IIMS 2021 Safety & Loss Prevention Briefings Compendium

A 100-PAGE COLLECTION OF WORLDWIDE MARINE INCIDENT AND ACCIDENT REPORTS, LOSS PREVENTION BRIEFINGS AND CASE STUDIES PUBLISHED IN 2021

Standard Club is by your side, providing safety advice, guidance and support in an ever changing maritime industry

Standard Club

By your side

A message from the Editor

Welcome to the first edition of a new annual publication, the *IIMS 2021 Safety & Loss Prevention Briefings Compendium*, collated and published by the International Institute of Marine Surveying, the leading worldwide professional body for the surveying profession.

The broad aim of this compendium is to showcase incident and accident reports and loss prevention measures that happened in 2021, all easily accessible in one place. I cannot pretend this publication is an easy read due to its content. It is not. Much of the content is distressing and deals with carnage, destruction, chaos and sadly deaths. But I encourage you to 'turn the pages' and to use this publication as a valuable reference resource in your online library. The many links you will find are clickable, meaning you can easily access more details about an item of particular interest.

I have been doing this job for eight years and I remain just as horrified today as I did when I first started at the sheer volume of maritime disasters that drop into my inbox each and every day. The stark reality is that someone will die in a marine associated accident somewhere in the world today, tomorrow and the day after that. I accept that the sea is a dangerous environment in which to operate and play. Furthermore, I understand that there are inherent risks associated with maritime activities, but it remains a sadness to see such loss of life and damage to valuable assets. And the most concerning aspect of it all is that many of the incidents you will read about should never have happened and could have been prevented. Human error, more often than not, is the primary cause due to incompetency, inadequate training, poor risk assessment, or simply a lack of common sense.

I have chosen to end the publication with two hard-hitting opinion-based articles inspired and written following the release of detailed reports into high profile incidents, both of which co-incidentally happened in the US. In truth, these accidents could have happened anywhere in the world. I refer to the incidents that befell the *Golden Ray* and *Bonhomme Richard*. Both articles highlight a shocking lack of marine professionalism.

We see the same things happening repeatedly, despite innumerable reports and various recommendations being published. Why? Learning from what has gone before has to be the primary means to ensure similar tragedies do not reoccur. Maybe my view is just too simplistic in what is a highly complex business.

I am grateful to Yves Vandenborn, Director of Loss Prevention with Standard Club, and to current IIMS President, Geoff Waddington, for their introductions and insightful words of wisdom. Also, my thanks to Capt Andrew Moll, Chief Inspector of Accidents, MAIB, for allowing us to share some of the content from their two Safety Digests with you.

Sadly, I have no answers. I can merely publish the facts as they are presented to me. It is my hope that readers will learn from the content of the *IIMS 2021 Safety & Loss Prevention Briefings Compendium* - help others to realise the dangers too - and will place an even higher value on the need for safety. If that results in preventing just once less maritime death, then I feel we will have contributed to the safety of lives, vessels and cargoes at sea, the primary role of the marine surveyor and loss prevention business after all.

To those who have lost loved ones over the past year to marine accidents, I send my condolences.

Mike Schwarz
Chief Executive Officer

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Introduction by Yves Vandenborn, Director of Loss Prevention, Standard Club

We are very pleased to learn that IIMS has taken the initiative to publish the *2021 Safety & Loss Prevention Briefings Compendium*. We are proud to provide an introduction to the publication since from our P&I perspective, we are frequently involved with maritime casualties.

On average, the Standard Club is notified of approximately 7,500 claims annually. Of these, 53% by number relate to cargo (or 27% by value) and 24% (or 29% by value) relate to personal injury/illness. We see a different picture for large claims that reach the International Group level (claims greater than $10m which are pooled and shared by all 13 International Group P&I clubs), where we note that 56% of pool claims are related to navigational incidents (collision, grounding, wreck removal or damage to fixed and floating objects). These navigational incidents, however, are responsible for almost 66% ($3.5b) of the value of all pool claims. This explains the focus we, as a P&I club, put on making sure the condition and operation of ships we insure exceeds an agreed minimum standard.

> "One method for us to ensure that the required threshold of operating standard is maintained is through our detailed ship risk review (SRR) programme."

One method for us to ensure that the required threshold of operating standard is maintained is through our detailed ship risk review (SRR) programme. We require our appointed external surveyors to evaluate the P&I risks the ship runs when embarking on its intended voyage and with the intended cargo(es). From analysing our, and the pool's claims, we know that the majority of claims are caused by human error. As a result, we prepared the questions in our survey document to focus not only on the condition of the ship, its cargo holds and machinery spaces, but also to review the 'human' side of the operation of the ship by its crew.

During the recent COVID-19 pandemic we recorded an increase in housekeeping and maintenance related deficiencies across all our surveys. We can understand that it may have been difficult for service engineers or class surveyors to attend onboard due to travel restrictions, but these deficiencies can easily lead to personal injury or fire.

A second category where we see frequent issues is 'hazard identification'. This category includes deficiencies raised as a result of incorrect work permits, risk assessments or unsafe environment/practices. We require our appointed surveyors to pay particular attention to these issues during surveys as these practices are often indicative of a weak safety culture onboard.

The third major category where we see frequent deficiencies relates to dry cargo ship hatch covers and their proper operation and maintenance. As a result of the high number of cargo related claims we receive, many caused by water ingress through defective hatch covers and/or their seals, P&I clubs tend to be stricter compared to class and require ultrasonic hatch cover weather tightness tests to be carried out.

We encourage all readers to review the various cases included in this compendium, to take away the lessons learned and to be vigilant for these issues when carrying out surveys on behalf of Clubs or other principals.

"A wise person learns from the mistakes of others"

Standard Club

By your side

Introduction by Geoff Waddington FIIMS, IIMS President

I have been involved in many accident investigations over the years and this has given me a sharp focus on safety, something fundamental and at the heart of the marine surveying profession. The marine industry, especially in the leisure sector, is not policed in the same way that other industries are. The inspection of vessels, their condition and safety falls to marine surveyors including class and flag state surveyors, MCA coding examiners, independent surveyors, insurance surveyors and loss adjusters, cargo loading and securing surveyors and so on. So, this is my opportunity to 'big up' the importance of the role of surveyors as they play an essential part in keeping lives and assets safe at sea.

Marine surveyors are relied upon to advise vessel owners, operators and sometimes the public on safety matters. Let me be clear. The recommendations a surveyor makes could be the difference between loss, loss prevention and, ultimately, life and death.

> "The analogy that marine surveyors must act on survey like a detective, gathering information at the scene, is true."

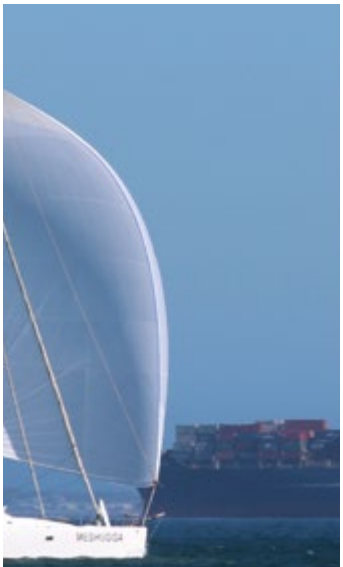
The analogy that marine surveyors must act on survey like a detective, gathering information at the scene, is true. A detective, gathering information at the scene, is true.

However the most important group of people responsible for safety are the vessel operators and crew. The crew's understanding of what is safe and what is unsafe is down to effective education. The crew must know how to safely operate everything. When thing go wrong, it is often as a result of poor and inadequate training resulting in human error.

The twenty-four years of Royal Naval training I had was, in my opinion, the best in the world at the time. Before joining a ship, we attended college to learn about the vessel and its equipment weeks before boarding. The most intensive training involved simulators. The control room assessors could manufacture any combination of machinery failures they wished and then gauge our reactions. There followed several days fire school training, followed by time at the damage control school.

Once completed satisfactorily, we were allowed to join the ship. But ongoing training continued onboard with a Task Book which had to be completed and checked for progress. For me as an engineer this included system tracing, machinery operation and departmental familiarisation. There were daily fire exercises, machinery breakdown drills and officer of the watch manoeuvres. This training was of essential value as I was involved in real life emergency situations, which I was consequently well equipped to deal with.

I recently read an accident report recording a ship drifting helplessly and crew being unable to start the emergency generator and operate the ships recovery systems. A clear lack of training. And another - a vehicle carrier capsizing due to the crew not knowing how to operate the ballast system. Again, a clear lack of training and vessel familiarisation.



However, let's not place all the blame on the crew. Surely the shipping lines must ultimately take responsibility for placing untrained crew onboard.

All systems, equipment and even crew require a back-up. The main generator will have a standby generator. A chief engineer will be backed up by a 1st engineer and so on. There must always be more than one person able to operate any system or piece of equipment.

All these solutions have a cost, but when you look at the profits made by many shipping lines and take into account the huge costs - (both environmentally and financially) - which are attributable to the loss when things go wrong, surely safety, maritime professionalism and competency through education and training is worth every penny.

THE REPORT

MARCH 2021
ISSUE 95

The Magazine of the International Institute of Marine Surveying

The following Safety Briefings are taken from Edition 95 of The Report Magazine

MARCH 2021

WRONGLY STOWED CONTAINER LED TO FIRE

The Swedish Club has reported an incident where a wrongly stowed container led to a fire.

During early morning hours, the Master was at the bridge of the vessel when they observed a large cloud of smoke issuing from the forward part of the vessel. At the same time the fire detection system for cargo hold 3 sounded on the bridge. According to the Master, the smoke was first white and then greyish. Yet, the Chief Officer, however, described the smoke as being "dark grey, almost black".

Following, the ventilation fans for the cargo holds were stopped. The fans for cargo hold 3 were not operating at that time but natural ventilation was being provided for the holds as the covers for the vents were open. Crew members closed the covers of the vents for cargo hold 3 and no crew member entered the cargo hold.

The Master, then, anchored the vessel nearby. After checking the vessel, the Chief Engineer released the contents of almost 200 CO_2 cylinders into cargo hold 3. This discharge was the designated full complement of CO_2 required for the hold, and appeared to extinguish the fire. A couple of hours later smoke began to issue from the hold and a further 50 CO_2 cylinders were released into cargo hold 3. About six hours later smoke was observed issuing from cargo hold 3 and the Chief Engineer released a further 50 CO_2 cylinders.

The next morning, salvors boarded the vessel to better check the vessel. Shortly before midnight, temperature checks were completed by the vessel's crew indicating that the temperature in cargo hold 3 was rising so five more CO_2 cylinders were released.

In the morning, another 20 CO_2 cylinders were released. The salvors entered cargo hold 2 and measured the temperature for the bulkhead to cargo hold 3 - it was 80°C. It was decided that cargo hold 3 should be filled with water from the fire hydrants. The water filled three container tiers up and after a couple of hours the salvors considered the fire to be extinguished.

It is stated that the container where the fire started was not declared as dangerous cargo but was actually loaded with calcium hypochlorite and had been misdeclared by the shipper. The charterer had loaded the container as per the rules of the IMDG code. As per the manifest, the container was allowed to be loaded in the cargo hold, but as the cargo was calcium hypochlorite it should not have been loaded below deck or in the position it was stowed in.

FIRE ON RORO LINKED TO ACCIDENTAL FUEL SPILL SAYS ACCIDENT REPORT

Transport Malta has published an investigation report into the engine-room fire onboard the Maltese-registered RoRo cargo vessel Eurocargo Trieste, following departure from the port of Livorno in November 2019. The investigation identified an accidental fuel spill onto a hot surface as the most likely cause of the incident.

Probable causes
The safety investigation concluded that the fire was most likely caused by an accidental fuel spill onto a hot surface near the entrance to the purifier room. Once the fire started, it spread quickly due to the presence of combustible material, leaking heavy fuel oil and lubricating oil around the engine and its bilges.

Other findings
- The smoke detectors, although operational, failed to alert the crew of the existence of a fire immediately, as they probably had been silenced for a short period of time, while the vessel was in port.
- Combustible materials in the form of leaked fuel, leaked oil, braided PVC pipes (to direct the leaks), plastic containers to collect drained oils, oil in the bilges and the vicinity contributed to the propagation of the fire.
- It is highly likely that the leak in the CO2 system compromised its effectiveness.
- Evidence indicated that the doors to the fuel oil modules and separator rooms were open.
- The delay to stop the port main engine is likely to have contributed to the fire taking hold.
- The decision-making process of the master would have been very complex, involving at least cues (possibly conflicting), technological data, information from fellow crew members, interpretation of that data and a decision to act, either in one way or another.
- The leakage of CO2 in the storage compartment is likely to have occurred when the main valve was accidently closed, soon after releasing the gas.
- There was a delay between the fire being detected and the port authorities being informed of the emergency onboard.

Read the full article and download the report at **http://bit.ly/3oJZaro**.

Marine Safety Investigation Unit

Transport Malta

EXTRACTS FROM
ACCIDENT REPORTS

The maintenance of the fire-extinguishing systems was inadequate.

The workboat and fish farm owner did not have an effective marine safety management system and lacked staff with the experience to oversee its marine operations.

The investigation identified several factors that would have adversely affected the safety of the container stows on deck. These included: reduced structural strength of non-standard 53ft containers, inaccurate container weight declarations, mis-stowed containers and loose lashings.

Safety Briefings

INVESTIGATION REPORT INTO COLLISION BETWEEN MOTOR YACHTS MINX AND VISION PUBLISHED BY MAIB

In the evening on 25 May 2019, the Gibraltar registered motor yacht Vision collided with the UK registered motor yacht Minx, which was anchored at Île Sainte-Marguerite, near Cannes, France. Minx's crewman was on the foredeck and there was nothing he could have done to prevent being fatally struck by Vision's bow. The accident happened because Vision's skipper underestimated the risk associated with attempting a fast, close pass by the anchored Minx, a manoeuvre intended to provide an opportunity for the guests to wave goodbye, as the charterer had asked. Vision's skipper had also consumed cannabis, which is likely to have impaired his judgement.

Safety Issues

- it is vital for the safe operation of a commercial motor yacht, that the skipper prioritised the safety of the crew, passengers and the vessel
- Vision's surface-drive propulsion system was complex to operate and there were insufficient margins for error in the skipper's plan to allow for any misjudgement, loss of control or failure
- the use of recreational drugs, even in a 'tolerant' individual can impair decision-making and responses, which are vital for the safe operation of vessels
- the accident took place in an anchorage with a 5-knot speed limit applicable to all vessels; however, Vision was proceeding at over six times that limit. Speed limits exist for a reason and it was unsafe to proceed at high speed in the anchorage

Recommendation

A safety recommendation (2021/101) has been made to the Royal Yachting Association and the Professional Yachting Association to promulgate the safety lessons from this accident to owners and operators of commercial motor yachts.

LIMITING LIQUEFACTION

Although the IMO provides the official regulations and guidance notes on cargo liquefaction, P&I Clubs such as The London P&I Club offer complementary advice to ship's masters to raise awareness of the issue and to suggest practical steps to reduce the danger.

IMO has identified 75 bulk cargoes that have the potential to liquefy under certain conditions – these are known as Group A cargoes. If the Moisture Content (MC) of a Group A cargo exceeds the Transportable Moisture Limit (TML) then vibration and the motion of the vessel might cause that cargo to behave as a liquid rather than a solid when it is being transported in the hold. When in liquified form, and in a heavy sea, the cargo can easily flow from one side of the hold to the other. This affects the vessel's stability and can lead to a vessel capsizing. Therefore it is vital that the crew are fully aware of this issue and are able to spot warning signs as early as possible.

Most importantly, the master must be confident that the cargo to be loaded into his ship is safe. Prior to loading a Group A cargo, the actual MC and TML must be determined by an accredited scientific laboratory in accordance with the IMO regulations. The master must be in receipt of a valid, signed certificate stating that the MC is less than the TML. Even if the master has been presented with a valid certification, he/she should be aware of the prevailing climatic conditions, such as a prolonged period of rain or snow after the test has been performed, which might have significantly altered the MC of a cargo that has been left unprotected.

As an additional precaution, the master should carry out his/her own inspection using the "can test". Examining the results for free moisture or fluid won't definitively show that the moisture content of the cargo is less than the Transportable Moisture Limit (TML) but may indicate that the cargo has exceeded its Flow Moisture Point (FMP). Can tests should be performed regularly during the loading process and the results photographed and recorded.

If the master is not in receipt of a valid certificate, or if the can test results are concerning – or if he/she is prevented from taking a sample – then loading operations should be stopped.

During loading operations, the master should continue to visually inspect the cargo and try to prevent any excess water from entering the holds. If it is raining hard, then a further test to check that the MC has remained below the TML should be carried-out. In some circumstances it might be appropriate for the master to request the attendance of an experienced, independent cargo surveyor.

At any point, if the master has reason to suspect that the MC has exceeded the TML then he/she must stop loading and inform the vessel owner. In addition, the master has the right to issue a "Letter of Protest" and seek further advice from the P&I Club.

It is important for all Group A cargoes to be closely monitored throughout the voyage even if the master was satisfied during loading. Holds should be inspected for excess moisture – taking care to comply with all guidance on safe entry of enclosed spaces, of course. Cargo hold bilges should be sounded regularly and additional ventilation introduced as necessary. The crew should also be aware of the general motion of the ship as changes can occur if the cargo is beginning to change state. If the master is concerned, he/she should attempt to reduce the vessel's vibration; contact the nearest coastal state authority; consider heading to the nearest port or place of refuge; and contact the P&I Club.

Photo credit: London P&I Club

Extract from an article written by Carl Durrow

EXTRACTS FROM
ACCIDENT REPORTS

The investigation showed that the hatch covers were not any equipped with any securing devices.

The report findings detailed widespread lapses in training, coordination, communication, fire preparedness, equipment maintenance and overall command and control.

The driver lost control of the jet boat due to a mechanical failure. An inspection of the jet unit showed that three of the four stud-bolts securing the tailpipe assembly to the steering nozzle had suffered fatigue cracking, rendering the unit ineffective.

CARGO FUMIGATION INCIDENT LEADS TO ONE FATALITY

Cargo fumigation remains a challenging operation onboard. An investigation by the Bahamas Maritime Authority found that the crew had been exposed to the fumigant gas – which had been used to treat a cargo of corn – after positive pressure in the accommodation was lost when the ventilation system was stopped by a large wave flooding the galley and store through the ventilation trunking.

Due to the fumigant gas leak, one seafarer died and three others had to be evacuated from their ship after exposure to hydrogen phosphide gas, it has prompted calls for a radical overhaul of the rules governing fumigated cargoes.

In addition to the checks after the accident it was found that the door between the hydraulic room and cargo hold was mounted incorrectly and the fan casing and ventilation duct located in the space, which served the accommodation's sanitary spaces, were not airtight.

Investigators said the crew were not sufficiently aware of the risks of carrying a fumigated cargo, symptoms of exposure to the fumigant, or what to do if they were exposed. They had not smelled the gas and periodic monitoring did not detect it in time to avert lethal levels of exposure.

It is noted that there was no assessment conducted prior to accepting the charter, loading or fumigating. There was no guidance in the company's safety management system, or any formal assessment of the risks associated with carrying fumigated cargoes.

In order to conduct a safe cargo fumigation, you are reminded of the following steps:

The ship's cargo can be fumigated and ventilated:
- While stored prior loading;
- In the hold of the ship before departure;
- In the hold prior to departure with fumigation continued during the voyage (in transit).

RIVER CANAL RESCUE CALLS FOR 'STICKY FUEL' SAMPLES

After a spate of incidents in which River Canal Rescue (RCR) saw up to 100 cases of 'sticky fuel' in 2020, MD Stephanie Horton is asking for similar fuel samples to be sent to her. RCR says it is the UK's largest national 24/7, 365 days-a-year breakdown/emergency assistance service provider for inland waterway boaters. As such, with around 4,000 call outs each year, it says it can usually gauge when an issue is arising. Now with regions affected from York to London and Bristol to Lancaster, Horton says it's time to act and work out what the cause of the sticky fuel is. She's calling for samples – and locations – so she can try to identify common factors like treatments being used.

The situation came to light when River Canal Rescue had two identical jobs. Fuel injectors were diagnosed as needing an overhaul, yet their replacements stopped working within a week. The injection pumps were found to have failed even though the diesel was clear and bright.

Upon further investigation, RCR engineers found in both cases the injector pump racks had seized solid and the nozzles were blocked, and when replacing the plunger filter head, they found the fuel had a sticky, syrup-like substance. Alongside stuck injection pump racks, injectors and filter head plunger failures, RCR is also seeing cases of fuel filters blocking with wax inside them.

"Over the last nine months, we've come across higher than normal call outs for injector, injection pump and fuel problems not related to diesel bug. Our contractors are also reporting reoccurring issues with these systems and 'sticky fuel'," Horton says.

"It's definitely a type of contamination, but not one we've seen before. Samples have been taken and we're trying to build a picture of the problem. Our engineers are reporting problems across the UK and this particular issue is only becoming clear when a fault reoccurs, because the diesel on the whole looks bright and clear.

"Initially we suspected sugar in the fuel, but sugar stays crystalline instead of dissolving. We now believe it may be related to a reduction in FAME-free fuel and a change in fuel and fuel treatment additives."

EXTRACTS FROM
ACCIDENT REPORTS

The close proximity of vessels in marinas can cause fires to spread quickly, preventing evacuation.

A preliminary inspection of the cargo ship, which lost 40 containers in rough seas, has discovered a major defect and serious concerns with how the load was secured.

The probable cause of the flooding and sinking of the towing vessel was inadequate maintenance of the vessel, resulting in corrosion and the loss of watertight integrity on the main deck, which allowed uncontrolled water ingress into the vessel's stern voids.

Safety Briefings

REPORT INTO FATAL ACCIDENT ON BOARD SUNBEAM PUBLISHED BY MAIB

MAIB has released a report on the fatal accident on board the trawler Sunbeam. On 14 August 2018, a second engineer on board was asphyxiated and died in one of the vessel's refrigerated saltwater tanks. The report found that entering Sunbeam's tanks without safety precautions had become 'normalised' by the crew and had been done 'without consequence' over a period of many years.

MAIB reports that Freon gas had leaked into the tank. Hazards associated with enclosed spaces can include flooding, heat, toxic gases, flammable gases, and oxygen deprivation, the report states. It is vital that enclosed spaces are recognised, and safety precautions are put in place before personnel enter them. These include proper ventilation, atmosphere monitoring, and a rescue plan. Risk assessments help to identify hazards and lead to method statements for the safe control of work, says MAIB. Without control of the maintenance work being undertaken on board Sunbeam, the second engineer was working alone and in an enclosed space. Lone working presents significant hazards if you get into difficulty, says MAIB's report, and it is completely unacceptable in enclosed spaces.

MAIB recommendations include that the Maritime and Coastguard Agency implements measures for the safe conduct of enclosed space entry on board fishing vessels by extending the application of the Merchant Shipping (Entry into Dangerous Spaces) Regulations 1988 to include fishing vessels (2020/137), and making corresponding updates to the relevant codes of practice.

Read the full article and download the report at **http://bit.ly/3hb7OMv**.

