etc)

Vessel location:

Your position onboard or in the organisation:

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 or Freefone (UK only) 0800 772 3243.

Report forms are also available on the CHIRP website: www.chirp.co.uk
DESCRIPTION OF EVENT

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 or Freefone (UK only) 0800 772 3243.

Report forms are also available on the CHIRP website: www.chirp.co.uk
APPENDIX VI: CHIRP Maritime Videos

CHIRP Maritime Videos

The video extracts are taken from the four video broadcasts produced in 2016 by Rob White of Maritime Films UK and sponsored by The Standard Club.

The intention is to use the videos for educational purposes in maritime academies and among seafarers for discussion onboard and disseminating the safety lessons learned.

A full version of each broadcast and our video “Safer Seas” can by found in the videos section on our web site www.chirpmaritime.org.

---

CHIRP Video Bulletin number 1

MV. SR

CHIRP Video Bulletin number 2

Simulation

Chirp Maritime Bulletin 3

chirp bulletin 4

Captain John Rose
CHIRP Director Maritime
The sponsors of this Annual Digest

The Sir John Fisher Foundation

The Sir John Fisher Foundation is a charitable trust (UK registered charity number 277844), established in 1980 by Sir John and Lady Maria Fisher. The Foundation's objective is to distribute its income to charitable causes, throughout the UK, but with special regard to those based in and working for the benefit of people living in and around Barrow-in-Furness and surrounding area.

The Foundation supports charitable causes particularly in the six categories of Maritime, Medical and Disability, Education, Music, Arts and Community projects in and around Barrow-in-Furness.

History

Sir John Fisher was the Chairman of James Fisher & Sons plc, the Barrow-in-Furness based Shipping and Marine Services Company. The Company was founded by his Grandfather in 1847 and is one of the world’s oldest shipping companies.

Sir John, a supporter of many charitable causes in and around Barrow-in-Furness, gave a substantial proportion of his shares in James Fisher and Sons plc to The Foundation, so it could strive to continue that charitable tradition.


WEBSITE: Publications and submission of reports by personal computer, lap top, tablet, mobile phone

www.chirpmaritime.org

Welcome to CHIRP Maritime

You can find all of the articles that CHIRP Maritime have produced, and there is the ability to search for any particular word, or via categories based upon causal effect using James Reason's, Lateral Influence and the NAO, The Human Element. The search engine allows for a combination of word search and category catalogue.

In addition, all of the archive editions of Maritime FEEDBACK may be found from the main menu, as are CHIRP Maritime Videos, Podcasts and Newsletters. Finally there are links to enable you to subscribe to maritime FEEDBACK, and to submit a report to CHIRP Maritime.

Latest Articles

Unsafe Vessel

Look After Your EPIRB

BA Compressor Union Coupling Failure

Look After Your EPIRB

Due to a faulty spring, the EPIRB would have failed to operate when needed. What did the regulator tell?

BA Compressor Union Coupling

Failure

Having an adapter at 120 psig pressure, with potential for serious injury. What did the reporter tell Mr. Jones?

Media

Chirp Maritime Safer Seas

Latest Podcast

Safe...