Sunbeam **(FR487)**

in Fraserburgh, Scotland

on 14 August 2018

resulting in one fatality

VERY SERIOUS MARINE CASUALTY REPORT NO 19/2020 DECEMBER 2020

NTSB PUBLISHES ITS SAFER SEA DIGEST WITH LESSONS LEARNED FROM US MARINE ACCIDENT INVESTIGATIONS IN 2019

The National Transport Safety Board (NTSB) has published its 104 page Safer Sea Digest. The Digest shares lessons learned as a result of the Board's many incident and accident investigations in 2019. The aim of the Digest is to focus those who read it on what can and does go wrong and how it can be prevented in the future.

The digest covers incidents and accidents caused by:

Organisational oversight
Fatigue
Dynamic Risk Assessment
Seafloor Hazards in Undersea Operations
Effective Hull and Structural Component Inspection & Maintenance
Watertight Integrity and Subdivision
Fire Protection During Hot Work
Securing Ventilation and Openings During a Fire
Remote Fuel Oil and Lube Oil Cut-Off Valves
Labelling of Alarms

Read the full article and download the digest at **http://bit.ly/2K6otoj**.

The leading worldwide professional body for the marine surveying profession, IIMS celebrated its 30th birthday in June 2021. The organisation has experienced strong membership growth in the past two years and now boasts over 1,000 members. New membership applications are always welcomed from marine surveyors and other interested parties. For more details go to https://bit.ly/3wjRAZ3.

EXTRACTS FROM
ACCIDENT REPORTS

The investigation found improper operation of the shoreside crane was the direct cause of the mishap.

In addition, visual analysis of the starboard shaft locking strap highlighted significant deterioration of the locking mechanism, which needed immediate replacement.

The investigation showed that the owner failed to properly use the services of a qualified individual to formally evaluate and update vessel stability instructions following changes to vessel structure and loading conditions.

Safety Briefings

RS Venture Connect sail number 307

VERY SERIOUS MARINE CASUALTY REPORT NO 20/2020 DECEMBER 2020

MAIB REPORT PUBLISHED ABOUT CAPSIZE AND FULL INVERSION OF SELF-RIGHTING KEELBOAT RS VENTURE CONNECT

MAIB has published a report about the capsize and full inversion of self-righting keelboat RS Venture Connect. On 12 June 2019, Blackwell Sailing's self-righting RS Venture Connect keelboat sail number 307 (RSVC 307) suffered a capsize and full inversion while sailing on Windermere, England. The boat was crewed by an experienced disabled sailor at the helm and a local sailing instructor who was acting as crewman.

Having been knocked down by gusty winds, RSVC 307 initially lay on its starboard side with its two crew still in their seats. The boat's liftable keel then slid back into the hull, following which the boat inverted completely, trapping the disabled helmsman under the hull. The crewman was able to swim clear, but with the keel retracted he was unable to right RSVC 307 unaided.

The boat was righted by the Windermere Lake Wardens working with the crew of the sailing centre's safety boat, and the helmsman was recovered from the water. Attempts to resuscitate him in the Lake Warden's boat and on shore were unsuccessful.

Safety Issues

- the boat's weighted keel was not secured, and it retracted into its casing when the boat was knocked down
- the requirement for the keel 'restraining' strap to be fastened was not stated in the Owner's Manual
- none of the Blackwell Sailing instructors involved in the rigging or use of the boat on the day of the accident were aware of the keel strap's function or importance
- a total inversion of the boat had not been identified as a risk, so the safety boat crew were insufficiently prepared
- the RYA inspections of Blackwell Sailing did not prompt the centre to reassess its risks

Recommendations

A recommendation (2020/141) has been made to Blackwell Sailing to review its safety management system in light of the new guidance.

A recommendation (2020/142) has also been made to the Royal Yachting Association aimed at improving the support provided to Sailability centres.

Download the report at **http://bit.ly/34AaYnU**.

THE REPORT

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The Magazine of the International Institute of Marine Surveying

The following Safety Briefings are taken from Edition 96 of The Report Magazine

JUNE 2021

EXTRACTS FROM
ACCIDENT REPORTS

The report identifies 36 sailors, including five admirals, as having contributed to the loss of the ship.

The investigation into this tragic loss of lives once again highlights the importance of installing carbon monoxide alarms on boats with enclosed accommodation spaces.

An investigation showed that the engine had been operated on a high thermal load for a long time and the turbocharger's efficiency had been affected by fouling, while the lubrication oil had been contaminated for some time.

Safety Briefings

SAFETY WARNING ABOUT MULTIPLE CRUISE SHIP ANCHOR FAILURES

In early 2020 the COVID-19 pandemic forced the international cruise industry into an unprecedented operational pause, resulting in many cruise ships anchoring off the UK south coast for long periods of time. The MAIB has been made aware of several marine incidents of anchor failures since October 2020 where cruise ship anchors or anchor cables have failed, often while trying to ride out named winter storms. One cruise ship lost both its anchors within a week.

The strength of anchoring equipment is defined by ship Classifcation Rules and it is intended for temporary mooring of a ship within a harbour or sheltered area. In good holding ground, the anchoring equipment should be able to hold the ship to a maximum wind strength of 48 knots in fast water, but this reduces to a maximum of 21 knots wind strength in seas with a significant wave height of 2m.

Safety lessons

- Operational limits for anchoring must be sufficiently cautious to ensure weighing anchor is not left too late, risking overloading anchor equipment. If strong winds are forecast, proactive action should be taken to seek a more sheltered anchorage in good time or proceed to sea and ride out the weather. Do not wait until the anchor drags or until most of the anchor cable has been paid out before weighing anchor.

- Steps should be taken to minimize the wear on the anchoring equipment as far as possible. When the opportunity presents itself, the anchor in use should be rotated and the scope of cable varied on a regular basis to minimize single point loading. An appropriately experienced crew member should also carry out regular checks on the windlass brake condition and areas where the cable is in contact with the ship.

- While at anchor for significant periods, ensure all watchkeepers are confident in the actions to be take in the event of dragging or losing an anchor and there is a contingency plan ready for implementation in the event of having to proceed to sea or re-anchor. Also, watchkeepers and senior officers must be aware of the reporting requirements to the coastal state in the event of losing an anchor so that mitigation measures can be put in place if required.

- As the restrictions on the cruise industry ease, it must be remembered that this period of prolonged anchoring may have decreased the life span of the anchoring equipment. A full assessment of the future suitability of the anchoring equipment should be undertaken at the earliest opportunity or the next dry-docking period.

MAIB SPRING 2021 SAFETY DIGEST OF ACCIDENT REPORTS PUBLISHED

The Spring 2021 Safety Digest has been published by the Marine Accident Investigation Branch. It features 25 case studies involving a range of vessels and accidents. The Safety Digest talks through each scenario and reveals the lessons that arise from each case.

Chief Inspector of Marine Accidents, Andrew Moll, writes in his welcome and introduction "At the MAIB, we try to keep our safety messages fresh. However, the articles in the Safety Digests are drawn from the cases reported, and all too often this means seeing the same sorts of accidents time and time again. Consequently, this edition contains accidents we have seen many times before involving safe means of access, suspended loads, noxious atmosphere and man overboard recovery. As mariners we take pride in our ability to get the job done, but many of the accidents reported here could have been avoided had those involved taken a little more time to assess the risks before getting on with the job. The old sailor's adage of 'one hand for yourself and the other for the ship' is still valid today: doing your job should not involve putting yourself in danger.

I have made the point before that accidents often come in batches. However, after a prolonged period during which there were no fatal accidents in the UK's commercial fishing sector, the spate of such accidents over the winter months is concerning. Small fishing vessels can be extremely vulnerable both to capsize and to being overwhelmed by heavy seas, and 5 of the 7 fishermen lost over the winter months were likely trapped when their vessels suddenly and without warning capsized. The MAIB's reports into these recent accidents will follow, but I make no apology for again asking owners and skippers of small fishing boats to make a proper assessment of their vessel's stability and of the loads it can safely carry.

For Northern hemisphere leisure boaters, Spring has arrived, better weather is expected, and for many there is a feeling of hope that the worst of the COVID restrictions are perhaps behind us and we can get on with some serious boating. In the autumn 2020 issue of the Safety Digest, I made the point that there had been some terrible tragedies over the summer, and I encouraged all leisure boaters to take advantage of the winter months to refresh their knowledge, carry out the inevitable maintenance tasks, and to plan how best to start the 2021 boating season.

When restrictions are eased and the sun is shining the temptation to get afloat will be immense. Please make the most of these last few weeks of enforced inactivity to properly plan and prepare for this year's boating. I am quite sure you will not regret it."

Access and download the Safety Digest at **https://bit.ly/3wXeO7t**.

EXTRACTS FROM
ACCIDENT REPORTS

The report has highlighted that marinas should have measures and guidelines in place to prevent such incidents.

Amending the misleading cargo name from "Ammonium Nitrate Based Fertilizer (non-hazardous)" to "Ammonium Nitrate Based Fertilizer (not otherwise classified)".

It is recommended that all concerned must check the condition of all lashings, lifting slings/strops and other loose gear as specified in the manufacturer's instructions for the use, size and construction of the wire.

Safety Briefings

FLOODING AND SINKING OF TRAWLER OCEAN QUEST REPORT PUBLISHED

MAIB have published their report on the flooding and sinking of trawler Ocean Quest.

On 18 August 2019 and about 70 miles north-east of Fraserburgh, the UK registered trawler Ocean Quest, sank as a result of an engine room flood. The source of the flood has not been determined; however, it was almost certainly a result of shell plating or hull weld failure. The crew tackled the flood with fixed and portable pumps but were not able to get the situation under control. The alarm was raised as soon as the flood was discovered, the crew were well prepared for the abandonment and all were rescued safely by a coastguard helicopter.

Safety Issues

Flooding presents an immediate threat, and every effort must be made to pump out the floodwater. In this case, the crew followed their onboard routine for bilge pumping, which meant that sea suction valves were left partly open. This potentially restricted the bilge pumps' effectiveness and, although this procedure may have been appropriate for bilge pumping, it was not appropriate during an emergency.

Training and drills help to prepare for emergencies. Ocean Quest's crew had conducted regular abandon ship drills so were well prepared for that phase of the emergency, and all rescued safely.

Ultrasonic hull thickness measurement is only a sampling process and does not provide 100% coverage, so is not guaranteed to detect all areas of erosion.

Read the report in full at **https://bit.ly/3a761WG**.

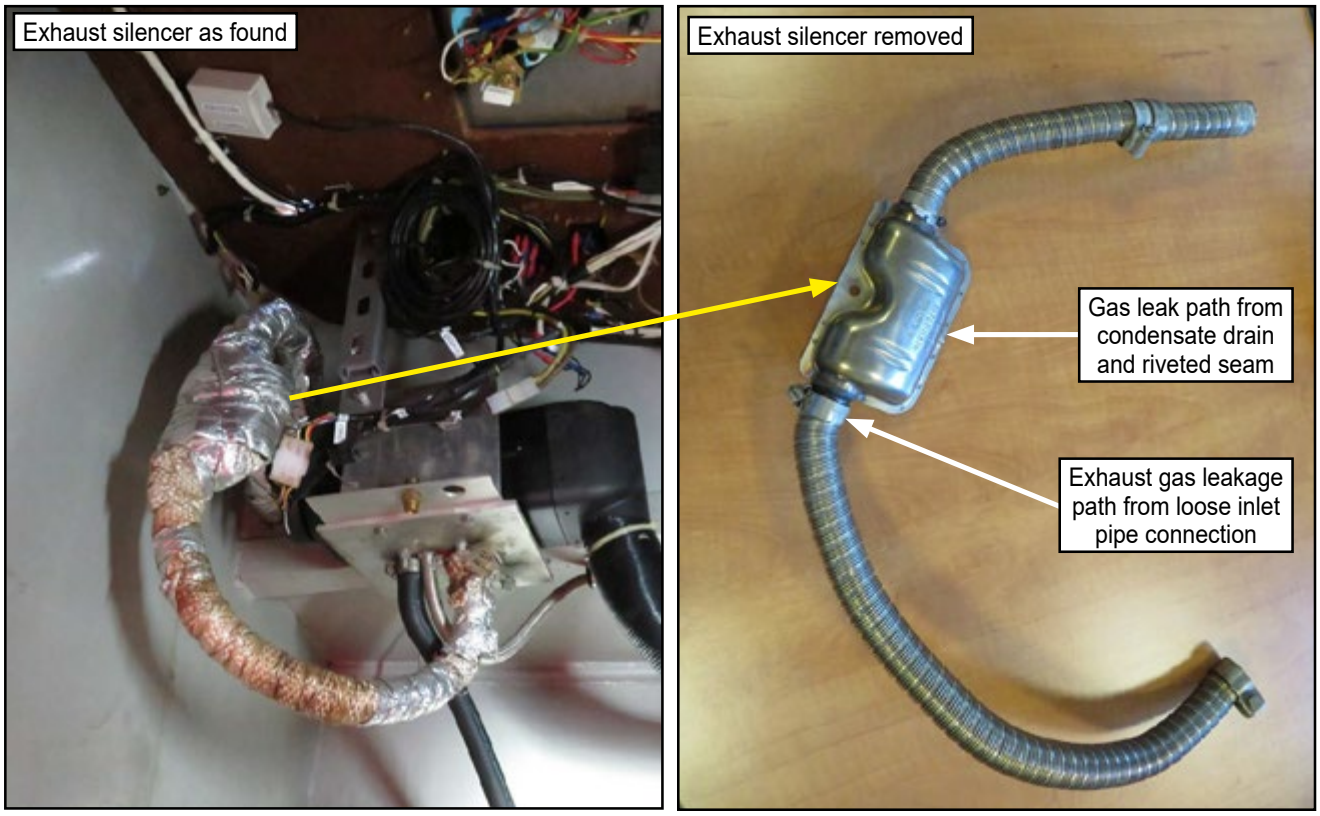
REPORT ISSUED INTO THE DEATH OF TWO MEN ONBOARD THE MOTOR VESSEL DIVERSION

The MAIB has released its report on the carbon monoxide poisoning aboard the motor cruiser Diversion that killed two men. At about 2000 on 4 December 2019, the bodies of two men were discovered in the cabin of the privately owned motor cruiser Diversion, which was moored to a quay in the centre of York, England. The bodies were those of the boat owner and his friend, who had spent the previous evening in the city centre socialising with former work colleagues and were spending the night on board.

Both men had died as a result of carbon monoxide poisoning. The carbon monoxide had leaked into the cabin from the boat's diesel-fuelled cabin heater exhaust.

Safety Issues

- the cabin heater's exhaust silencer was not designed for marine use: its connection to the exhaust pipe system was not gas tight, the installation had not been checked by a professional heater installer, and it had not been serviced;
- the cabin ventilation system did not meet the requirements of the Boat Safety Scheme and this might have increased the rate at which the carbon monoxide accumulated in the boat's cabin space;
- the owner and his friend were not alerted to the danger because a carbon monoxide alarm had not been fitted.



Statement from the IIMS Chief Executive Officer:
"Too often we have seen carbon monoxide as the cause of deaths onboard boats. Such incidents are avoidable, and the installation of an inexpensive carbon monoxide alarm would most likely save lives. I urge marine surveyors the world over to implement a duty of care and if, when surveying a vessel and no carbon monoxide alarm is installed, they make a recommendation to the owner to fit one as a matter of urgency."

Access the report at **https://bit.ly/3mQFiTu**.

EXTRACTS FROM
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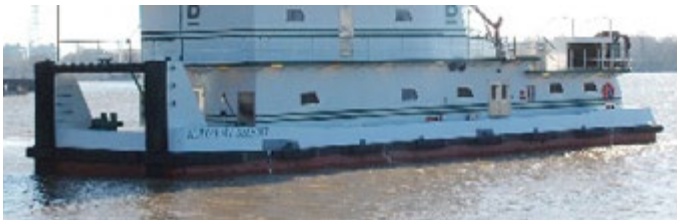
Contributing to the severity of the fire and loss of life were the County and marina's limited fire safety practices.

The weight of the fishing gear reduced the vessel's freeboard to the extent that water entered the vessel through its freeing ports, causing it to capsize.

The probable cause of the flooding and sinking of the tugboat was the company's poor hull maintenance and repair program, which resulted in flooding into the bow voids and engine room through fractures in the hull.



FLOODING OF TOWING VESSEL CAUSED BY A LACK OF MONITORING

The National Transportation Safety Board (NTSB) has published an investigation report on the flooding of the towing vessel 'Alton St Amant' while moored in the Harvey Canal in New Orleans. The incident resulted in an oil discharge into the water. The investigation identified lack of pre-inspection and monitoring procedures for water transfer as a key cause of the incident.

On May 17, 2020, about 0530 local time, a shipyard worker reported that the towing vessel Alton St Amant was partially submerged while moored at a shipyard in the Harvey Canal in New Orleans, Louisiana. There were no crew members or shipyard workers aboard the vessel. Approximately five gallons of diesel fuel were released into the water. Damage to the vessel was estimated at $1.5 million. No injuries were reported.

Probable cause

NTSB has determined that the probable cause of the flooding of the towing vessel Alton St Amant was the absence of shipyard pre-inspection and monitoring procedures for water transfer, which resulted in potable water tanks overflowing through their open access hatches during an unmonitored transfer.

Having been filled for several hours, the potable water tanks reached capacity, resulting in an overflow through the open hatches in the rudder room (rather than the tank vents as planned). After the rudder room flooded, the water spilled over the open doorsill onto the main deck of the engine room and began flooding down into that space. With the bilge system inoperable due to planned maintenance during the shipyard period and no one aboard the vessel to monitor the water transfer, the potable water continued to fill the aft spaces undetected and submerged the vessel until it came to rest on the bottom of the canal.

Lessons learned

Precautions for Tank Filling
Crew and shipyard personnel designated to conduct liquid transfers must be aware of the status of a vessel's tanks, including their access hatches and associated piping systems, whether ashore or at sea.

When filling a tank, open access hatches create a risk of unintended flooding. Pre-inspection and monitoring of transfers provide the opportunity to identify and remedy any issues in order to ensure they are safely completed.

Read the full story and download the report at **https://bit.ly/2POaSV9**.

SWEDISH CLUB CASE STUDY FOLLOWING MULTIPLE EXPLOSIONS ONBOARD AFTER CARGO FUMIGATION

The Swedish Club describes a case of multiple explosions onboard a bulk carrier caused by cargo fumigation. A bulk carrier had loaded yellow corn in all cargo holds up to the hatch coamings. After the loading was complete fumigation technicians came onboard and fumigated the cargo with fumitoxin pellets. As per the cargo documentation, the fumigation pellets were required to be applied subsurface.

In this instance, the technicians poured the pellets from flasks while walking on the hatch coamings or hatch covers. This work took a little more than an hour and, afterwards, all the cargo hatches were closed and the vessel sailed. A couple of hours later, an explosion occurred in one of the holds. The crew noted that the hatch covers had moved slightly and blue gray smoke was seen coming from under the edges. About an hour later, another explosion occurred in a second hold, and a couple of minutes later an explosion occurred a third. There were explosions in the remaining holds shortly afterwards.

Probable cause

Fumitoxin pellets and similar fumigants are made up of around 55% aluminium phosphide which reacts with water to produce phosphine, an extremely toxic and effective fumigant. Phosphine gas will form an explosive mixture when mixed with air at a concentration exceeding around 1.8% to 2% by volume (the lower flammable limit).

Lessons learned

The manager should provide training to the crew to ensure that the crew is aware of the requirements and procedures for the fumigation operation. The crew need to ensure that the fumigation pellets are distributed as per the cargo documents.

Agricultural products in bulk may be fumigated in ships' holds to prevent insect infestation. Solid aluminium phosphide (or similar) is often used for fumigation. Aluminium phosphide reacts with water vapour (humidity) in air to produce phosphine, a toxic and flammable gas, which kills insects. Heat is also given off during the reaction. The solid fumigant may be applied in fabric 'socks' or as pellets on the surface, just before closing holds. Holds are then kept closed for a period before ventilating. People must keep out of holds that are being fumigated due to the toxic fumigant.

If there is an excessive amount of fumigant in one place, or if the fumigant is in contact with liquid water e.g. from sweating or condensation, then the fumigant can react too quickly. This can evolve excessive heat and lead to ignition of cargo and/or packaging such as bags or paper placed over the top of the cargo. Under certain conditions the fumigant gas itself may ignite, producing an explosion.

Read the story in full at **https://bit.ly/39nIct3**.

EXTRACTS FROM
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The investigation identified lack of crew familiarization with the correct operation of the compensation damping tank.

The most likely cause of the fire was the ineffective preventive maintenance program and insufficient guidance regarding the response to engine hightemperature conditions.

The company did not have any written procedures or policies regarding voyage planning or the consideration of the tow's maximum air draft in conjunction with the vertical clearance of overhead obstacles.

Safety Briefings

REPORT PUBLISHED INTO CARGO EXPLOSION BY TRANSPORT MALTA

Transport Malta has published an investigation report into the cargo explosion onboard the container ship MV Croatia while underway in February 2020. The investigation established that flammable vapours had accumulated inside the container, which contained scrap metal and used car parts, resulting in an explosive atmosphere.

Whilst underway towards Singapore, a cargo explosion occurred in Croatia's cargo hold no. 7. A fire party was immediately mustered by the master to assess the situation inside the cargo hold. An inspection of the area revealed that an explosion had occurred inside one of the containers stowed in the cargo hold, damaging five other containers and several ship fittings.

Probable causes

Evidence submitted to Transport Malta revealed that the affected container had sustained substantial internal overpressure and one of its side walls and the door-leaves had been blown off. Reportedly, the container was loaded with used auto parts. An examination of the ejected debris revealed the presence of at least eight automotive metal fuel tanks, four of which had a ballooned appearance, consistent with the effects of internal over pressurization.

It is possible that fuel may have leaked from one or more of the tanks, which gradually led to an explosive atmosphere developing within the container causing the cargo explosion. Although no old or damaged batteries were sighted in the container, it was not discounted that an intermittent electrical spark could have been the likely source of ignition.

Actions taken

During the safety investigation, the company contacted the charterers to inquire about what steps would be taken to prevent reoccurrence of such accidents. The Charterers drew the attention of their shippers to their cargo policies, which addressed measures to be followed when classifying used auto parts commodities and components. Furthermore, it raised awareness of the importance of making a correct declaration for used auto parts, making specific reference to the accident involving Croatia.

Read the story in full and download the report: **https://bit.ly/31yEmsK**.

P&I CLUB GUIDANCE ON PROPER COAL CARGO CARRIAGE

According to the Britannia Club P&I Club, due to its origins as a carbonaceous sedimentary rock formed by geological processes applying pressure to the remains of plant material over time, coal comes in many different forms and the term covers a relatively wide range of cargoes. Therefore, its properties and the associated hazards also vary significantly depending on the specific form of coal being carried as cargo. However, all coal cargoes require certain precautions upon loading, and monitoring during voyage.

Coal regulation
As a potentially hazardous bulk cargo, Britannia says it is essential that coal is always loaded, carried and discharged in accordance with the requirements of the International Maritime Solid Bulk Cargoes (IMSBC) Code. These requirements should be closely followed by both ship and shore management.

Liquefaction
With the exception of coal cargoes classed as Group B only, the cargo declaration should be accompanied by documentation relevant to the moisture content (MC) of cargo and its TML, issued by an entity that is recognised by the competent authority of the port of loading.

The IMSBC Code stipulates that if a Group A cargo has been exposed to significant rain or snow between the time of testing and the date of completion of loading, the shipper is responsible to ensure that the MC of the cargo is still less than its TML, and that evidence of this is provided to the ship's Master as soon as practicable. If the cargo is loaded onto the ship from barges, the shipper should include procedures to protect the cargo on the barges from any precipitation and water ingress.

Cargo declaration
The shipper's cargo declaration must be provided in accordance with the requirements of the IMSBC Code, in particular with regard to the cargo properties and the associated hazards. The declaration must include a section clearly stating whether the cargo of coal is liable to emit methane, or self-heat. In such cases, the Special Precautions in the IMSBC Code for "coals emitting methane" and "self-heating coals," respectively, must be taken.

In 2021, the only industry specific Professional Qualification in Marine Corrosion was launched by IIMS. The 10-module course is delivered by an experienced metallurgist and corrosion specialist via live lectures and equips delegates with all they need to know about this complex and often misunderstood subject. Details about the qualification can be found at https://bit.ly/39PG3qG.

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THE REPORT

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The following Safety Briefings are taken from Edition 97 of The Report Magazine

SEPTEMBER 2021

MAIB CONFIRMS MISSING FISHING BOAT NICOLA FAITH HAS BEEN RAISED AND RECOVERED

Four months after the fishing vessel Nicola Faith went missing with all hands off the coast of Wales, the U.K.'s Marine Accident Investigation Branch confirmed that the vessel was recovered in a unique salvage operation. The MAIB said recovery and analysis of the vessel would help to provide answers to the question of why the fishing vessel was lost.

The vessel departed from Conwy, on the north coast of Wales, on January 27 and was believed to be out to set lobster pots. The vessel was not heard from and the MAIB was alerted to an overdue vessel, prompting the SAR operations. Seven RNLI lifeboats and three HM Coastguard teams searched an area measuring more than 400 square miles but reported no sign of the vessel of its three missing crew members.

In the first stages of the recovery operation, a remotely operated vehicle was used to conduct a final survey of Nicola Faith on the seabed. Evidence including fishing equipment and outlying debris was mapped and collected from the area around the vessel. MAIB said it believes this information will help the team to understand what led the vessel to capsize.

In preparation for the recovery, anchors were set, and salvage pumps were used to remove a large quantity of seawater from the vessel. The Nicola Faith, which weighed 11 tons was raised using a crane barge capable of lifting up to 150 tons from a depth of 140 feet.

"This operation needed to be meticulously planned and executed to ensure that valuable evidence was conserved," said Chief Inspector of Marine Accidents, Captain Andrew Moll. "The purpose of our investigation is to improve safety. The next phase of the investigation will be to establish what events led to the vessel's capsize, the mechanics of how the vessel sunk, and why."

BMA GIVES INSTRUCTIONS FOR THE INSPECTION, MAINTENANCE, TESTING AND SURVEY REQUIREMENTS FOR FIRE SUPPRESSION SYSTEMS

The Bahamas Maritime Authority (BMA) has provided instructions for the inspection, maintenance, testing and survey requirements for firefighting installations and portable fire extinguishers. All inspection, maintenance, testing and survey have to take the relevant manufacturer's guidelines into account. However, certain maintenance procedures and inspections can be performed by competent crewmembers, while others should be performed only by persons specially trained in the maintenance of such systems.

Any aspect of the testing and maintenance of the system which is assessed by the company to be beyond the competence of the company's and ship's personnel must be carried out by a competent specialist maintenance firm. The Company shall ensure that the inspection and maintenance of the whole system meets the requirements of the Recognised Organisation and any recommendations of the installation manufacturer or supplier.

Fixed CO2 Systems
At least once in every 5 year period, control valves of fixed CO2 systems are to be internally examined to ensure they can operate freely.

Alternative fixed gas firefighting media
Alternative firefighting systems may be fitted on board ships, subject to the approval of a Bahamas Recognised Organisation or SOLAS contracting Government.

In surveying the safety equipment on a vessel, Recognised Organisations must verify that:

- All firefighting equipment has been inspected and maintained in accordance with the manufacturer's instructions and the foregoing requirements;
- The manufacturer's maintenance instructions are on board;
- Records of inspections, maintenance and pressure tests are maintained;
- Spare charges or extinguishers.

Read the full article at **https://bit.ly/3heCcr8**

INVESTIGATION MAKES SEVEN SAFETY RECOMMENDATIONS AFTER SCANDIES ROSE SINKING

The National Transportation Safety Board (NTSB) has issued seven safety recommendations after the fatal sinking of the fishing vessel Scandies Rose in December 2019. The Scandies Rose was en route from Kodiak, Alaska, to fishing grounds in the Bering Sea when it capsized and sank 2.5 miles south of Sutwik Island, Alaska. The Scandies Rose had seven crew members aboard, two were rescued by the US Coast Guard and five others were never found.

Findings
The added weight from ice accumulating asymmetrically on the vessel and the stacked crab pots on deck, raised the Scandies Rose's center of gravity, reducing its stability and contributing to the capsizing.

Although the crew loaded the Scandies Rose per the stability instructions onboard, the instructions were inaccurate and as a result, the vessel did not meet regulatory stability criteria and was more susceptible to capsizing.

The NTSB determined the probable cause was the inaccurate stability instructions for the vessel, which resulted in a low margin of stability to resist capsizing, combined with the heavy asymmetric ice accumulation on the vessel due to conditions more extreme than forecasted.

The NTSB also identified the following safety issues during its investigation:
- the effect of extreme icing conditions,
- lack of accurate weather data for the accident area,
- the vessel's inaccurate stability instructions and
- the need to update regulatory guidelines on calculating and communicating icing for vessel stability instructions.

Read the story in full at **https://bit.ly/36dY67r**

WHAT TO KNOW ABOUT HATCH COVER MAINTENANCE

In association with McAusland Turner, The Shipowners Club has published advice on effective hatch cover maintenance for dry cargo ships including preventative action against ingress of water. According to the Club, one of the key requirements in cargo vessel operations is ensuring that the cargo is delivered to the discharge port in the same condition in which it was loaded. Despite improvements in the methods for ensuring that hatch covers are weathertight, claims for wetted cargo that has resulted from water ingress through hatch covers are still being experienced.

In order to ensure that hatch covers are closed sufficiently it is vital that the correct procedures are followed every time the hatches are closed and opened. This can be achieved by ensuring that crew are duly familiar with the manufacturer's operating instructions, the company's on-board operation procedures, risk assessments and any other relevant policies related to these operations. Occasionally, charterers or shippers may request that additional measures are taken to seal the hatch covers, regardless of their condition.

Such requests should always be treated with caution as temporary sealing measures such as Ram-Nek tape, expandable foam or tarpaulin (if not part of the vessel's certified design) often imply that there is an underlying defect with the hatch cover securing arrangement. It cannot be emphasized more that these measures should be resisted with charterers, with the best course of action being to demonstrate the weathertight integrity of hatch covers without said additional temporary measures.

Poor maintenance can greatly increase the likelihood of hatch covers failing and leaking during periods of heavy weather. Whilst the hatch cover sealing rubber plays an important role as a barrier against sea water ingress, it is not the only means of preventing water from entering the cargo hold.

While the hatch cover seals themselves may be well maintained, if other parts of the hatch cover sealing arrangement are in poor working condition or compromised, cargo wetting could occur, resulting in exposure to high quantum claims.

The water in this drainage channel should pass through a non-return valve installed at the end point and not through an open pipe or section of fire hose. It must be noted that if a non-return valve is not fitted, heavy seas can flow in the opposite direction, into the cargo hold. These non-return valves should be removable or enable easy access for cleaning to prevent blockage of drainage pipes.

Download the guidance at **https://bit.ly/3jUjEy3**

EXTRACTS FROM
ACCIDENT REPORTS

Poor maintenance can greatly increase the likelihood of hatch covers failing and leaking during periods of heavy weather.

Investigators said the crew were not sufficiently aware of the risks of carrying a fumigated cargo, symptoms of exposure to the fumigant, or what to do if they were exposed.

Mechanical inspection and maintenance of all the internal oil piping on machinery including external oil piping near to all equipment that can potentially leak onto hot surfaces should be undertaken.

Safety Briefings

INSPECTION GUIDANCE FOR SMALL PASSENGER VESSELS ISSUED BY USCG

The US Coast Guard (USCG) has issued inspection guidance for Officers in Charge, Marine Inspection (OCMI), Chiefs of Inspection Division (CID), and Marine Inspectors for the small passenger vessels (SPV) risk-based inspection program.

USCG continues to conduct statutory inspections on the SPV fleet in accordance with 46 U.S. Code § 3301; however, data analytics provide a new tool and modernized approach to the marine inspection program to prioritize marine inspection resources. Using various computational methods, machine learning-enabled software, and a database of deficiency and casualty information, the Coast Guard developed a model to categorize SPVs based on potential risk for an undesirable outcome.

The CVC-WI-028 "Small Passenger Vessel Risk Based Inspection Program" issued by the USCG Office of Commercial Vessel Compliance (CVC) on 14 June says:

1. The Office of Commercial Vessel Compliance will annually evaluate the output of the risk model and provide a list of vessels and their tier level to internal Coast Guard users on an annual basis. Since a follow-on inspection is associated with a Tier I vessel, CG-CVC will notify owners if their vessel is a Tier I vessel and will only provide further notification in subsequent years if there is a change to the vessel Tier assignment. Each vessel will fall into one of three categories, Tier I, II, or III. An OCMI may recommend to CG-CVC, via a memo through District and Area, that a vessel be moved to a lower tier.

2. OCMIs shall ensure that the appropriate MI is assigned to the vessel based upon the tier level and inspection required. The OCMI may continue and is encouraged to use their discretion to identify vessels that should receive an expanded annual inspection. The designated OCMI shall be briefed on the annual inspection results on each Tier I vessel. Initial and re-issuance COIs issued to Tier I vessels under Subpart D of references (a) and (b) shall be signed by the designated OCMI.

3. Inspection Types and Marine Inspector Attendance: The OCMI shall select the appropriate MI based on the vessel Tier (enclosure 1). Further, every vessel, regardless of tier assignment, should be inspected by an experienced MI at least once during a COI five-year cycle to provide a consistent baseline for regulatory compliance. This should occur at the COI renewal inspection. Other inspection requirements, including hull, internal structure exams, and deficiency checks, remain unchanged. The OCMI may conduct additional inspections to increase the frequency of MI attendance or to focus on a particular system at their discretion. The OCMI may expand the scope of the inspection to verify the vessel does not pose a threat to people, property, or the environment.

Read the inspection guidance at **https://bit.ly/3jJsH4N**

FATALITY DUE TO IMPROPER CRANE LIFTING

Belgium's FEBIMA has published an investigation report into the fatality of a crew member onboard the general cargo ship ATLANTIC PROJECT II while in the Port of Antwerp in February 2021. The investigation stressed that the contingency plan on crane lifting operations was not fully implemented.

On February 8th, 2021, stevedores were unloading the MV ATLANTIC PROJECT II while moored at the Port of Antwerp. When tween-deck cargo hold N°3 on PS was empty, the tween-deck pontoons had to be removed by the ship's crew, using ship's gear, to allow access to the cargo stowed below.

After the first pontoon was hoisted and moved using the ship's crane to its stacking position at the aft part of the cargo hold, a crew member was hit by the lifted pontoon. The injured crew member did not survive the impact.

Probable causes
The accident happened because the overview over the path of the hoisted pontoon was lost from the moment the pontoon was lifted from its initial position. Since there was no overview over the path of the hoisted pontoon, it was not observed that a crew member had entered the danger zone between the bulkhead and the hoisted pontoon.

A trained and informed crew member involved in the hoisting operation had moved into the zone where the lifting operation took place without previously having stopped the operation, a clear indication that the contingency plan was not fully implemented and thus contributing to the accident.

No control measures were in place to verify if the stacking position was free of obstructions, such as cargo debris, before commencing the hoisting operation. Absence of such control measures could have led to someone entering the danger zone to rapidly remove any obstructions. Therefore, the absence of control measures therefore is to be considered as a contributing factor to the accident.

Actions taken
On February 18th, 2021, the company issued Fleet Marine Safety Circular N° 01/2021 with subject "Improper lifting operation of crane results in fatality". The circular informed the fleet about the fatal accident and announced actions to be implemented.

Download the report at **https://bit.ly/3yocOon**

WARNING TO INSPECT FAST RESCUE CRAFT LIFEBOAT AND WORKBOAT LIFTING FRAMES

IMCA has received information surrounding an incident in which a lifting frame became detached from a fast rescue craft (FRC) during operations.

The incident occurred when the FRC was attempting to come alongside a vessel in good weather with choppy seas. During recovery, the complete lifting frame detached from the boat. No one ended up in the water, but one member of the crew was pulled up with the lifting frame and fell down into the boat. The crew member sustained only minor injuries. An investigation and checkup of similar boats revealed cracks around the lifting frames.

This was considered a high-priority incident with a potential outcome of multiple fatalities had the frame come loose later in the recovery operation. The subsequent investigation uncovered cracks, delamination and potential weaknesses in the structure of the anchoring of the lifting frame on this type of FRC.

Lessons learned - Surface cracks are early signs, but it is very difficult to assess the severity and any potential delamination as the attachment of the lifting frame is inside the hull.

Actions - In this case, a management decision was taken to cease use of this specific type of FRC and notify the manufacturer immediately.

Surveyors and inspectors are asked to inspect all FRC lifeboat and workboat lifting frames and attachments and to ensure that there is an appropriate focus on inspection and the detection of cracks in planned maintenance systems.

EXTRACTS FROM
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During anchor handling activities, the manufacturer recommends maintenance of the shark jaws to be carried out once every week.

Contributing to the undetected growth of the fire was the lack of a Coast Guard regulatory requirement for smoke detection in all accommodation spaces.

The crew stated that the high-water bilge alarm system functioned a few days before the sinking. However, on the night of the sinking, there was no audible or visual high-level bilge alarm indication.

AMSA TO CONSIDER CONCEPTION FIRE NTSB FINDINGS WHEN REVIEWING COMMERCIAL VESSEL REGULATORY REQUIREMENTS

Following the NTSB investigation into the fatal fire and loss of the passenger vessel Conception off California in September 2019, the Australian Maritime Safety Authority (AMSA) has identified key points of concern for Australian vessels. As a consequence, they have said it will consider the NTSB report in full when reviewing the current domestic commercial vessel regulatory requirements, including the standards for fire safety and accommodation.

The US-flagged passenger vessel Conception was at anchor off Santa Cruz Island, California, when a fire broke out in the early morning hours of 2 September 2019. Five crew members were asleep in the crew berthing area on the upper deck. One crew member and all 33 passengers were asleep in the bunkroom below. Of the 39 people on board, 34 perished in the incident.

Report findings

The NTSB report drew 18 conclusions, the following of which are considered worthy of note by those persons involved in operating passenger vessels in Australia AMSA says:

- **Although a definitive ignition source cannot be determined, the most likely ignition sources include the electrical distribution system of the vessel, unattended batteries being charged, improperly discarded smoking materials, or another undetermined ignition source.**
- **Although the arrangement of detectors aboard Conception met regulatory requirements, the lack of smoke detectors in the saloon delayed detection and allowed for the growth of the fire, precluded firefighting and evacuation efforts, and directly led to the high number of fatalities in the accident.**
- **The absence of the required roving patrol on Conception delayed detection and allowed for the growth of the fire, precluded firefighting and evacuation efforts, and directly led to the high number of fatalities in the accident.**
- **Conception's bunkroom emergency escape arrangements were inadequate because both means of escape led to the same space, which was obstructed by a well-developed fire.**
- **Although designed in accordance with the applicable regulations, the effectiveness of Conception's bunkroom escape hatch as a means of escape was diminished by the location of bunks immediately under the hatch.**
- **Conception's operator provided ineffective oversight of its vessels' operations, which jeopardized the safety of crew members and passengers.**
- **Had a safety management system been implemented, the operator could have identified unsafe practices and fire risks on the Conception and taken corrective action before the accident occurred.**

Figure 1: Fitting has a uniform appearance.

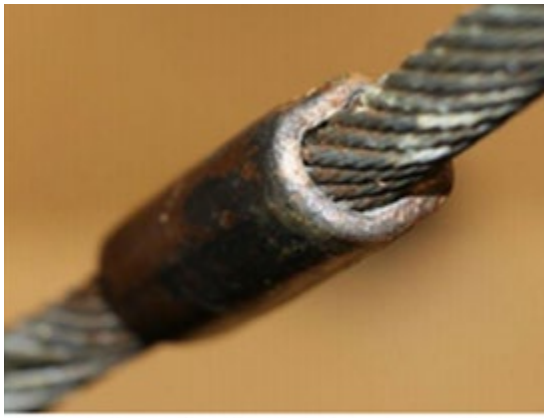

Figure 2: Completed fitting is not "round" nor within manufacturer specifications.

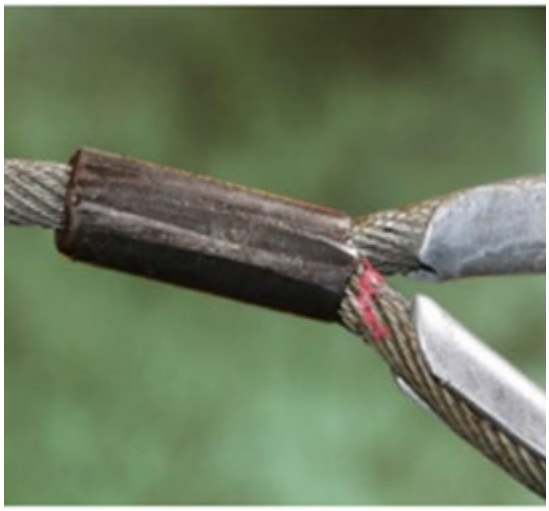

Figure 3: Fitting is deformed with "ridges" of extra material present from over-crimping.

CHECKING FOR FAILED WIRE ROPE TERMINATIONS SAFETY ALERT ISSUED

The US Coast Guard (USCG) has published a safety alert to addresses the importance of verifying the condition and manufacturing of wire rope terminations that are used in various systems that utilize wire rope in a load-handling capacity (e.g., lifesaving appliances, cranes, lifting slings). The Coast Guard is currently investigating a casualty involving a failed wire rope termination that resulted in extensive damage to equipment.

The Coast Guard has observed that improperly applied swaged fittings could result in unintentional damage to the wire rope, resulting in failure of the termination. Improper swaging procedure includes failures within a quality management system in which materials are improperly selected and do not match the specifications of the original equipment manufacturer.

A separate observation was that different types of fittings/end terminations might decrease the safe working load (SWL) of the wire rope. With this in mind, the type of fitting could affect the safety factor that is required by regulation or recommended by industry standard/practice for the application (e.g., 6:1 for lifesaving appliances launched with wire rope falls). As an example, a swaged sleeve in a common turnback eye results in a 90% or better efficiency of the termination (i.e., 10% or less reduction in the SWL of the wire rope) when properly installed in accordance with manufacturer's recommendations.

USCG strongly recommends that owners, manufacturers, operators and service providers utilizing wire rope in systems on any vessel or OCS facility:

- Visually examine wire rope terminations for abnormalities that may indicate improper installation
- Compare fitting dimensions against the manufacturer's specifications/tolerances for the completed fitting (i.e., does the length and diameter fall within fitting manufacturer specifications); and
- Verify through documentation related to the manufacturing of the assembly that the materials were properly selected and that the termination type does not reduce the SWL of the wire rope below the minimum safety factor for the type of service.

Marine inspectors, investigators, surveyors and servicing technicians are encouraged to maintain an acute awareness to these issues and initiate corrective actions as needed.

Download the safety alert at **https://bit.ly/36EoeJ4**

EXTRACTS FROM
ACCIDENT REPORTS

The source of the flood has not been determined; however, it was almost certainly a result of shell plating or hull weld failure.

The crew did not identify the hazards associated with wires under tension and had not implemented mitigation measures prior to undertaking the operation.

The added weight from ice accumulating asymmetrically on the vessel and the stacked crab pots on deck, raised the vessel's centre of gravity, reducing its stability and contributing to the capsizing.

Safety Briefings

FAILURE OR ACCIDENTAL RELEASE OF THE LIFEBOAT HOOKS CAN BE FATAL

Lifeboats are designed to save lives, but over the years there have been many serious casualties that have occurred during drills, routine maintenance operations and inspections of davit suspended boats fitted with on-load release hooks. These accidents have also resulted in seafarers losing confidence in the lifeboat launching systems.

Lifeboat accidents have a variety of causes.
Some of the more frequently occurring ones are:

- failure of the on-load release mechanism;
- inadvertent or accidental operation of the on-load release mechanism;
- inadequate maintenance of the lifeboat and its launching equipment. Sometimes the item to be maintained might not be readily accessible due to its location;
- lack of familiarity with lifeboats and the on-load release mechanism;
- unclear operating instructions of the on-load release/ resetting mechanism; and
- faulty design.

Broadly speaking the above causes each fall into one of the following three categories: lack of familiarity, procedural inadequacy or faulty design. As for the faulty design, non-compliant hook mechanisms should have been replaced by now, as the deadline for their replacement was 1 July 2019. To address operators' lack of familiarity with the mechanism and procedural inadequacy, more needs to be done. Having a crew that is fully familiar with the lifeboat hook system and the potential failure points would be the starting point. For this the crew should carefully read through the instructions provided in the manufacturer's manual on items such as inspection, maintenance and operation, and if need be, seek clarification directly from the maker.

ARE YOUR CONTAINERS FIT FOR PURPOSE?

At a time of container supply imbalance leading to shortages, international freight transport insurer TT Club warns against cutting corners when it comes structural integrity, cleanliness and cargo-worthiness of those that are loaded. The responsibilities of container operators providing empty boxes and those packing them with cargo should not be forgotten in a period when such equipment is in short supply and temptations to forego security and safety measures are strong.

Containers have numerous touch points in any given supply chain, becoming the responsibility for shorter or longer periods with a variety of stakeholders. During these unprecedented times, TT's continued message to all parties is one of resilience and continuity of robust practices. This challenging period, for those reliant upon the container, provides an opportunity to reflect on the roles and responsibilities defined within the Code of Practice for Packing of Cargo Transport Units (CTU Code), as well as the necessary safety properties of a container and its suitability to carry its intended cargo.

Mike Yarwood, TT's Managing Director, Loss Prevention comments, "The ripple effects of various national lockdowns, interruptions in trade and less predictable peaks and troughs in cargo volumes has resulted in severe imbalances of container equipment," he notes.

"Compounding the challenge, national stay and work at home policies have resulted in unexpected surges in consumer demand particularly for e-commerce goods, translating to beyond peak demand for empty containers in the dominant manufacturing centres of Asia. These circumstances must not be allowed to lead to the widespread use of inferior container equipment or that which does not comply with industry standards."

EXTRACTS FROM
ACCIDENT REPORTS

The BSU stresses that one of the containers was laden with coconut charcoal, which had been erroneously declared as coconut pellets.

The probable cause of the fire was the crew's lack of compliance to the company's safety management system and the marine chemist's instructions pertaining to hotwork precautions.

a The cabin ventilation system did not meet the requirements of the Boat Safety Scheme and this might have increased the rate at which the carbon monoxide accumulated in the boat's cabin space.

REPORT ON FATAL CRUSH INCIDENT DURING TRANSFER FROM WORKBOAT BEINN NA CAILLICH TO A FEED BARGE

The MAIB has issued a report into the fatal crush incident involving workboat Beinn Na Caillich. The Ardintoul fish farm assistant manager drowned after falling into the water from a feed barge access ladder during a boat transfer. He stepped from the deck onto the ladder while Beinn Na Caillich was still moving forward and was crushed between the boat and the barge. A fish farm technician on board the barge attempted to stop the injured assistant manager from falling in to the water by holding onto the back of his personal flotation device and oilskin jacket, but the severely injured casualty slipped out of them. Despite the assistant manager being recovered from the water and the determined efforts of the fish farm workers, emergency services, and medical staff, the assistant manager could not be resuscitated.

The investigation concluded that the conduct of the boat transfer had not been properly planned or briefed and was not adequately supervised or controlled.

Safety Issues

– the transfer of personnel by workboat had not been properly risk assessed, and safe systems of work had not been put in place
– the crew on board Beinn Na Caillich were not fully prepared to deal with the emergency situation. They had not conducted regular man overboard recovery drills and were not familiar with the vessel's recovery equipment
– the workboat and fish farm owner of Beinn Na Caillich did not have an effective marine safety management system and lacked staff with the experience to oversee its marine operations

Recommendations

Recommendations (2021/110 and 2021/111) have been made to the owners to apply the standards set out in the Workboat Code Edition 2 to all its existing workboats and, specifically, to fully implement a safety management system across its fleet, as well as ensuring that it has appropriate marine expertise to oversee its marine operations.

Download the report at **https://bit.ly/3dGwxaT**

THE REPORT

The Magazine of the International Institute of Marine Surveying

DECEMBER 2021
ISSUE 98

The following Safety Briefings are taken from Edition 98 of The Report Magazine

DECEMBER 2021

EXTRACTS FROM
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It is likely that the fisherman was quickly exposed to immediately lethal levels of gas as he climbed down to the bottom of the tank.

The cabin heater had been installed by the vessel's owner, but the installation had not been professionally checked and no servicing had been carried out.

The extreme forces acting on the ship, the containers and the lashing systems as a result of specific conditions on this shipping route were the primary cause of the loss of containers.

Safety Briefings

MAIB AND DMAIB PUBLISH COLLABORATIVE REPORT ON ECDIS USE FROM THE PERSPECTIVE OF PRACTITIONERS

The UK's Marine Accident Investigation Branch (MAIB) and the Danish Maritime Accident Investigation Board (DMAIB) has published a comprehensive 94 page study focusing on the practical application and usability of ECDIS. The study follows a qualitative methodology, primarily based on semi-structured interviews with 155 ECDIS users and observation data gathered between February and July 2018 during sea voyages in European waters on 31 ships of various types.

Challenges
The report showed that while the standardisation and allocation of simple and repetitive tasks (plotting the ship's position and chart update for example) has brought about tangible benefits, the required user interaction with ECDIS has introduced challenges that cut across system design, practices and training. These challenges include:

- The distraction of alerts and alarms, particularly during pilotage, that leads to coping strategies ranging between alarm 'normalisation' and physical disablement.
- The frequent impracticality of the setting of an efficient safety contour, leading to the use of 'official workarounds' (e.g. included in recognised guidance) and 'unofficial workarounds' (e.g. alarm disablement) to optimise the display to make the best of a bad job. Alternatively, the safety contour is ignored altogether.
- The number and types of alerts generated during automatic route checks that leads to them either being ignored or increases the risk of planners missing safety critical alerts among numerous more trivial ones.
- Interfaces and menu complexity that increase cognitive workload, particularly in busy environments, which results in users focusing on ECDIS to the detriment of other sources of information.
- The difficulty of residual manual tasks such as planning radar parallel indices, plotting limiting danger lines or writing text notes, which are often time-consuming, deters users from their application.
- ECDIS requires significant cognitive resources to use its functions, which has contributed to a minimalist approach by users.
- ECDIS use continues to be framed and audited within the context of paper chart practices with Flag State, PSC and SIRE inspections often not recognising new ways of working such as the use of radar information overlay to verify position.
- Users are trained to distrust the ECDIS and continuously verify the ship's position by alternative means. However, significant discrepancies are rarely encountered.

Download the full report at **https://bit.ly/3nIMAeq**.

GOLDEN RAY NTSB REPORT REVEALS INACCURATE STABILITY CALCULATIONS AS THE CAUSE OF THE CAPSIZING

Inaccurate stability calculations caused the capsizing of the vehicle carrier Golden Ray that resulted in $200 million worth of damages, the National Transportation Safety Board reveals in its marine accident report. The report gives details of the NTSB's investigation into the capsizing of the roll-on/roll-off vehicle carrier as it transited outbound through St. Simons Sound near Brunswick, Georgia on 8 September 2019.

All 23 crewmembers and one pilot on board were rescued, including four engineering crew who were trapped in the vessel for nearly 40 hours. Two crewmembers sustained serious injuries. The Golden Ray sustained significant damage due to fire, flooding and saltwater corrosion and was declared a total loss estimated at $62.5 million. An estimated $142 million worth of cargo, including more than 4,100 vehicles, was also lost.

Less than 40 minutes after leaving port, the 656-foot-long Golden Ray began to heel rapidly to port during a 68 degree turn to starboard. Despite attempts by the pilot and crew to counter the heel, the rate of turn to starboard increased, and the vessel reached a heel of 60 degrees to port in under a minute before it grounded outside of the channel.

Probable Cause
The NTSB determined the probable cause of the capsizing of the Golden Ray was the chief officer's error entering ballast quantities into the stability calculation program, which led to his incorrect determination of the vessel's stability and resulted in the Golden Ray having an insufficient righting arm to counteract the forces developed during a turn while transiting outbound from the Port of Brunswick through St. Simons Sound.

Contributing to the accident was G-Marine Service Co. Ltd.'s (the vessel's operator) lack of effective procedures in their safety management system for verifying stability calculations.

The NTSB concluded the Golden Ray did not meet international stability standards at departure and possessed less stability than the chief officer calculated.

According to the NTSB, after the vessel capsized, open watertight doors allowed flooding into the vessel, which blocked the primary egress from the engine room, where four crewmembers were trapped. Two watertight doors had been left open for almost two hours before the accident. No one on the bridge ensured that the doors were closed before departing the port.

The circumstances of this accident show that even when transiting in protected waters, watertight integrity is critical to the safety of the vessel and its crew. It is essential that the operator ensures that crews verify that all watertight doors are closed in accordance with safety management system procedures.

Read the full report at **https://bit.ly/3CosGcO**.

EXTRACTS FROM
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The probable cause of the fire was the overheating of electrical wiring associated with a chest freezer or the receptacle powering it.

Contributing to the severity of the fire was the vessel's lack of a fixed fire-extinguishing system for the engine room and lack of redundant fire pumps.

Publication follows an increasing number of instances where there was a lack of knowledge regarding the installation, training, maintenance and inspection of these certified systems.

Safety Briefings

DREDGER FIRE CAUSED BY OIL CONTAMINATED INSULATION PANELS

The Federal Bureau for the Investigation of Maritime Accidents (FEBIMA) has published its investigation report into the circumstances surrounding a fire onboard the Trail Suction Hopper Dredger 'UILENSPIEGEL' whilst she was moored at Lisnave shipyard in Portugal during January 2021. The investigation has established that insulation panels contaminated with oil were installed during the re-assembly of the main engine after dry-dock.

On January 26th, 2021, Trail Suction Hopper Dredger UILENSPIEGEL was moored at pier 0 at Lisnave shipyard, Setubal, Portugal. The vessel was refloated again after a period in dry dock where maintenance had been carried out, including an overhaul of the vessel's main engines. During the running-in of the PS main engine, smoke appeared and fire broke out at the exhaust of PS main engine. The engine was stopped and the fire emergency response plan was activated. The shipboard fire team observed the situation under command of the Master and the chief engineer.

The fixed fire extinguishing system was not to be activated. When flames were no longer visible and normal operating temperatures were measured; controlled ventilation of the engine room was started. After starting the fans and measuring of the oxygen level, the engine room was once again accessible.

Nobody was injured during this incident and the damage was limited to some carbon deposits inside the engine room and fire damage at the exhaust of the PS main engine.

Probable causes
- The fire was caused because insulation panels contaminated with oil were installed during the re-assembly of the main engine.
- Insufficient control measures were in place to verify the condition of the insulation before installation.
- The oil ignited when the temperature in the exhaust line increased during the running-in of the engine.
- The contamination with oil happened when the insulation was stored unprotected under a thermal oil line.
- During maintenance of the oil line, an oil spill occurred and contaminated the insulation. The maintenance on the thermal oil line was not properly prepared and thus contributed to the accident.
- It was not communicated that the spilled oil had contaminated the insulation panels. The lack of communication about the spilled oil is also considered as a contributing factor to the incident.

Download the full report at **https://bit.ly/3lPEiyT**.

ALERT ISSUED FOR SURVEYORS BY STEAMSHIP MUTUAL ABOUT CORROSION IN THE EXHAUST GAS SCRUBBER SYSTEM

Steamship Mutual had published a risk alert to highlight the issues around the corrosion in the exhaust gas scrubber system. According to Vijay Rao, Loss Prevention at Steamship Mutual, corrosion in the exhaust gas scrubber system is a recognised issue requiring adequate corrosion protection measures to be in place in the installation. Despite this several cases of acidic corrosion within the scrubber discharge piping system have been reported and this is an increasing cause for concern. Steamship Mutal notes that of particular concern is the case of severe corrosion in the section of the discharge piping outboard of the scrubber overboard valve – the distance piece. Wastage and failure of this piping section could, in worst case scenario, lead to flooding of the engine room.

"In the event of failure, arresting water ingress by temporary means is also difficult given the size and location of the discharge connection. Depending on the circumstances, and the area of the vessel operation at the time of a failure, outboard plugging and repairs to the connection may not be an immediately available option", says Vijay Rao.

Reason for failure
The vulnerability of seawater piping due to pitting, galvanic reaction and cavitation is well known. Similarly, the corrosion of discharge piping associated with the inert gas systems on tankers is also a known issue. The difference with the exhaust gas scrubber system is that it is a far more corrosive environment with the lower pH values (higher acidity) of discharge washwater, higher temperatures and variation in flow in the drain piping.

The continuous operation of the scrubber system, improper selection of material and poor workmanship are also identified as likely causes for early failure of the piping.

Given the number of instances of the wastage of the distance piece; some classification societies have issued requirements and recommendations for enhanced inspection and assessment of the discharge connection.

Sea connections and overboard discharge valves, including the attachment to the shell plating, are required to be inspected during the periodical docking surveys. Thickness gauging of the distance piece is to be carried out if wastage is noted and renewed as required.

Recommendation
It has now been suggested that the thickness gauging of the connection should be carried out annually, to ascertain the rate of any diminution in the piping thickness. Diminution could suggest damage to the applied corrosion protection where such is provided. It is, however, recommended, that where possible, the thickness measurement is undertaken at 6 monthly intervals and that a diver inspection of the overboard discharge connection is undertaken to ascertain the condition of the diffuser, attachment and any protective coating that might have been applied.

EXTRACTS FROM
ACCIDENT REPORTS

The probable cause of the fire aboard the fishing vessel was the ignition of fuel leaking from the generator fuel supply line in the engine room.

Recent modifications to the vessel had a detrimental effect on her stability but no checks had been carried out to assess the effect on stability.

It is stated that the container where the fire started was not declared as dangerous cargo but was actually loaded with calcium hypochlorite and had been misdeclared by the shipper.

NTSB SAFER SEAS DIGEST PUBLISHED AND REVEALS 14 KEY FINDINGS FROM INVESTIGATIONS IN 2020

The latest NTSB Safer Seas Digest report includes lessons learned from US maritime incident investigations. Following analysis of 42 cases NTSB warns that new lithium-ion battery hazards can be every bit as deadly as the worst storms.

NTSB commented, "The real world is a peculiar academy. We hope that this collection of lessons learned in the investigations closed in 2020 helps readers to take a step back and view their own operation with a cold, critical eye, then return to their day-to-day routines ready to take the appropriate action."

The 42 marine accidents included in Safer Seas Digest 2020 involved contact with fixed objects, sinkings, collisions, fires, explosions, floodings, groundings, and capsizings. The vessels involved ranged from the small dive boat Conception, on which the loss of life nevertheless rivalled the worst maritime disasters of recent years, to a US Navy destroyer - the second such investigation completed in the last 2 years.

The accidents recounted here resulted in numerous injuries, significant property damage, and worst of all, the loss of crewmembers and passengers. In the fire aboard the Conception alone, 34 lost their lives. This year also saw the conclusion of the investigation of the collision that took 11 lives aboard the Fitzgerald.

These tragedies remind us that whether we are serving in the nation's armed forces, scuba diving for recreation, fishing on a trawler, or keeping commodities flowing on tankers and freighters, we are all reliant on the safety measures that must be in place before we step aboard.

The NTSB investigates the voyages that go wrong to ensure that future voyages go right, and, drawing from the findings of these accident investigations, we recommend safety improvements to prevent recurrences. It is up to the marine industry and its regulators in the US Coast Guard to act on these recommendations and lessons learned to improve marine safety.

Download the report at **https://bit.ly/3CnjYeA**.

ENSURING SAFE CARRIAGE OF CONTAINERS IN BULK CARRIERS GUIDELINES ISSUED BY BUREAU VERITAS

Bureau Veritas has published a comprehensive set of guidelines to promote and support the safe carriage of containers in bulk carriers. In recent months there has been unprecedented demand for the carriage of containers. This has prompted charterers to explore the possibility of using of bulk carriers for that task. Bulk carriers, in general, are non-cellular vessels compared to container ships.

Whilst the carriage of containers in bulk carriers is possible, but only after extensive planning, assessment and scrutiny, operators must liaise with their insurance carriers, the Class society of their vessel(s) and corresponding Flag Administration for advice and guidance on the necessary modifications and/or additions to satisfy their requirements.

The fact that bulk carriers are indeed "not specially designed and fitted for the purpose of carrying containers" combined with the potential need to maximize the intake of containers, creates issues of concern related to the integrity of the vessel's structure and the cargo itself, as well as the safety of the crew and the stevedores.

Download the guidance booklet at **https://bit.ly/3AlATO3**.

SAFE WORKING PRACTICES ON CO2 SYSTEMS

Following a recent fatal incident involving the release of a carbon dioxide fixed firefighting system, North P&I Club has highlighted the importance of ensuring the system is safe before carrying out maintenance. On 27 September 2021, the vehicle carrier SANG SHIN was alongside a shipyard repair berth in Changtu, Zhoushan, China. During an inspection of the vessel's carbon dioxide (CO2) fixed firefighting system, an unintentional release occurred. CO2 flooded into the engine room, killing three people and further injuring two more.

This tragic incident serves as a reminder than any maintenance – planned or unplanned – to be carried out on the system must be properly risk assessed with the necessary control measures in place. Always check the vessel's safety management system (SMS) and the manufacturer's recommendations. IMO guidelines on the maintenance and inspection of fixed carbon dioxide fire-fighting systems provides guidance on who should carry out the maintenance and repairs. It recommends that the onboard maintenance plan should indicate which tasks may be performed by competent crew members and which should be performed by specially trained persons.

The guidelines stress the importance of developing a safety plan prior to commencing any work on the system. The plan should:

- allow for all personnel to be accounted for;
- establish an effective communications system between those working on the system and the on-duty crew;
- identify measures to avoid accidental discharges such as locking or removing the operating arms from directional valves or shutting and locking the system block valve;
- ensure all personnel are notified of the impending activities before work is begun.

EXTRACTS FROM
ACCIDENT REPORTS

The boat's engine had not been regularly serviced and there was evidence that the exhaust system of the engine had been modified during the boat's life.

The Club presents the case regarding improper ventilation after a maintenance operation, which could have led to the deaths of two surveyors during a third-party survey on the emergency fire pump.

The report found that entering the vessel's tanks without safety precautions had become 'normalised' by the crew and had been done 'without consequence' over a period of many years.

Safety Briefings

SAFETY BULLETIN ISSUED BY MCA OVER CONCERNS WITH LIFTING EQUIPMENT INSPECTIONS ON FISHING VESSELS

A chain link used in the lifting equipment of a fishing vessel showing fractures identified during inspection

Following a number of near misses and accidents during lifting operations onboard UK fishing vessels, the UK Maritime and Coastguard Agency (MCA) has published a safety bulletin.

It is a requirement of the Merchant Shipping and Fishing Vessels (Lifting Equipment and Lifting Operations Regulations) 2006 (SI 2006/2184) that the owner and/or employer shall ensure all lifting equipment is thoroughly inspected, as a minimum, at least every 12 months with regular inspections in between. Depending on the findings of the Company risk assessment, in certain applications, the frequency of inspection may need to be increased. Specifically, the attention of the inspection regime, established by the owner, may need to be increased in areas of high load, high wear rates, and high impact.

Examples of high load, high wear, and high impact areas include all fishing gear, its lifting apparatus, chains, wires, and pulleys, typical of that found on beam trawlers and scallopers.

It is the owner's and/or employer's responsibility to ensure that sufficient technical information is provided to the competent person to enable appropriate assessment of the in-service operation and the limits of acceptance of each item, according to the MCA. Where equipment is being assessed for continued service, the items should be appropriately cleaned – sufficient for a proper assessment to be made.

If novel, new or modified equipment is placed into service, the owner has an obligation to ensure that the equipment is used in accordance with the manufacturer's instructions and according to the inspection regime. For the avoidance of doubt, the manufacturer or supplier should be consulted about the intended use of the lifting equipment.

Lifting equipment or an accessory for lifting that is exposed to conditions causing deterioration which is liable to result in dangerous situations should be inspected by a competent person. This should be maintained at suitable intervals to ensure that health and safety conditions are maintained and that any deterioration can be detected and remedied in good time. The results of these inspections may lead the owner to consider inspection intervals being reduced. Any deficient item of lifting equipment should be removed as soon as it has been identified as being potentially deficient.

Read the article in full at **https://bit.ly/3zenRk1**.

MAIB REPORT INTO IMMOBILISATION AND FLOODING OF DREDGER SHEARWATER FOLLOWING REPEATED COLLISIONS PUBLISHED

At about 2000 on 9 April 2020, the UK registered dredger Shearwater was immobilised after its propeller shafts were fouled by a towline being used to tow the barge Agem One. The dredger and barge collided with each other repeatedly resulting in Shearwater being holed and flooded, before the towline parted and Agem One drifted away. There was no pollution or injury.

Shearwater had been towing Agem One in an alongside configuration on a coastal passage when a significant swell was encountered. This made the alongside tow untenable, causing Shearwater's crew to switch to an astern tow. Within minutes of switching, the 80m towline failed. Shortly after reconnecting the towline, it failed again, and the decision was made to abort the planned passage and seek shelter at Kinlochbervie.

During the passage to Kinlochbervie the crew had reverted to an alongside tow and, in preparation for entering the narrow channel into the harbour, the towing arrangement was again reconfigured to tow the barge astern. It was during this evolution that the towline became fouled around Shearwater's propeller shafts and the immobilised dredger was damaged. The situation was eventually brought under control after the intervention of a lifeboat, the emergency towing vessel, Ievoli Black, and the workboat Forth Drummer.

The accident happened because there was insufficient planning, risk assessments, or safe systems of work for the towing operation being conducted. Shearwater was not suitable for use as a coastal towing vessel especially through hazardous areas such as the Pentland Firth, and the crew did not have the necessary competence to undertake the operation.

Shearwater was too large for certification as a small commercial vessel but under the tonnage requiring a safe manning certificate or safety management system. This investigation has identified that the flag state's arrangements for certifying Shearwater using exemptions from the Load Line Regulations did not provide sufficient guidance to assure safe operation of the vessel.

Since the accident, Shearwater's owner has purchased a small tug for use when repositioning barges.

Nevertheless, recommendations have been made to Shearwater's owner to assess all on board hazards and provide safe systems of work to mitigate the foreseeable risks, and to ensure the vessel is safely manned. This report also makes a recommendation to the Maritime and Coastguard Agency to ensure that certification of vessels such as Shearwater includes the application of all appropriate regulatory conditions relevant to the vessel's intended function and area of operations.

Key Safety Issues

- Shearwater was not a suitable vessel to conduct a lengthy coastal tow, and there was insufficient planning or safety procedures for the voyage
- Shearwater's crew did not have the necessary competence for the towing voyage, and there was no tow master
- Safety certification by the flag state did not provide sufficient assurance for safe operation of the vessel

Download the full report at **https://bit.ly/2Z8iGpC**.

EXTRACTS FROM
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The report highlights the lack of adequate regulatory requirements and standards to address the known risk of fire on-board self-unloading ships.

The safety board has reported that poor maintenance practices led to an uncontained fuel spray from a blank flange at the end of the port main engine fuel supply line onto the hot exhaust manifold of the engine.

According to the report, the lubrication oil filter of the main engine had been improperly mounted, which eventually led to severe damages to the components of the main engine and a complete failure of the main engine.

Safety Briefings

LACK OF BOATING EXPERIENCE WAS A FACTOR WHEN THE NORMA G BOAT CAPSIZED LEADING TO FATALITY

The MAIB has issued a report on the incident involving Norma G. On 25 May 2020, a family were enjoying a day out on the water in the Camel Estuary, Cornwall, on their 5.4m motor cruiser Norma G. The boat was capsized by a large wave close to the Doom Bar. The owner's 17-year-old daughter became trapped in the cabin when the boat capsized, and she was unable to escape before the cabin filled with water and she sadly drowned.

Safety issues:
- the owner's daughter died as a result of drowning after being trapped in the cabin of Norma G when it was capsized.
- Norma G's owner's limited boating experience meant he did not fully appreciate the dangers of being so close to the Doom Bar around low water.
- the owner's daughter's inflated lifejacket prevented her from swimming down and out of the submerged cabin door

Statement from the Chief Inspector of Marine Accidents, Captain Andrew Moll, who said:

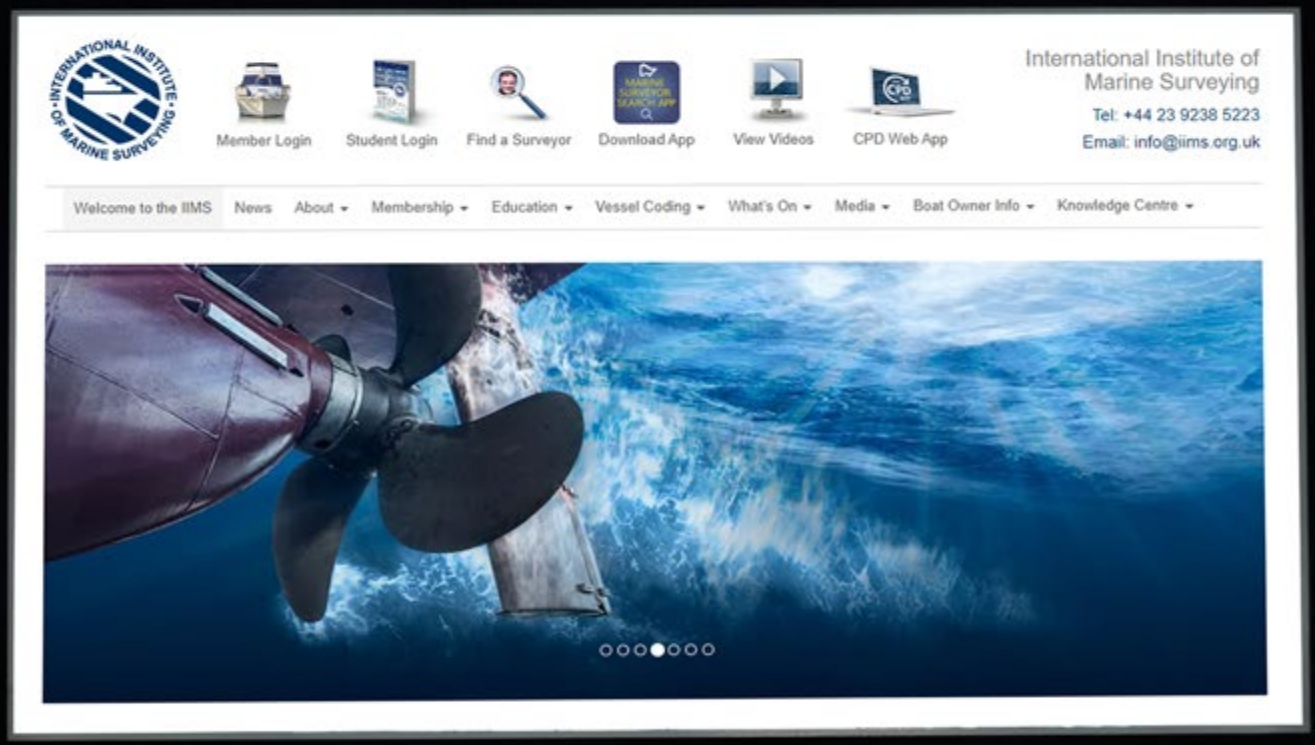
"This sad accident highlights the need for leisure boat users to get properly trained and equip themselves with the necessary navigational tools to stay safe. Conditions at sea can change rapidly, boat owners should check the weather forecast before setting out and know the limitations of their boat.

"There are many reasons to operate an older craft, but it must be appreciated that some were built to lower safety standards than modern craft and may not be suitable for use at sea. Owners of craft not marked with a CE plate are urged to seek advice from a qualified marine surveyor on the suitability of their craft for its intended use."

Recommendations
Recommendations (2021/129 and 2021/130) have been made to Padstow Harbour Commissioners to consider placing a navigation mark at the north-east extremity of the Doom Bar. A further recommendation (2021/131) has been made to the Wadebridge Boating Club to review and amend the navigation information available to users of the Camel Estuary.

Read the full report at **https://bit.ly/3vgIV96**.

POSTED ON THE IIMS WEBSITE



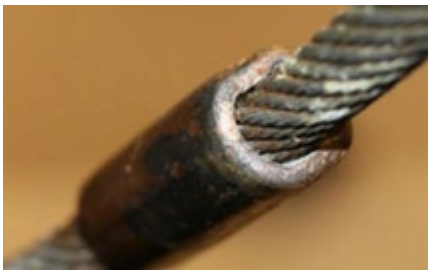
The following pages are posts which were published on the IIMS website during 2021

Surveyors beware some diesel heater installations

Posted on the IIMS website on 26 November 2021

Recent contact with someone has brought to attention a problem regarding a fault causing potentially life-threatening fumes from his boat's diesel heater. The heater in question is an Eberspacher for which cheap imported spares are available on the internet. The part in question was a replacement fuel pump which he bought online. The part was manufactured in China and on the face of it appears to be very much the genuine article, but there was no CE marking identifiable. The product description stated, "Good replacement – Based on the original factory specifications, a direct replacement for the old or broken one."

Read the article on the IIMS website at **https://bit.ly/3CT3WsH**.



Incorrect wire rope terminations can lead to catastrophic failure

Posted on the IIMS website on 26 November 2021

The USCG Coast Guard has published a Marine Safety Alert to notify interested parties of a potentially dangerous situation involving incorrect wire rope terminations, which can lead to catastrophic failure. The Alert addresses the importance of verifying the condition, manufacturing, and physical specifications of wire rope that was purchased directly from Southwest Wire Rope (SWWR) or fabricated by SWWR and sold through other vendors.

Read the article on the IIMS website at **https://bit.ly/3DUz78l**.

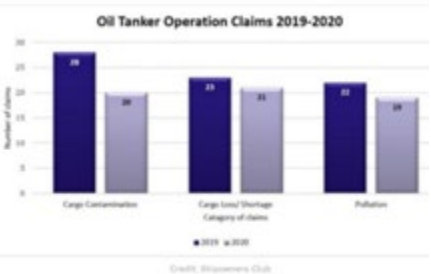
Improper maintenance procedures can cost lives

Posted on the IIMS website on 17 November 2021

UK P&I Club has released a video describing the dangers of refrigeration machinery following an enclosed space casualty. During a third-party survey, the surveyor made a request to test the emergency fire pump, which was arranged with the assistance of the chief engineer. The emergency fire pump was located in a recessed well in the steering gear compartment, approximately 3 metres deep and accessed by an inclined stairway.

At the commencement of the test, the surveyor asked to observe the pump being started locally and operating before proceeding on deck to check the hoses rigged fore and aft. Shortly after descending into the fire pump well, the chief engineer urgently ordered the surveyor to get out and by the time both men reached the steering compartment deck, they were experiencing symptoms of dizziness, with the chief engineer in a state of near collapse.

Read the article at **https://bit.ly/3wWArFl**.



Conducting an oil tanker operational risk assessment

Posted on the IIMS website on 16 November 2021

Oil tanker operations are extremely critical due to the significant impact they can have on life, property and the environment should anything go wrong, Shipowners Club has said. To assist in mitigating the risk involved with this trade, several measures are already in place including regulations governing the carriage of oil and the mandatory requirement for all crew to undergo specialised training courses prior to sailing on tankers.

However, despite this regulatory framework, Shipowners' Loss Prevention Team continues to receive notifications of operational-related incidents occurring on oil tankers. In view of these findings, and to assist its members engaged in tanker trade, Shipowners has developed a sample risk assessment as part of its ongoing Risk Assessment campaign.

Read the article at **https://bit.ly/3cwRKDz**.

Hong Kong investigation reveals lessons learned from fatality during loading steel pipes

Posted on the IIMS website on 5 November 2021

A Hong Kong registered bulk carrier was berthed at a pier to load its cargo of steel pipes in various sizes. During the crane operation, the stack of steel pipes below was displaced by lowering a heavy steel pipe. It caused the nearby stevedores to lose their balance and fall into the gaps between the steel pipes. Although the two injured workers were rushed into the port hospital for medical treatment, one of the stevedores responsible for unhooking the cargo was declared dead the day after the incident, and the other stevedore responsible for cargo securing was seriously injured.

Read the article at **https://bit.ly/3EPgiDA**.

What you need to know about preventing fires onboard containerships

Posted on the IIMS website on 5 November 2021

A collaboration between Standard Club and David Townsend, Principal Fire Investigator at Andrew Moore & Associates Ltd, has resulted in a helpful loss prevention alert being released that focuses on container fires while offering some suggestions for dealing with and improving the situation.

According to Mr. Moore, there has been an increasing number of fires onboard containerships in recent years, some with disastrous consequences, not only for the shipowner and the crew on board but also for the environment and the shipping industry's reputation.

He added that fire safety in container shipping has, for various reasons, and predominantly due to the sheer capacity, become compromised. Existing applicable codes have become effective only on the occasion that an incident is small and that all code criteria and prescribed procedures go to plan. The result is that there is little or no margin for error.

Read the article at **https://bit.ly/3BRYm9A**.

Guidelines for the shipment of petroleum cargoes issued

Posted on the IIMS website on 2 November 2021

The Swedish Club has published helpful cargo guidelines, focusing on petroleum cargoes shipments. The Club said that they wanted to give advice on the shipment of petroleum cargo specifically. A variety of refined petroleum cargoes are transported via the shipping industry. These cargoes are classified by the hydrocarbon range of the products. As the club explains, a common contamination found in refined petroleum products is the presence of particulates. This often leads to a failure in the appearance parameter which states that the cargo should be 'clear and bright' and typically leads to further cargo processing operations.

Read the article at **https://bit.ly/3jZM3SC**.

Fishing vessel pilot highlights new safety management project

Image used for illustration purposes only

Posted on the IIMS website on 29 October 2021

Leading provider of grants and support to the maritime community, The Seafarers' Charity, has received funding for a pilot project to develop safety management onboard fishing vessels to the standard of the Fishing Safety Management (FSM) Code. The new service, Fishing First Safety Management by SafetyFolder, aims to improve safety in the UK fishing fleet.

Read the article at **https://bit.ly/3jQ8fhT**.

Photo credit: US Navy

A catalogue of failures left navy personnel unprepared to fight USS Bonhomme Richard fire reveals investigation report

Posted on the IIMS website on 21 October 2021

A scathing report extending to more than 400 pages by the US Navy into the fire that destroyed the USS Bonhomme Richard in 2020 has concluded that the loss of the ship was "completely preventable" and that there were major failures within the military chain of command that allowed the fire to destroy the warship.

Read the article at **https://bit.ly/3E4n0Ft**.

ABS Port State Control Quarterly Report for Q3 2021 published

Posted on the IIMS website on 21 October 2021

The American Bureau of Shipping (ABS) Quarterly Report on Port State Control (PSC) provides information to owners on deficiencies identified on ABS vessels during inspections carried out by the various PSC regimes globally during the 3rd Quarter of 2021. The report is being made available to assist owners by providing awareness of potential areas of concern that have been identified on ABS classed vessels.

Read the article at **https://bit.ly/3aYlWqa**.

Maritime New Zealand report highlights recreational boating accidents between 2015 and 2020

Posted on the IIMS website on 19 October 2021

Each year a number of people die while participating in recreational boating, an activity pursued for enjoyment, or for the benefit of friends or family. Each accident is tragic and has its own unique set of circumstances, but the common factors across these accidents can help highlight ways that similar deaths may be prevented in the future. This report is intended to give an overview of fatal recreational boating accidents between the beginning of 2015 and the end of 2020, and to provide additional insight into a number of key characteristics and identified patterns.

Read the article at **https://bit.ly/3jKSrNB**.

Image used for illustration purposes only

Guidelines for securing road vehicles onboard Ro-Ros published

Posted on the IIMS website on 18 October 2021

The ro-ro ship should carry a Cargo Securing Manual, while the decks of a ship intended for road vehicles should be provided with securing points. The arrangement of securing points should be left to the discretion of the shipowner provided that for each road vehicle or element of a combination of road vehicles there is a suggested minimum arrangement of securing points.

Read the article at **https://bit.ly/3CcGAz2**.

Sobering man overboard lesson

Posted on the IIMS website on 13 October 2021

At the Seawork Connect online event, the Workboat Association and British Tugowners Association Safety Forum gave details about a real-life man overboard (MOB) incident. Shaun Mansbridge, Safety Manager at Williams Shipping, described a situation that occurred within Williams'' pilot vessel fleet, fortunately with a happy outcome, but which could have gone the other way.

Read the article at **https://bit.ly/30w5sU9**.

Image used for illustration purposes only

Preventing wet cargo damage

Posted on the IIMS website on 11 October 2021

Claims relating to wet cargo damage are all too frequent. Many of these can be avoided entirely with a robust pre-loading condition checking procedure. While humidity and condensation are inevitable challenges through the supply chain, pre-existing CTU damages should be an easy check. As TT Club articulates, around 65% of cargo damage incidents are attributable in part to the way that goods are packed within the cargo transport unit (CTU). The CTU Code and the more recent 'CTU Code – a quick guide' and complementary container packing checklist published by the Cargo Integrity Group, provide invaluable guidance for actors in the supply chain to mitigate such risks.

Read the article at **https://bit.ly/2YXpYMW**.

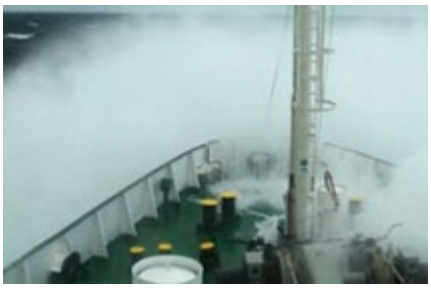


Image: Swedish Club

US Coast Guard vessel deficiency reports to be posted monthly

Posted on the IIMS website on 30 September 2021

The Coast Guard will begin posting monthly data reports of all deficiencies to foreign and domestic vessels on the Office of Commercial Vessel Compliance (CG-CVC) website in an Excel file format. Access to data such as common vessel deficiencies or marine casualty occurrences can inform vessel owners and operators of current trends on similar vessels. Armed with this information, vessel owners and operators may proactively take action to identify potential deficiencies on board their vessel and improve safety.

Read the article at **https://bit.ly/3aMxHQi**.

Ensign Patricia Carrow, a Coast Guard vessel inspector, examines a passenger vessel. (U.S. Coast Guard photo by Petty Officer 3rd Class Andrea Anderson)

Abandoned cargo: alert to risk escalation

Posted on the IIMS website on 23 September 2021

The potential catastrophic impact arising from the deterioration of abandoned cargo cannot be disregarded as a remote risk. However, the considerable costs accruing from container demurrage, detention, storage and disposal regularly result from cargo that, for a variety of reasons, is no longer required by the original receiver or consignee, and is simply abandoned at a port terminal or cargo facility. Increased risks of safety and regulatory infraction are inevitably consequent, as well as significant demand on management and operational resources to resolve individual cases.

Read the article at **https://bit.ly/30GzB3c**.

Image used for illustration purposes only

Image used for illustration purposes only

Lessons learned from defect of lifeboat on-load cable release unit

Posted on the IIMS website on 23 September 2021

During an annual lifeboat safety inspection, it was discovered that the on-load cable release could not easily be moved, and the release lever required extreme force to operate. The forward hook cable release also did not operate properly. A replacement cable release arrangement was procured locally, and repeated tests were conducted to confirm that it was once again fully operational. The post-event investigation noted that the company's shipboard safety operations manual required the lifeboats to be inspected on a weekly and monthly basis.

Read the article at **https://bit.ly/3GeVGpR**.

New loss prevention video series launched by West P&I Club

Posted on the IIMS website on 20 September 2021

As training onboard holds a positive and important role in the development and promotion of shipboard safety culture and to further bolster the Club's hard and soft copy loss prevention publications, we are undertaking the production of a new series of loss prevention videos. Entitled "LEARN THE ROPES", the videos will be covering a variety of focused topics to further enhance crewmembers' learning and development to strengthen their knowledge and skills needed during the performance of onboard tasks.

Read the article at **https://bit.ly/3lLDc74**.

Industry bodies joint initiative to tackle safety of dangerous goods storage and transport

Posted on the IIMS website on 16 September 2021

Container ship fires and explosions in port storage facilities continue to be the result of poorly packed and misdeclared hazardous materials as they move through the global supply chain. A Memorandum of Understanding (MOU) recently signed by two influential industry bodies, ICHCA International and IVODGA adds impetus to disseminating effective guidance on the correct safety procedures that need to be employed. According to international transport and logistics insurer TT Club, it is estimated that a major containership fire incident at sea occurs on average every 60 days.

Read the article at **https://bit.ly/30LayMt**.

The future of maritime safety report published by Inmarsat

Posted on the IIMS website on 19 August 2021

What does the future hold for safety at sea and how should the maritime industry adapt to prevent serious accidents from occurring and ultimately, save lives? These questions and more are covered in the recently published future of maritime safety report published by Inmarsat. Any vessel at sea can be exposed to many dangers, from severe weather conditions to equipment failure, piracy, and unpredictable circumstances such as the recent Covid-19 pandemic and crew change crisis, resulting in exhausted crew members.

Read the article at **https://bit.ly/3B7xfqy**.

Safe loading and carriage of containers on vessels other than purpose-built container ships

Posted on the IIMS website on 11 August 2021

The P&I Club, Steamship Mutual, has received a number of enquiries concerning the carriage of containers on vessels not primarily designed to carry containers on deck and/or inside cargo holds, such as bulk carriers and general cargo vessels. The Club is aware of at least one instance where carriage of containers in this manner on a bulk carrier has resulted in a container stack collapse within the hold, necessitating a return to port in order to restow the containers. Steamship Mutual has issued this guidance concerning the risks presented by such operations and to draw attention to the need to ensure that a ship is suitable for the safe loading, carriage and discharge of the cargo and is equipped with the appropriate means of securing such cargo. The note identifies some of the primary information gathering and reporting necessary for considering such activities, along with other considerations of due diligence and risk assessment to mitigate and minimise the potential risks.

Read the article at **https://bit.ly/3E5zaxX**.

Allianz Safety and Shipping Review 2021 published

Posted on the IIMS website on 5 August 2021

Allianz has published its Shipping and Safety Review 2021, identifying loss trends and a number of risk challenges for the maritime sector. According to the report, 49 total losses took place in 2020, representing a 50% decline over a decade. Foundered (sunk/submerged) was the main cause of total losses during 2020, accounting for one in two. Contributing factors include bad weather, poor visibility leading to contact, flooding and water ingress and machinery breakdown.

Read the article at **https://bit.ly/3G4Brv0**.

Random spot checks by MCA reveal a high number of fishing boat deficiencies

Posted on the IIMS website on 28 July 2021

Vessel image used for illustration purposes only

More than a fifth of fishing vessels subject to a random spot inspection have either been detained or prohibited from being used for fishing by the Maritime and Coastguard Agency. The targeted campaign saw surveyors from the MCA visiting ports in Scotland and the South West of England, inspecting 212 vessels at random. All sizes of vessel were inspected during the unannounced inspections held across seven days in June. A total of 1,249 deficiencies or non-compliant items were found across all those inspected with just 14 being fully compliant with the regulations. The worst areas for non-compliance were life-saving appliances, firefighting equipment, ILO188 and vessel and crew documentation.

Read the article at **https://bit.ly/3f4kUvm**.

Joint Concentrated Inspection Campaign on vessel stability to be undertaken

Posted on the IIMS website on 27 July 2021

Image credit: Paris and Tokyo MOUs

Member authorities of the Tokyo and the Paris Memorandum of Understanding (MoU) on Port State Control are to launch a joint Concentrated Inspection Campaign (CIC) on vessel stability. It will be held for three months, commencing from September 1, 2021, and ending November 30, 2021, and inspectors will examine specific areas related to the campaign in conjunction with the regular Port State Control inspection.

Read the article at **https://bit.ly/30GT6sq**.

Cargo Integrity Group calls for risk-based measures to prevent pest contamination

Posted on the IIMS website on 27 July 2021

The international freight transport organisations of the Cargo Integrity Group are calling for urgent action from actors in global supply chains to reduce the risk of pest transference through international cargo movements. The five partners in the Cargo Integrity Group, known as CIG, recognise the vital importance of focusing on the threat of invasive pests to natural resources across the world, and of the urgency in crafting risk reduction measures that address the situation.

Read the article at **https://bit.ly/2ZeXs9G**.

Canada's new vessel safety certificates and inspection standard

Posted on the IIMS website on 23 July 2021

Transport Canada has published an overview of the new Vessel Safety Certificates Regulations and Canadian Vessel Plan Approval and Inspection Standard. These new regulations came into force on 23 June 2021, and the standard is now effective.

Applying to all Canadian vessels and any foreign vessels in Canadian waters, the regulations specify which vessels require certification and inspection. The standard (TP15456) outlines plan submissions and inspection standards for Canadian vessels requiring a vessel safety certificate. The new Vessel Safety Certificates Regulations update and modernize old regulations and Canada's inspection regime. The regulations explain the vessel safety certificate requirements for all Canadian vessels and foreign vessels that operate in Canadian waters.

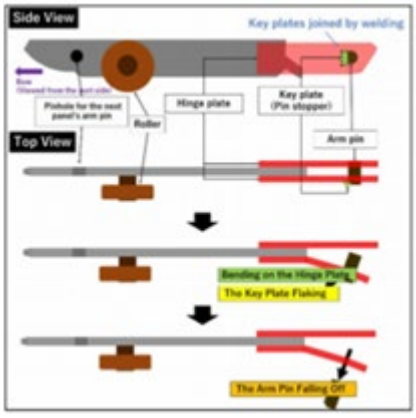
Read the article at **https://bit.ly/3y0d0uv**.

RMI recommends all immersion suits to be checked rather than spot checks following a number of defective items

Posted on the IIMS website on 13 July 2021

The Republic of the Marshall Islands (RMI) has published a Marine Safety Advisory notice. In it RMI stresses the importance of properly inspecting and maintaining all immersion suits, following a number of recent cases of defective equipment found onboard RMI flagged vessels. Since 2019, when RMI shared a marine safety advisory focusing on the importance of following the manufacturer's instructions for maintaining immersion suits, there have been multiple additional instances of defective or improperly maintained suits on RMI-flagged vessels, one of which resulted in a PSC detention by the US Coast Guard. In that case, "29 of 32 immersion suits were unserviceable due to unsealed seams," and these suits were only five years old.

Read the article at **https://bit.ly/3eXnGST**.



Fatality of crew member after head trapped in hatch cover panel report published

Posted on the IIMS website on 6 July 2021

The Japan Transport Safety Board has published its report into the death of a boatswain while the cargo vessel FIRST AI was mooring off Kyoto in September 2019 when his head was trapped in a hatch cover panel while performing hatch cover closing duty.

Read the article at **https://bit.ly/3C6iaXV**.

Inspection guidance for small passenger vessels issued by USCG

Posted on the IIMS website on 5 July 2021

The US Coast Guard (USCG) has issued inspection guidance for Officers in Charge, Marine Inspection (OCMI), Chiefs of Inspection Division, and Marine Inspectors for the small passenger vessels (SPV) risk-based inspection program. USCG continues to conduct statutory inspections on the SPV fleet in accordance with 46 U.S. Code § 3301; however, data analytics provide a new tool and modernized approach to the marine inspection program to prioritize marine inspection resources. Using various computational methods, machine learning-enabled software, and a database of deficiency and casualty information, the Coast Guard developed a model to categorize SPVs based on potential risk for an undesirable outcome.

Read the article at **https://bit.ly/3BGoIwt**.

U.S. Coast Guard releases 2020 Boating Safety Statistics Report revealing a surge in fatalities during the pandemic

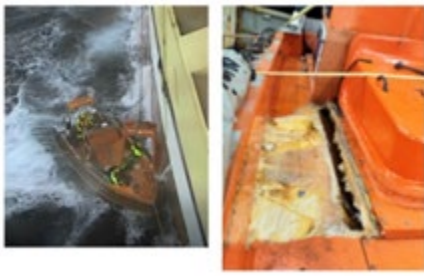
Posted on the IIMS website on 2 July 2021

The U.S. Coast Guard released its 2020 Recreational Boating Statistics Report Wednesday, revealing that there were 767 boating fatalities nationwide in 2020, a 25.1 percent increase from 2019. From 2019 to 2020, the total number of accidents increased 26.3 percent (4,168 to 5,265), and the number of non-fatal injured victims increased 24.7 percent (2,559 to 3,191). There is evidence that boating activity increased significantly during the pandemic, from reports of increased boat sales, insurance policies taken out, insurance claims, and calls for towing assistance. With the increased exposure (i.e., more boating hours), there was greater risk of deaths, injuries, and accidents. The Coast Guard is analyzing variables associated with boating activity to normalize this accident data. Alcohol continued to be the leading known contributing factor in fatal boating accidents in 2020, accounting for over 100 deaths, or 18 percent of total fatalities.

Read the article at **https://bit.ly/3AVaOGv**.

Warning to inspect fast rescue craft lifeboat and workboat lifting frames

Posted on the IIMS website on 29 June 2021



IMCA has received information surrounding an incident in which a lifting frame became detached from a fast rescue craft (FRC) during operations. The incident occurred when the FRC was attempting to come alongside a vessel in good weather with choppy seas. During recovery, the complete lifting frame detached from the boat. No one ended up in the water, but one member of the crew was pulled up with the lifting frame and fell down into the boat. The crew member sustained only minor injuries. An investigation and check-up of similar boats revealed cracks around the lifting frames. This was considered a high-priority incident with a potential outcome of multiple fatalities had the frame come loose later in the recovery operation. The subsequent investigation uncovered cracks, delamination and potential weaknesses in the structure of the anchoring of the lifting frame on this type of FRC.

Read the article at **https://bit.ly/3doYi83**.

Report published on a fatality due to improper crane lifting

Posted on the IIMS website on 10 June 2021

Belgium's FEBIMA has published an investigation report into the fatality of a crew member onboard the general cargo ship ATLANTIC PROJECT II while in the Port of Antwerp in February 2021. The investigation stressed that the contingency plan on crane lifting operations was not fully implemented.

Read the article at **https://bit.ly/3E9fqcy**.

Shipping Risk Survey results published by BDO

Posted on the IIMS website on 2 June 2021

Traditionally, maritime risks have been relatively predictable such as human error, mechanical failures and natural disasters. The continual growth of international trade and the introduction of new technologies mean that shipping industry risks are evolving fast. But is risk management within the sector evolving to meet these challenges? The industry's recent experiences, for example in managing the grounding of mv Ever Given in the Suez Canal and the COVID-19 pandemic, demonstrate significant embedded resilience within the sector. However, this does not mean that there are not opportunities to improve risk management practices in the shipping industry. BDO's 2020 shipping risk survey results showed that where shipping industry leaders may once have viewed risk management as a box ticking exercise, COVID-19 has forced them to become more hands on, with an increasing number of senior managers becoming more actively involved in day-to-day risk management activities. However, a high percentage of survey respondents reported that while risk discussions are taking place, they are not being formalised or documented. Some businesses in the shipping industry do not yet have a sufficiently well embedded approach to risk management, and they need to do much more so as to formally identify, evidence and reduce their exposure in practice.

Read the article at **https://bit.ly/3gvV700**.

BMA gives instructions for the inspection, maintenance, testing and survey requirements for fire suppression systems

Posted on the IIMS website on 24 May 2021

The Bahamas Maritime Authority (BMA) provided instructions for the inspection, maintenance, testing and survey requirements for firefighting installations and portable fire extinguishers. All inspection, maintenance, testing and survey have to take the relevant manufacturer's guidelines into account. However, certain maintenance procedures and inspections can be performed by competent crewmembers, while others should be performed only by persons specially trained in the maintenance of such systems. Any aspect of the testing and maintenance of the system which is assessed by the company to be beyond the competence of the company's and ship's personnel must be carried out by a competent specialist maintenance firm.

Read the article at **https://bit.ly/3heCcr8**.

Med Tuncer: Fire in enclosed lifeboat while testing batteries report issued

Posted on the IIMS website on 24 May 2021

Transport Malta has published an investigation report on the fire on a lifeboat while carrying out tests onboard the Maltese-flagged tanker Med Tuncer in May 2020. The investigation identified a very high short circuit current within the batteries as a probable cause of the incident. While the oil and chemical tanker Med Tuncer was moored at the Oil Tanking Terminal in Antwerp, Belgium, at 0815 on 14 May 2020, the electrician onboard stepped inside the enclosed, freefall lifeboat to carry out tests on the batteries. During the tests, a fire broke out inside the lifeboat. The fire alarm was raised, and the crew swiftly extinguished the fire. Fire and smoke damage were largely restricted to the interior of the lifeboat and control panel. There were no injuries. Although the exact cause of the fire had not been determined, evidence suggested an inadvertent connection of battery terminals in series, resulting in a sudden spike of voltage when the battery selective switch was operated.

Read the article at **https://bit.ly/3aZ9eYr**.

Condition survey requirements for tankers carrying HFO as cargo issued by American P&I Club

Posted on the IIMS website on 21 May 2021

The American P&I Club has published a Marine Circular regarding the condition survey requirements for tankers carrying heavy fuel oil (HFO) as cargo. As part of a concerted industry effort to ensure higher ship standards, the International Group of P&I Clubs continues to implement survey triggers for seagoing vessels of 10 years of age or more carrying HFO.

Read the article at **https://bit.ly/3vlzkxn**.

Lube oil contamination due to forgotten rubber membrane seals

Posted on the IIMS website on 21 May 2021

In a recent publication, the Swedish Club describes a case of lube oil contamination caused by forgotten rubber membrane seals in the engine room of a chemical/oil tanker. During overhaul work, a large amount of seawater entered the engine room bilge from the inert gas system overboard drain line. This was later estimated to be around 25 cubic metres. Unfortunately, the crew had no knowledge of the problem until one of them rushed into the engine control room and said that he had seen water in the engine room bilges. Whilst all this was happening, there was a Class Surveyor onboard carrying out an Annual Survey. The crew were told afterwards that three bilge high level alarms had gone off, but because of all the confusion, with all of the alarms being tested, the duty engineer simply did not notice them which further delayed any action to mitigate the consequence of the flooding, the Chief Engineer explained.

Read the article at **https://bit.ly/3E3P0cm**.

MPV Everest: Overflowing tank shortly before fire is revealed in preliminary ATSB report

Posted on the IIMS website on 19 May 2021

The Australian Transport Safety Bureau (ATSB) has issued a preliminary report from its ongoing investigation into a fire onboard the MPV Everest while on charter to the Australian Antarctic Division, last April. On the morning of 5 April, MPV Everest was about 1,075 NM north-east of Mawson station in the Southern Ocean on a north-north-easterly course bound for Hobart, with a crew of 37 and 72 expedition staff onboard, the preliminary report details. Shortly before 1100, the ship's master saw large flames erupting from open louvres in the port engine room's exhaust casing, so he raised the alarm and instructed crew and expedition staff to report to their emergency muster positions.

Read the article at **https://bit.ly/2Zf1crt**.

Incidents in enclosed spaces remain worryingly high

Posted on the IIMS website on 14 May 2021

Incidents in enclosed spaces have been a serious problem for many years within the operation and management of ships. Unfortunately, the number of these accidents has not decreased, even in recent years, despite the issuance of the ISM code and the inclusion of detailed procedures and precautions of enclosed space in the safety management manuals produced by all shipping companies. In this article by Capt Hiroshi Sekine, Senior Loss Prevention Executive at UK P&I Club, explores this distressing subject in more detail. Guidelines, incident information, and preventive measures are constantly updated and included in SOLAS. The distribution of this information to ships and crew members, along with its use in the education of crew members and the operation of ships, are some of the most important responsibilities of companies that manage and operate ships.

Read the article at **https://bit.ly/3jnM5TN**.

Report into fire onboard a bulk carrier at Port Kembla published

Posted on the IIMS website on 13 May 2021

Australian Transport Safety Bureau (ATSB) has published an investigation report surrounding a fire onboard a bulk carrier, Iron Chieftan, that took five days to contain and extinguish. The report highlights the lack of adequate regulatory requirements and standards to address the known risk of fire on-board self-unloading ships. On 18 June 2018, during cargo discharge operations while alongside at Port Kembla, New South Wales (NSW), a fire broke out in the internal cargo handling spaces of the self-unloading (SUL) bulk carrier Iron Chieftain. The ship's crew initiated an emergency response but shipboard efforts to control the fire were ineffective. The fire soon established itself and spread to the exterior of the ship, setting the discharge boom on deck alight. The ship's crew were evacuated and shore firefighting services from Fire and Rescue New South Wales (FRNSW) took charge of the response to the fire.

Read the article at **https://bit.ly/3b1jZJz.**

Ferry bottom contact linked to safety management deficiencies

Posted on the IIMS website on 13 May 2021

The Transportation Safety Board of Canada (TSB) has published an investigation report about the bottom contact of the passenger ferry 'Deer Island Princess II' near Letete, New Brunswick, in February 2018. It has determined that common safety hazards, such as extremely low tides, had not been identified and mitigated by the operator of the vessel.

On 2 February 2018, the passenger ferry Deer Island Princess II, with 4 people onboard, made bottom contact while transiting from Butler Point, Deer Island, New Brunswick to Letete, New Brunswick. As a result, one of two Z-drive thruster units detached from the vessel. The crew aborted its voyage and was proceeding back to Butler Point using the remaining thruster when the vessel made bottom contact a second time and the remaining thruster detached from the vessel.

With no propulsion, the vessel was anchored until the following day when it was towed to Letete by the tug Atlantic Spruce. There were no injuries as a result of the occurrence. There was minor pollution.

Read the article at **https://bit.ly/3vO49vH**.

Fire onboard stresses need for continuous monitoring of inactive vessels

Posted on the IIMS website on 12 May 2021

The National Transportation Safety Board (NTSB) has published an investigation report on the fire onboard the dive support vessel Iron Maiden, whilst docked at a shipyard in Louisiana, in April 2020. The investigation identified an electrical short from an unidentified source as the main reasons for the incident. On April 16, 2020, about 0110 local time, a fire onboard the dive support vessel Iron Maiden occurred while the vessel was docked at the Allied Shipyard in Larose, Louisiana. Local firefighters extinguished the fire at 0225. There was no one aboard the vessel at the time of the fire. NTSB has determined that the probable cause of the fire was an electrical short from an unidentified source located on the forward bulkhead within the generator room. Contributing to the undetected propagation of the fire was the lack of continuous monitoring of the vessel while it was docked at the shipyard.

Read the article at **https://bit.ly/3bLaYVP**.

Lubrication oil failure the most common cause of main engine damage

Posted on the IIMS website on 7 May 2021

According to the Swedish Club reveals, lubrication oil failure is the most common cause of main engine damage and a major contributing factor to auxiliary engine breakdowns. The Club has released a new 12 page Engine Damage publication, featuring three case studies. Main engine damage is an expensive category of claims that occurs far too frequently. Statistically, a vessel will suffer between one and two incidences of main engine damage during its lifetime. The Swedish Club publication contains quick facts and case studies from real-life situations showcasing some of the most common causes of engine damage.

Read the article at **https://bit.ly/3fECHbZ**.

Lithium batteries withdrawn following boating fires in France

Posted on the IIMS website on 5 May 2021

Reports in France say that after a series of explosions and fires, the Prefecture of Pyrénées-Orientales in the south-west of the country has ordered the suspension of sales and recall of all lithium batteries of the 'Energy Cases' brand, marketed by SAS P.C.E, based in Perpignan. The batteries were suspected of causing several explosions and fires that occurred over the past 10 months throughout France. To date, the Departmental Directorate for the Protection of Populations (DDTM) of the Pyrénées-Orientales has identified at least six incidents involving the batteries. Included in this list was a fire that ravaged three 8m boats in the port of Lavandou in July 2020.

Read the article at **https://bit.ly/3f7pglP**.

Crew must be familiar with cargo safety information says new note

海事處
Marine Department

Posted on the IIMS website on 30 April 2021

The Hong Kong Marine Department has published a safety note regarding cargo safety following an incident where a cargo hold explosion was caused by hot work on the hatch coaming. A Hong Kong registered bulk carrier fully loaded with coal departed for its discharging port with all hatch covers of the cargo holds and ventilation flaps closed. Posted on the IIMS website on 30 April 30

Read the article at **https://bit.ly/2ZwS4PD**.

New Australian national guidelines for complex maritime emergencies

Posted on the IIMS website on 30 April 2021

The Australian Marine Safety Authority has published new guidelines for complex maritime emergencies. As they stress, complex maritime emergencies are a persistent threat to the global maritime environment, and those who work on and by the sea. We are periodically reminded of this threat by seemingly-random, catastrophic events ranging from collisions to offshore spills and even the loss of aircraft in remote areas.

Read the article at **https://bit.ly/2Rt1NCJ**.

Loss of containers off Hawaii due to poor cargo loading procedures

Posted on the IIMS website on 23 April 2021

Poor barge loading resulted in the loss of 21 cargo containers into the ocean off the coast of Hawaii last year, the National Transportation Safety Board (NTSB) said in its report on the accident.

Read the article at **https://bit.ly/3euwLBD**.

Updated guidelines for the carriage of seed cake in containers issued

Posted on the IIMS website on 16 April 2021

The International Group together with the Cargo Incident Notification System (CINS) have jointly released an updated version of the "Guidelines for the Carriage of Seed Cake in Containers". For reference, the term Seed Cake refers to pulp, meals, cake, pellets, expellers and other similar cargo where edible vegetable oils have been removed from oil-bearing seeds, cereals or commodities with similar properties. The carriage of Seed Cake cargoes continues to cause confusion and the potential for undeclared or misdeclared cargo remains high, with the consequent risk of fire on board container ships.

Read the article at **https://bit.ly/3ebbCMP**.

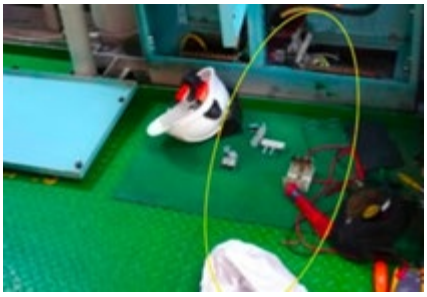
Image credit: Gard P&I Club

Bauxite: A cargo that may liquefy

Posted on the IIMS website on 16 March 2021

The IMO has introduced amendments to the International Maritime Solid Bulk Cargoes (IMBSC) code regulations concerning the carriage of bauxite, that came into force on 1 January 2021. If you are involved in the bauxite trade this article will assist you in your communication with shippers and authorising loading, understanding the classification of this type of cargo, and loss prevention. Following the 2015 sinking of the "Bulk Jupiter", a working group was set up to review the risk of bauxite liquefaction and make recommendations in respect of updating the International Maritime Solid Bulk Cargoes ("IMSBC") Code regulations.

Read the article at **https://bit.ly/39ouHcE**.



Electrocution fatality during maintenance onboard explained in Britannia's BSafe campaign case study

Posted on the IIMS website on 8 March 2021

As part of its BSafe campaign, the Britannia P&I Club describes a fatality of an electrician from electrocution, while performing maintenance of the inert gas scrubber electrical system whilst onboard an oil tanker. The electrician had been working alone at the time. Before starting work in the morning on the day of the incident, the second engineer (2/E) held a Toolbox Talk to discuss the work planned for that day. The electrician mentioned he might work on the inert gas (IG) scrubber pump starter panel, but he did not specify the items to be completed, nor the timeframe for the work. No formal risk assessment, permit to work (PTW) or Lock Out/Tag Out (LOTO) procedure were completed, despite all being specifically required by the SMS.

Read the article at **https://bit.ly/3EnfeGO**.

UK P&I Club releases 'Ask an Expert' video on grain contamination claims

Posted on the IIMS website on 3 March 2021

The UK P&I Club has released the latest video in its online 'Ask an Expert' series, featuring Chris Ellyatt from CWA International on the increasing number of grain contamination claims and their causes. The Club continues to see a number of grain contamination claims and Chris Ellyatt explains it is often difficult to work out if these claims are due to the inherent contaminants at the load port, or if they are a result of improper hold cleaning by the ship staff.

Read the article at **https://bit.ly/3waly16**.

Key loss prevention tips for containers lost overboard published in new guide

Posted on the IIMS website on 3 March 2021

Amid an alarming trend of containers lost overboard, the Swedish P&I Club has published a 32-page guide offering guidance on planning and loading the containers. According to the Club's statistics, the main reason for containers being lost overboard is related to container vessels navigating in heavy weather, combined with crew failure to reduce speed and/or alter course to avoid it or alleviate its effect. The reasons can often be attributed to a series of multiple failures, rather than a single cause, but raising awareness of these issues to both ship and shore staff will serve to prevent accidents from happening.

Read the article at **https://bit.ly/2P6DbOV**.

Overtightening of locating bolts led to engine failure and grounding

Posted on the IIMS website on 3 March 2021

The Swedish P&I Club has described in its Monthly Safety Scenario the case of a bulk carrier grounding caused by engine failure. Soon after departing port, a main engine slowdown alarm was triggered due to a loss of cooling water in the main engine. The Master ordered half head, but there was no response from the engine.

Read the article at **https://bit.ly/2PDBPL8**.

Report reveals fire on Finlandia Seaways ro-ro cargo vessel caused by catastrophic main engine failure

Posted on the IIMS website on 25 February 2021

At 2003 on 16 April 2018, the Lithuanian registered ro-ro cargo vessel Finlandia Seaways suffered a catastrophic main engine failure that caused serious structural damage to the engine and a fire in the engine room. The vessel's third engineer, who was on duty in the engine room at the time, suffered serious smoke-related lung, kidney and eye injuries during his escape.

Read the article at **https://bit.ly/3BjJEYA**.

Preventing human errors (DPO) when changing Dynamic Positioning control modes

Posted on the IIMS website on 4 February 2021

There have been several reports of incidents on Dynamic Positioning (DP) vessels where control was lost because the DP operator (DPO) failed to correctly switch control between different operating stations, notes Mr. John Southam, Loss Prevention Executive at North P&I Club. Investigations rarely find the cause to be a technical malfunction or an issue with the DP system set up, such as a network error. It is more often caused simply by the incorrect actions of the DPOs.

Read the article at **https://bit.ly/3vNSA7F**.

Failure of emergency stop on rescue boat davit winch alert

Posted on the IIMS website on 24 February 2021

A failure of the winch remote control and emergency stop during recovery of a rescue boat to the davit onboard has been recorded by IMCA in its regular publication of safety issues. Investigation revealed that the davit winch was being repeatedly switched on and off for very short time intervals, causing a burn out. The incident occurred on completion of rescue boat testing in good weather. The personnel in the small boat were disembarked at sea level and used a ladder to access the main deck.

Read the article at **https://bit.ly/3nBL8Zq**.

Image credit: JTSB

Report published on cargo ship sinking in heavy weather that led to eight fatalities

Posted on the IIMS website on 23 February 2021

Japan Transportation Safety Board (JTSB) has published an investigation report on the foundering of JIA DE the cargo ship sinking due to heavy weather in Kanagawa Prefecture, which led to fatalities of 8 crew members in October 2019.

Read the article at **https://bit.ly/3GtMgqE**.

Engine failure caused fire on another towing vessel says NTSB report

Posted on the IIMS website on 15 February 2021

The National Transportation Safety Board (NTSB) has released an investigation report on the engine room fire aboard the towing vessel City of Cleveland on the Lower Mississippi River in February 2020. The investigation has identified that catastrophic engine failure caused fire along with crankcase breach of the port main engine.

Read the article at **https://bit.ly/3Cmd6Pd**.

Serious fire onboard caused by faulty electrical device

Posted on the IIMS website on 15 February 2021

The Hong Kong Marine Department has shared the findings of a serious fire accident, which took place onboard the accommodation of a Hong Kong registered bulk carrier whilst at anchorage. The investigation showed that the fire was most probably caused by a faulty electrical device or its accessories in a crew cabin, which led to a short circuit with the heat and sparks igniting the materials placed beside it.

Read the article at **https://bit.ly/2ZtypzP**.

Catastrophic engine failure aboard Susan Lynn led to fire and explosion reveals report

Posted on the IIMS website on 12 February 2021

The National Transportation Safety Board (NTSB) has published its investigation report on the fire and explosion which occurred onboard the towing vessel Susan Lynn off Louisiana in October 2019. The investigation has identified a catastrophic engine failure as the key cause of the accident.

Read the article at **https://bit.ly/3EkUM9M**.

Transport Malta reveals pump room fatality caused by n-Butane intoxication

Posted on the IIMS website on 5 February 2021

Transport Malta has published its investigation report on a crew fatality in the pump room of the crude oil tanker MT Valtamed, while at Ceyhan OPL Anchorage, Turkey, in February 2020. The autopsy found that the pump man died by n-Butane intoxication. The investigation believes that the presence of H2S in the bilge space may have also contributed, by either causing panic or unconsciousness.

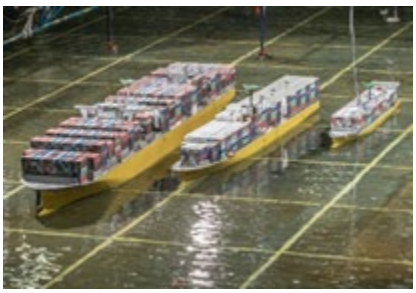
Read the article at **https://bit.ly/3BjEHPH**.

New quality standard DryBMS to be launched for the dry bulk sector

Posted on the IIMS website on 22 January 2021

RightShip and INTERCARGO have announced the launch of an important new quality standard for the dry bulk sector, DryBMS. The standard will be governed by a new NGO to be established later this year and will support the improvement of safety in the dry bulk segment. Both organisations have strongly and consistently advocated the need for significant improvements to dry bulk safety standards. In August 2020 both organisations combined their expertise to create a single framework for the whole industry. Supported by the International Chamber of Shipping (ICS) and BIMCO, DryBMS now exists as a simple set of best practices and key performance indicators and raises the bar on safety, environmental and operational excellence.

Read the article at **https://bit.ly/3oj5tkx**.



New insights into MSC ZOE requiring further action to prevent future container loss

Posted on the IIMS website on 18 January 2021

On the night of January 1st 2019, the large containership MSC Zoe sailed on a southerly route along the Dutch Wadden Islands during a north-westerly storm. The storm caused the ship to lose 345 containers, leading to large-scale pollution of the sea and Wadden Islands. The Dutch Safety Board asked the Deltares research institute and the Maritime Research Institute Netherlands (MARIN) to assist in an investigation.

Read the article at **https://bit.ly/3nURDVs**.

Cargo snagging during lifting operations safety alert issued

Posted on the IIMS website on 14 January 2021

The Marine Safety Forum has issued a safety alert in which it describes a case of cargo snagging during lifting operations. The incident has highlighted the need for improvement in deck space management and planning.

Read the article at **https://bit.ly/3Bi1GdR**.

IIMS was the first organisation to formalise the education of marine surveyors nearly 20 years ago with the launch of distance learning Diplomas in Yacht & Small Craft and Commercial Ship marine surveying. Over the years, many hundreds have studied with the Institute and gained their qualification in what is now a recognised and award-winning programme. Some of those early students now hold senior office within the organisation. Check out the IIMS education centre at https://bit.ly/3CU3hHY.

The International Marine Contractors Association (IMCA) is a leading trade association representing the majority of contractors and the associated supply chain in the offshore marine construction industry worldwide.

Their members play a key role in the offshore oil, gas, and renewable energy industry sectors. Principally, this is through the engineering, procurement, construction, and installation of offshore wind farms and hydrocarbon production facilities, together with the ongoing life of field support and maintenance requirements of these assets. IMCA runs the successful eCMID inspection programme which encompasses a wide range of specialist vessel types from anchor handling tugs to jack-up barges.

IMCA was formed in 1995 through the merger of the Association of Offshore Diving Contractors (AODC) established in 1972, and the Dynamically Positioned Vessel Owners Association (DPVOA) established in 1989. IMCA uses its strong technical and safety focus to develop comprehensive best practice operating standards for the industry to improve its performance. IMCA Safety Flashes are released at regular intervals each year. Current and back copies of safety flashes can be found at **https://bit.ly/3nqy9cX**.

The next few pages are dedicated to some of the safety reports issued in 2021 that are of most relevance to marine surveyors and vessel inspectors.

IMCA Safety Flashes are published on a regular basis and the historical database can be viewed at **https://bit.ly/3nqy9cX**. Here is a collection of the most relevant safety items to reach IMCA in 2021.

Shortened lanyard on MOB beacon

The practice of shortening the lanyards on MOB beacons was discovered by someone visiting a vessel. This was accordingly communicated to the Chief mate to be fixed.

If the lanyard is shortened, the MOB beacon may fail to activate, or, if it were activated, the person who fell overboard may find themselves in the potentially hazardous situation of being too close to the heavily smoking MOB beacon while handling the life buoy.

What went wrong?
There was a lack of understanding of how these Life Buoys operate, as well as failure to perceive relevant hazards.

There was improper/incomplete inspection of Life Saving Appliances onboard.

Lessons learned
Check length of similar lanyards attached to MOB beacons; the correct length will be prescribed in the manufacturer's manual. It should be long enough to allow the life buoy to gain a good inertia after being thrown, before releasing the MOB beacon from its cradle.

Include check of MOB beacon in planned maintenance schedule.

Reprinted from IMCA Safety Flash 28/21 October 2021

Damaged Electrical Cable

During a washdown of a vessel's cargo hold a crew member noticed arcing from around two electrical cables near the cargo hold light. Upon closer investigation he noticed a piece of tie wire connected to the cables was glowing red. The crew member immediately stopped hosing down and turned the water supply off and notified the ship's electrician.

The outer insulation of the cabling was damaged. The cable insulation had deteriorated due to age and weathering, exposing the live wire. The location of the cable was such that it was not easily accessed for detailed visual inspection.

Actions
Visual inspection of all electrical cables for early signs of aging and weathering, particularly in difficult to see areas, are essential. IMCA notes that neglected exposed mains cabling is a surprisingly common high potential issue, in an area – electrical safety – that ought to be a good deal more tightly controlled.

Reprinted from IMCA Safety Flash 24/21 September 2021

Catastrophic failure of marine loading arm

The UK Health and Safety Executive (HSE) has published a safety alert on the catastrophic failure of a marine loading arm. Marine loading arms (MLAs) are used to transfer material from ship to shore.

This safety alert is aimed at users and companies that service MLAs to ensure they carry out suitable and sufficient inspection and maintenance to help avoid similar incidents. It has wider applicability to all lifting equipment

The MLA failed as it was being manoeuvred towards a ship manifold for connection. A section of the MLA fell backwards onto a jetty handrail narrowly avoiding live plant and pipework. This hydraulically operated MLA had been in service for 11 years and had been regularly maintained by various recognised industry contractors. It had a rigid link pantograph balancing system with independent primary and secondary counterweights linked to the inboard and outboard arms.

Investigation found that a failed pantograph pivot pin led to the resulting collapse of the arm.

The immediate cause of the failure was from corrosion of the bearing that led to a complete fracture, emanating from the circumference. The underlying causes were inadequate inspection and maintenance practices which had led to the corrosion. The failure to properly inspect and maintain an MLA could result in a serious risk of a joint failing, allowing the pantograph arm to fall – with the potential of causing death, serious injury or damage to process pipework. There was no convenient means of accessing the pivot pin for inspection and maintenance. As a result, it had not been lubricated during servicing by several different contractors.

Reprinted from IMCA Safety Flash 20/21 July 2021

Incidents relating to hatches and doors

A member reports a number of incidents relating to hatches and doors, which can be summarised briefly for our instruction here. The first two incidents are findings from a tour of the engine room on a management inspection of a vessel. The third incident is an example of proper exercise of the "Stop Work Authority".

1: Fire door held open by wire

A fire door in the engine room was observed to be wired open – it was being kept open with piece of wire.

What went wrong?
Lack of safety awareness of the crew on the fire doors' main purpose.

No-one challenged this unsafe condition.

Recommendations
Fire doors should be kept shut because they need to be closed in order to prevent the spread of fire and smoke. Propping or wedging them open compromises the safety of the vessel crew, putting them at serious risk, should a fire occur.

2: Watertight door left open at sea

A vessel watertight door was found left open when the vessel was at sea. Watertight doors are there to prevent the ingress of water from one compartment to other during flooding or other accidents and act as a safety barrier. It is a requirement of SOLAS (section B4, regulation 22) that watertight doors shall be kept closed during navigation, except under certain conditions not met here. This company has its own requirement also, that all watertight doors, scuttles, and fittings below the main deck shall remain closed at all times except when actually in use. A further check revealed no justification for keeping the door open.

What went wrong?
The IMCA member found that persons nearby were not aware of SOLAS or company management requirements.

3: Hatch left open on the quay – a successful intervention prevents a potential accident

Two open hatches on the wharf in close vicinity to the vessel were observed and reported by vessel crew members. There were no barricades or safety signs installed, despite the potential fall hazard inside from 2m height. Following this intervention, the hatches were closed and locked by wharf service personnel.

What went right?
The crew challenged an unsafe condition, although it was not directly related to the vessel. This is an excellent example of proactive application of the principle of "Stop the job". Remember that everyone has the authority – and the duty – to STOP THE JOB if work is taking place that is clearly unsafe.

Reprinted from IMCA Safety Flash 19/21 July 2021

Tank corrosion

The Marine Safety Forum has published Safety Alert 21-07 relating to the discovery of a leak in a tank caused by corrosion.

What happened
During daily tank sounding routines in the engine room on a vessel, there was an unexpected rise in liquid level in the tank. A close check was made which confirmed this finding, and it was decided to open the tank for investigation. A pinhole leak was discovered in the structure beneath the sounding pipe. This allowed salt water to enter the space from outside the tank. The vessel was sent for repairs.

What was the cause?
Initial investigation by the ship's engineers concluded that the striking plate at the bottom of the sounding pipe was missing. This allowed the brass weight to repeatedly strike the steelwork, damaging the paint coating and exposing the steelwork to corrosion.

Further investigation revealed the following:

The tank had been inspected and maintained in accordance with company procedure.
The brass weight of the sounding tape had damaged the paint coating on the striking plate and steelwork below.
A corrosive chemical had been incorrectly disposed of and introduced to the tank, accelerating the corrosion process.
The acid may have become trapped under bubbles of damaged paint, allowing concentrated corrosion over the short time.
The combination of exposed steelwork and caustic solution destroyed the striking plate and steelwork below.

Actions taken
Effective repairs were carried out onboard in collaboration with third party welders and divers.

All crew were reminded of the importance of correct chemical handling – including safe disposal. On board a vessel, there are many different chemicals used; some of these chemicals pose a serious health risk with some being extremely caustic. These chemicals should be used in the appropriate and prescribed way and not misused.

Caustic or otherwise dangerous chemicals, and their containers, should be disposed of to an authorized hazardous or special waste collection point in accordance with any local regulation.

Reprinted from IMCA Safety Flash 16/21 June 2021

Engine damage after routine maintenance

The Marine Safety Forum (MSF) has published Safety Alert 21-09 relating to engine damage following routine maintenance.

What happened
On an offshore platform supply it became necessary to stop one of the engines due to a high temperature alarm. The vessel was alongside a platform in DP mode at the time. Cargo operations were stopped, and the vessel moved to a safe location before the engine was stopped.

What was the cause?
Upon inspection, damage was found in a valve gear assembly of a cylinder. Investigation showed that 86 running hours before the incident, valve adjustments had been carried out. When removing the cylinder cover, small metal particles and partial destruction of the exhaust valve tappet tip was found. The evidence available indicated that the locking nut of the adjusting screw from the exhaust rocker arm (that regulates the clearance of the exhaust valve) had become loose. The most likely cause of this is that when reassembling, the locking nut had not been tightened as per the manufacturer's requirements.

Actions and lessons learned
Ensure that maintenance is conducted according to the manufacturer's requirements.

After maintenance always carefully (double) check that all parts are properly (re-)assembled.

Always check torque using a torque wrench as per manufacturers manual.

Reprinted from IMCA Safety Flash 16/21 June 2021

Crane wire parted during offshore operations

A concrete mattress was being deployed as part of the construction of a pipeline crossing. As the load was swung outboard and before it entered the water, the crane wire parted causing the load to fall to the seabed. The vessel was in a safe handling zone more than 5m from subsea assets. The mattress was overboarded when the crane was 17m from the nearest subsea asset.

The vessel's main crane was being used to overboard a 6m x 3m x 0.5m concrete mattress, (15.8Te) + lifting frame (1.7Te). Mattress number 6 was deployed in a series of 15, as part of the crossing construction. The crossing was being built to allow a new pipeline to be laid which passed over a buried 3rd party gas pipeline.

During the lift, the load was swung outboard and before it entered the water, the crane wire parted causing the load to fall to the seabed. The mattress and lifting frame were found 6m away from the buried gas pipeline.

Procedures were not followed, and decisions were made without having the full facts or understanding of operations.

The vessel main crane was in use during the period following the Magnetic Rope Testing (MRT) when the results were still being evaluated. The test results stated a clear recommendation to cut back the wire. The operational limit was set on using 30% of the crane capacity. There was a misunderstanding that the Safe Working Load (SWL) of the crane wire was 60Te.
There was no process within the company's Wire Rope Integrity Management Procedure that provided an option for application of an operational limit to deteriorating wires.
No management of change process was applied to control the application and understanding of an operational limit, this may have triggered the involvement of the company's lifting experts ashore. No-one on the vessel questioned the operational limit, how it should be interpreted or how it applied to the crane load charts.

Actions
Ensure full communication and engagement between shore-side experts and management on the one hand, and vessel team on the other.
Any dispensation for wire ropes should be recorded in planned maintenance systems.
Ensure that mattresses are moved into position from a direction that prevents the mattress being lifted over existing pipelines.
Reinforce the requirements for the consistent application of the management of change, and technical management of change.

Reprinted from IMCA Safety Flash 8/21 March 2021

Sludge Accumulation in Fresh Water Tank

During inspection of a fresh water tank, it was discovered that there was significant sludge accumulation in the tank. Based on the condition of the tank, it was seen as more than likely that other tanks would be similarly affected and that the cause was due to a common source of water. Sludge build-up in fresh water tanks, hoses and pipes can lead to the prevalence of bacteria that may pose a health hazard.

Our member understood that the condition was as a result of the quality of the water obtained from port. There was an accumulation of sedimentation and of organic and inorganic matter over a period of time.

Actions
Immediate inspection of other fresh water tanks to ensure potability of water supply, and subsequent maintenance (taking note of the requirement for Confined Space Entry permits to work) was arranged as soon as reasonably practicable.

Internal tank inspection for signs of possible contamination and debris every 6 months for potable water and every 12 months for non-potable water.

Disinfection of hoses as a routine measure every 6 months, or whenever any contamination is suspected. Our member flushed hoses thoroughly through and completely filled them with a solution of 50 ppm residual free chlorine, which was then allowed to stand for a period of at least 1 hour before the hoses were emptied and re-stowed.

Reprinted from IMCA Safety Flash 6/21 February 2021

Failure of natural fibre rope in embarkation ladder

Failure of cordage

Lack of clearance (cordage – deck strong point)

Planned inspection/replacement of a lifeboat embarkation ladder identified the total failure of the natural fibre rope at the securing thimble. The fibre rope at the anchor point securing thimble was worn through due to incorrect connection creating the potential for ladder failure on deployment.

Although natural fibre rope has properties that make it ideal for use in many marine applications, it is particularly susceptible to damage and loss of strength for several reasons, if it is not stowed and handled correctly.

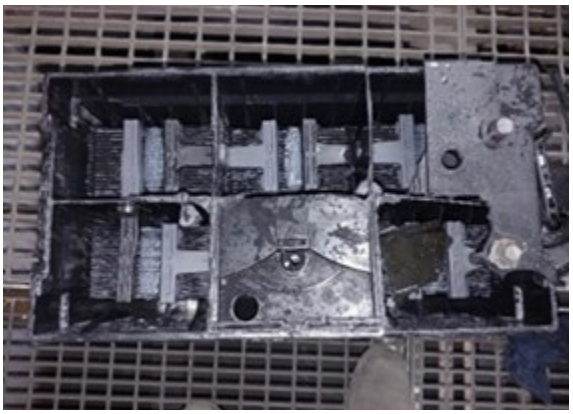
Investigation found that the failure was caused through abrasion due to the back of the eye being in contact with the metal deck strong point. The anchor point was too small for the use of a shackle of enough size to provide clearance between the rope and deck strong point. The rope failed during removal of the ladder, indicating the extent of the wear.

Actions
The inspection and maintenance of rope ladders should be part of the vessel planned maintenance schedule. A thorough inspection should be undertaken on a regular basis, and a visual check before and after use. The entire length of the ladder should be examined including all fixtures and fittings, considering the following points.
Although the surface of the rope may appear to be in satisfactory condition, natural fibre rope may self-abrade from the inside. The lay should be opened at regular intervals along the rope to check for signs of wear.
The presence of dark mould spots or a grey powdery substance within the lay of the rope may be an indication of rot or mildew, which is very difficult to eradicate.
If the fibres on the surface appear to be weak or frayed and can be picked away easily, the rope may be suffering from sunlight or chemical degradation.
Steps and chocks should be inspected for damage, cracks, wear, splits, sharp edges or splinters. Ensure slip resistant material applied to steps remains effective.
Securing shackles should be inspected for corrosion, for size and suitability and shackle pin secured by means of a split pin or similar arrangement.

Pad eyes should be inspected for damage or corrosion, and welds checked for excessive wear down or cracks.
Damage to or degradation of a natural fibre rope should be evaluated by an appropriately experienced crew member. If deemed necessary, or if any doubt exists, the ladder should be removed from service, repaired or replaced.

Reprinted from IMCA Safety Flash 7/21 March 2021

Lead-acid battery explosion



A lead-acid battery blew up when an engine was started. The incident occurred when, after conducting pre-start checks on a generator, the 2nd Engineer attempted to start the engine. As the lube oil pressure reached start pressure and the starter motor engaged, there was a loud bang from behind the engine in the vicinity of the port side battery box. The 2nd Engineer on investigating, found that one of the batteries in the bank for the generator had suffered a critical failure resulting in the top of the battery case being destroyed. He left the space immediately in case of release of hydrogen gas and woke the Chief Engineer to inform him of the incident.

What was the cause?
The battery tie connection on the negative terminal had formed a hot joint. This would have ignited any excess hydrogen built up inside the battery box when the generator started.

The manufacturer's instructions stated that the battery should not be used in hot environments (such as engine rooms).

Actions
Consider replacing lead acid batteries with a type that does not release hydrogen when being charged, such as AGM (Absorbent Glass Mat) batteries.
Check all battery terminals and connections.
Follow manufacturer's instructions when installing batteries.

Reprinted from IMCA Safety Flash 6/21 February 2021

Lifeboat wire rope failure

During a five-yearly 110% load test of a lifeboat, taking place under third party supervision, the forward fall wire failed, resulting in the lifeboat falling and flipping upside down landing in the water below. There were no personnel onboard during testing and no injuries were reported. The lifeboat was recovered to shore.

Our member's investigation noted that during maintenance of the lifeboat davit sheaves, the fall wire was removed by disassembling the three existing bulldog ("Crosby") clamps on each wire termination on the davit. Once all maintenance works were completed, the fall wire was reinstalled using the original bulldog clamps, which were clamped in the same position as the original termination.

Close inspection of the wire indicated that the fall wire had slipped through the bulldog clips and released from the thimble on the turnbuckle because:

The grips were torqued in the exact same position they were before, therefore compromising the structure of the wire which was already flattened/deteriorated.

The bolt grips were tightened without making reference to any minimum / maximum torque value specification.

Additionally:

There had been inadequate preparation of the wire for termination.
Bulldog clips had remained in use since the installation of the lifeboat, as there was no regulatory or mandatory (Flag state) or company procedural requirement to perform replacement.
There was no evidence that the bulldog clips were inspected prior to refitting.

What lessons were learned?
Fall wire inspection, maintenance and termination should be by competent and qualified personnel. Consider replacing wire terminations which have Bulldog grips or cable grips with asymmetrical wedge socket type.

What actions were taken?
Checked fleetwide to see whether any similar terminations existed – any lifeboat falls which were found to be secured with bulldog grips were renewed and replaced with the asymmetrical wedge socket type by a competent third party and subsequently certified.
Flag State was notified at the time of the event and updated with the outcome of the investigation.

Reprinted from IMCA Safety Flash 3/21 January 2021

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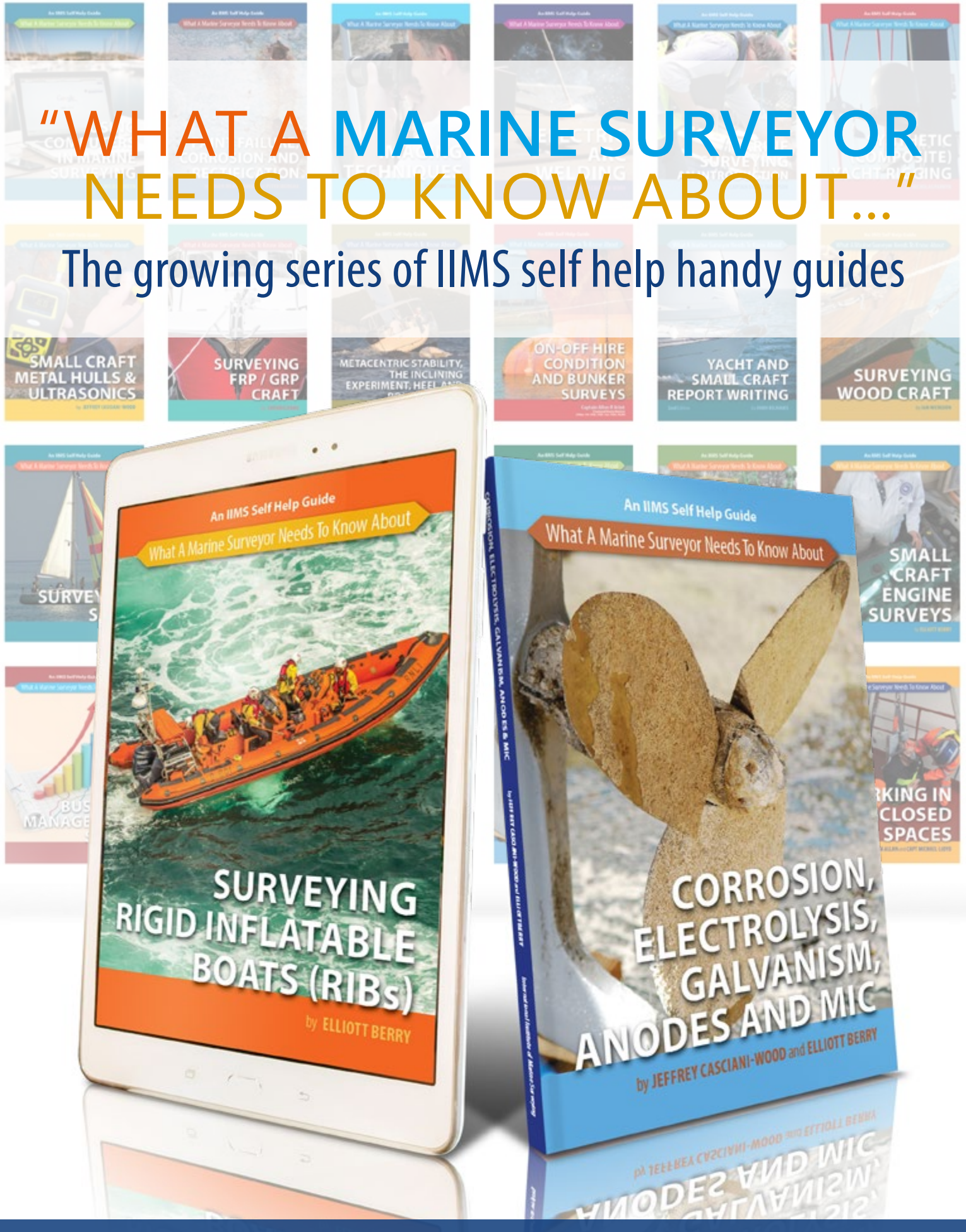

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MARINE ACCIDENT INVESTIGATION BRANCH

MAIB

SAFETY DIGEST

Lessons from Marine Accident Reports 1/2021

Case studies follow extracted from the MAIB Safety Digest Spring 2021

Failure in the Fall Zone

Narrative

The deck crew of a general cargo vessel were getting ready to load wind turbines for transportation. The first step was to use the vessel's crane to hoist the wire strop hatch lifting gear out of its stowage in preparation for opening the cargo hatches.

Prior to work commencing, the chief officer gave a safety brief including an instruction that crew were not to stand underneath the crane's hook. Two ABs then entered the ventilation duct space where the lifting gear was stowed and connected it to the crane's hook using a fibre strop. The ABs then climbed out of the duct space and stood on the deck edge ready to help guide the lifting gear as it was hoisted out.

As the lifting gear was being raised, it snagged on the edge of the duct space. The chief officer ordered the crane driver to stop while the two ABs freed the snag by hand, then the lifting operation was restarted. Soon after, the lifting gear snagged again; the chief officer saw this and ordered the crane driver to stop. However, this order came too late as the fibre sling had parted under tension and the lifting gear crashed to the deck, striking both ABs, one of whom suffered a serious head injury.

The Lessons

1. **During lifting operations, it is vital that crew avoid the hazardous fall zone under the suspended load. This is not just the area directly under the suspended load; it extends to the entire area where it is reasonably foreseeable that a load could fall (Figure 1).**

2. **All lifting operations should have a safe plan, ideally a task specific risk assessment and method statement. In this accident, the ABs were struck because they were standing in the fall zone, which had not been assessed as a dangerous area. At safety briefs or toolbox**

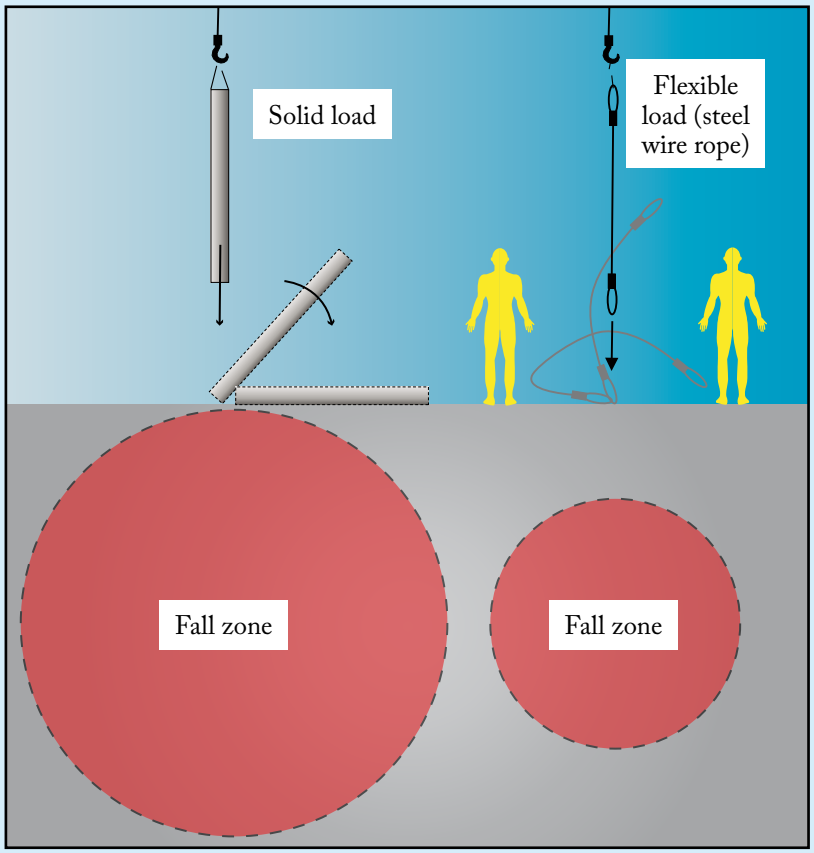

Figure 1: Illustration of the danger zone under a suspended load

talks, crew should be reminded that anyone can call a halt to unsafe operations – in this case, any of the other crew could have alerted the chief officer that the deck ABs were in danger.

3. The ventilation duct space was unsuitable as a storage for the lifting gear due to the snagging hazards, which the crew were aware of. The lifting gear had snagged before, including just prior to this accident. The previous snaggings should have served as a warning that the stowage arrangements needed to be reviewed or improved.

4. All fixed and loose lifting gear should be regularly inspected and documented. The purpose of inspections is to check that the gear is being maintained in a satisfactory condition for safety-related operational use. After the accident, it was discovered that the fibre sling in use was in a poor condition (Figure 2) and had not been recorded in the vessel's lifting gear log. Although the breaking load of the sling was sufficient to hoist the lifting gear, it should have been disposed of due to its poor condition.

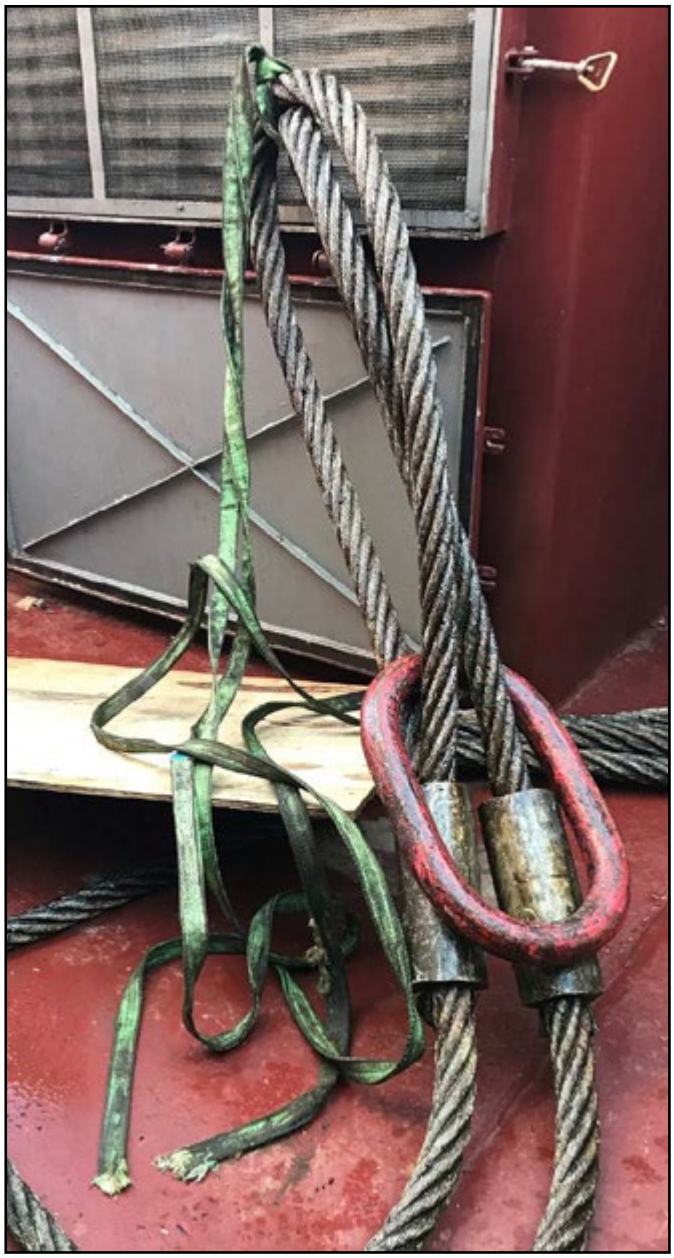

Figure 2: The broken fibre sling, still attached to the lifting gear, after the accident

Fire After Engine Maintenance

Narrative

A vehicle ferry was outbound returning to its operating area after a routine refit. There were no passengers or vehicles on board. Once the pilot had disembarked and the vessel was in open water, the bridge team gradually increased the engine speed while the engineers monitored the engine room. A small amount of vapour was noted coming from the aft main engine lagging, close to the turbo blower. Work had been completed on the cooling system in this area, the lagging smelt damp and it initially appeared to be water vapour being produced.

Shortly afterwards, the fire alarm activated in the aft engine room and small flames were seen coming off the lagging (Figure 1). This was rapidly extinguished using an aqueous fire-fighting foam (AFFF) extinguisher, and the bridge team were asked for approval to stop the main engine.

After clearing up, and in consultation with the senior chief engineer, it was decided to restart the engine and monitor the situation carefully. The fire reignited after a few minutes' running and was once again extinguished. Again, the engine was stopped, and this time the lagging was removed; the engine restarted with no further issues. The lagging pad was subsequently replaced.

The company investigation later identified that during maintenance work on the main engine cooling system a pipe had been removed to allow a leak to be repaired by replacing a seal. This was not a planned task, and no risk assessment or method statement had been produced. When the pipe was removed, around 5 litres of water had drained from the top of the crank case breather box, and some oil residue inadvertently washed into the lagging. Main engine runs conducted alongside after the repair had not produced sufficient heat to ignite the oils. However, when the main engine was run under load at sea, the increased temperature produced was enough to cause a fire.

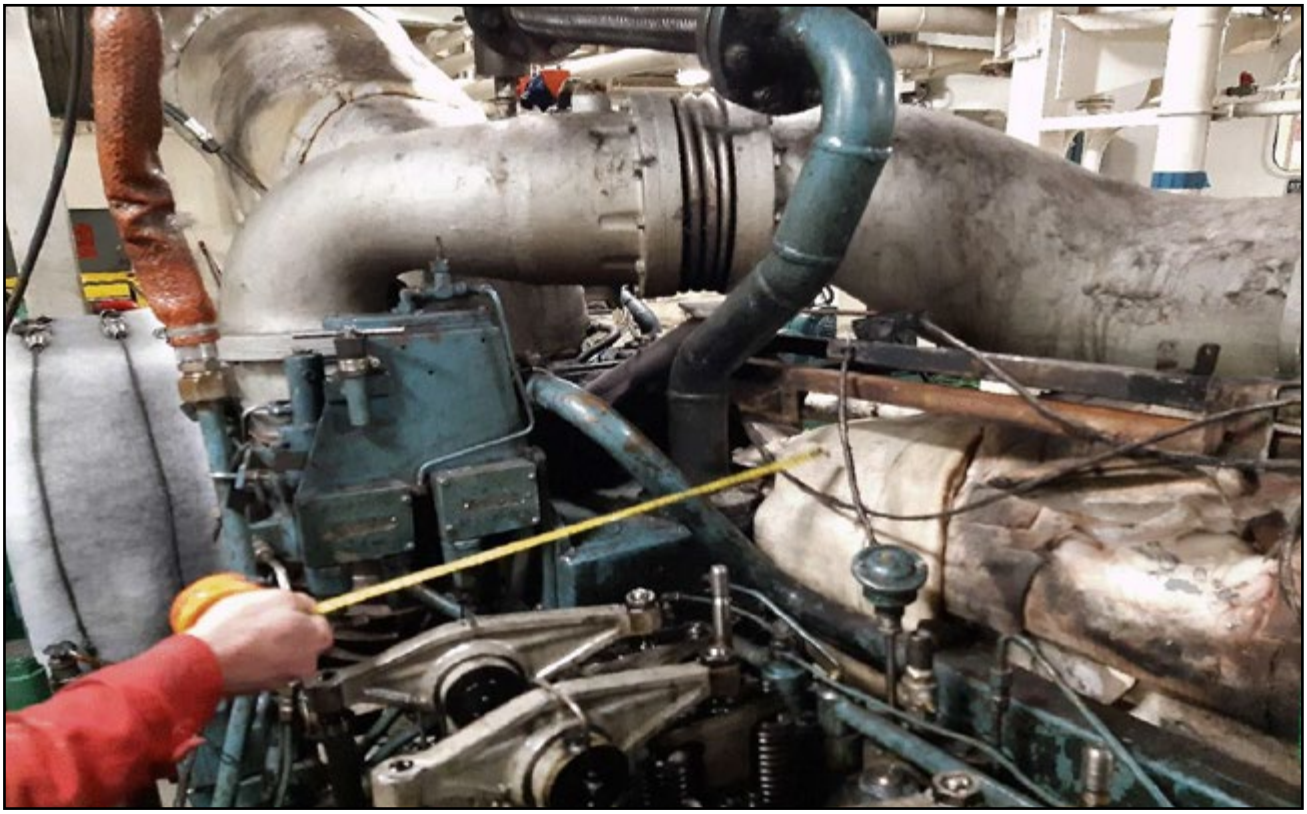

Figure: Location of lagging that ignited indicated

The Lessons

1. Whenever maintenance work is carried out around or near potential sources of heat, a risk assessment must be conducted to ensure unexpected results are considered. The working and adjacent areas should be protected from contamination – even if you expect only water to be present. If water can wash oils into places that can then become hot when machinery is running, a source of ignition can be created. In this case the crew were alert and the fire was small. This may not always be the case.
2. Even after AFFF is used, sufficient heat will cause flammable material to reignite once it gets hot enough. The crew involved in this incident were monitoring the site carefully and quickly extinguished the second fire. However, the only real solution would have been to remove the flammable material from the source of heat, which was subsequently done by removing and replacing the lagging.

Between a Rock and a Hard Plaice

Narrative

It was a fine winter's day with a light onshore breeze; some would say the perfect day to go fishing. Just before dawn and 2 hours before low water, a small fishing vessel sailed from its home port for a day's creel fishing.

Just after the vessel passed the end of the breakwater a screeching noise was heard coming from the engine room, and almost immediately the engine stopped. The skipper reacted quickly and instructed his deckhand to let the anchor go while he restarted the engine. The engine started, but as soon as the skipper engaged ahead gear it stalled again.

The deckhand had set the anchor, but it found no purchase on the rocky seabed; the fishing vessel began to be set towards the shore. Realising they were in danger, the skipper phoned the coastguard, and lifeboats were despatched. The fishing vessel's crew were unable to prevent the vessel from washing onto the rocky shore, where it became stranded in the falling tide. A lifeboat arrived rapidly and was able to recover the two crew safely to shore, but in the heavy swell the fishing vessel pounded on the rocks, resulting in the engine room quickly becoming holed and the vessel taking on water.

At low water, the skipper and the lifeboat crews tried to patch the hole in the hull, but by that time the damage was too great and the attempt to recover the vessel had to be abandoned as the tide rose again. The vessel was totally engulfed, and with an onshore swell still running it broke up on the rocks (Figures 1 and 2), with its fuel causing some minor pollution.

The fishing vessel's propeller was almost certainly fouled by a line from an unmarked creel fleet that had been laid close to the harbour entrance. The propeller wound this in tightly, jamming the shaft and stopping the engine. With no way of quickly clearing the fouled propeller, and poor holding ground for an anchor, there was little more the skipper could do.

Figure 1: Fishing vessel aground on rocks

Figure 2: Bow section ashore

The Lessons

1. Floating ropes from static fishing gear are a major hazard to all small craft, and it is vital that they are not laid in or close to channels or fairways. Wherever possible use non-buoyant ropes, and clearly mark strings of creels or fleets of nets. Also, ensure that gear on deck is properly secured and that there is no chance of it falling overboard and becoming a hazard to you or your fellow mariners.
2. In this case, although his vessel could not be saved, the creel boat skipper and his crew member were well equipped and well prepared; this resulted in a successful rescue. He quickly realised he was in trouble and made the right decision to call for help early. The importance of asking for help as soon as you get into difficulty cannot be emphasised enough. The longer you leave it, the less likely help will arrive in time to ensure a successful rescue.

A Wee Hole

Narrative

A large, steel-hulled fishing vessel was about 40 miles offshore when its fish hold bilge alarm sounded. The engineer went to investigate and found water rising in the fish hold, so then lined up the bilge system to pump out the floodwater. The crew also rigged their portable submersible pump to help evacuate water from the flooding compartment.

Despite the crew's efforts, the water level in the fish hold continued to rise slowly, so the skipper called the coastguard for help. A coastguard rescue helicopter and an RNLI lifeboat were tasked to assist; three other fishing vessels in the area started hauling their gear in preparation to help.

When the helicopter arrived, it lowered its powerful, petrol-driven salvage pump. Once this pump was set up and running, the situation was brought under control. As the water level reduced, the engineer was able to gain access to the fish hold's bilge well where the suctions were blocked by debris. The fishing boat then made its way safely back to harbour under its own power, escorted by the lifeboat. When the fishing boat was lifted out of the water, a 25mm diameter hole was found in the shell plating under the fish hold (see figure).

Figure: The 25mm hole in the fishing vessel's shell plating, observed when the vessel was lifted out of the water.

The Lessons

1. The vessel was 18 years old and had been subject to regular hull thickness inspections; nevertheless, the cause of the hull failure was attributed to corrosion. If there is any concern, hull thickness assessments could be conducted more regularly. The area of corrosion was also under cladding at the bottom of the fish hold, and very difficult to inspect internally.

2. All bilge suctions should be regularly checked to make sure they are not blocked. Post-accident calculations showed that the size of the hole and its location would have resulted in a flooding rate of approximately $7m^3$/hour, which should have been well within the bilge pumping system's capacity. However, the fish hold bilge suctions were clogged with debris, severely restricting the pumping rate.

3. Always call for help early. It is almost certain that this fishing vessel was saved by the arrival of the helicopter and its powerful salvage pump. This happened because, as soon as the skipper realised that the situation was not under control, he called for help.

What Lies Beneath?

Narrative

A narrowboat that had been tied up to a riverbank broke free from its moorings and was carried quickly downstream in a strong current that had resulted from heavy rainfall. The owner was on board at the time and did not have time to start the engine. The narrowboat came to a stop when it became pinned to guard piles, which protected a nearby weir.

The local fire and rescue services were called out to the emergency, and rescued the owner using an inflatable boat. They then made the narrowboat fast to the guard piles. Despite numerous attempts, the authority responsible for managing the river was unable to contact the barge owner, and it remained attached to the guard piles for some considerable time.

The owner had not insured the narrowboat, and it had no licence permitting it to be moored on the river. As a result, the owner left the boat in the precarious position for several months and made no attempt to recover it.

The weather conditions worsened over the next few months, with very strong currents due to the river flooding. The river authority was busy with safety operations so was unable to move the narrowboat on behalf of the owner.

With the river in full flood and flowing through the guard piles and over the weir, the narrowboat eventually broke free of its temporary moorings and was carried into the weir sluice (Figure 1). The boat started to take on water and partially sank. As this now posed a flood risk hazard due to the narrowboat partially blocking the weir, the river authority mobilised its local tug to tow the narrowboat from the weir in order to prevent further damage. However, during their attempts to tow it clear of the area, the narrowboat continued to rapidly take on water and it eventually sank in the navigable part of the river before the tug could tow it out of the way.

Figure 1: Narrowboat partially sunk on weir

The submerged narrowboat now posed a hazard to navigation, and it was marked at one end with an orange marker buoy. Licensed river users were notified via email and social media that this section of the river was closed to navigation, and the river website gave details of the submerged wreck.

Unfortunately, 2 months after the narrowboat sank, a motor cruiser ignored the instructions that the section of the river in way of the wreck was closed. It hit the wreck and became stranded on it (Figure 2).

The wreck was eventually removed when river conditions allowed for safe operations to be carried out.

Figure 2: Motor cruiser grounded on submerged wreck

The Lessons

1. All boat users are reminded to take care when mooring their vessels, and to remember that conditions can change quickly. Fast moving currents, wind and tide will put moorings and mooring ropes to the test. They should therefore be checked regularly.

2. The lack of insurance on the narrowboat prevented the owner from appointing a towage company to bring his boat off the guard piles and re-locate it to a safe position. Had the boat been properly insured and licensed to operate in this area, it is likely that the initial minor incident would not have developed into a major accident.

3. River users should familiarise themselves with local information before embarking on a trip. In this instance, by checking the river authority's notices, users would have been informed of the hazard posed by the wreck and that a section of the river was closed. If there is any doubt, always ask before departing.

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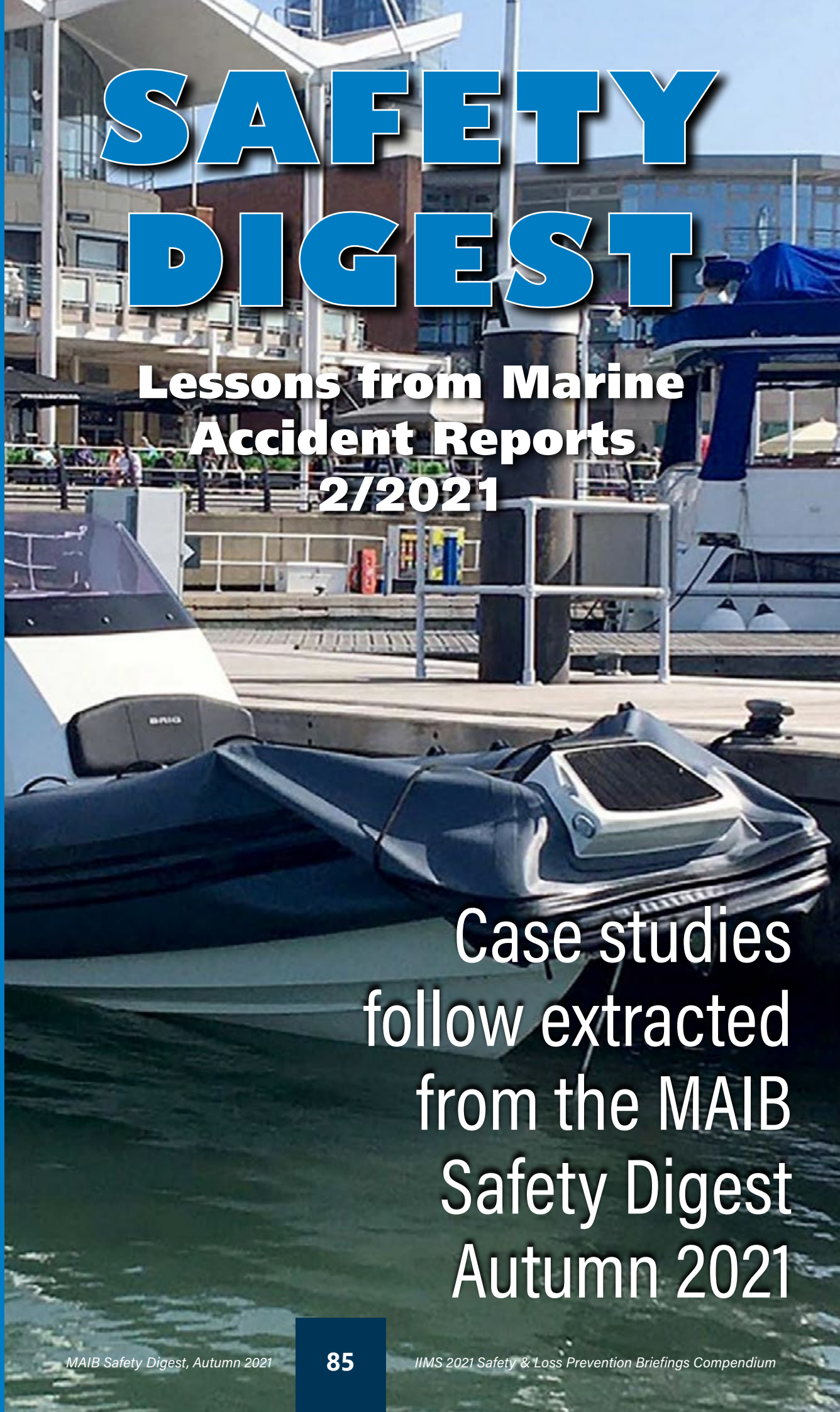


SAFETY DIGEST

Lessons from Marine Accident Reports 2/2021

Case studies follow extracted from the MAIB Safety Digest Autumn 2021

Hot stuff

Narrative

A large ro-ro passenger ferry was on passage when, in the early hours of the morning, the engine room fire detection system activated. The fourth engineer (4/E) was in the engine control room and observed that the fire detection system was indicating a fire in the zone containing the shaft alternator and thermal oil pumps. However, the CCTV view of the area was obscured due to smoke building up in the engine room.

The 4/E raised the alarm with the bridge and the chief engineer (C/E) then stopped the running thermal oil pumps and requested a speed reduction from the bridge. At the same time, the third engineer (3/E) grabbed a portable fire extinguisher, rapidly proceeded to the scene and extinguished the fire that had broken out on one of the thermal oil pumps (see figure). Leaking oil from the pump then reignited and, again, the 3/E extinguished the fire with a portable extinguisher.

The C/E then took charge of the situation: further crew arrived on scene armed with portable extinguishers, and full fire-fighting teams were prepared in the event of the situation escalating. Once the situation was under control, a standby thermal oil pump was started, and additional generators were brought online to protect the vessel's power supply. The engine room ventilation was then configured for smoke clearance.

The cause of the fire was later found to be a failed pump bearing that had overheated, damaging the adjacent mechanical seal. The failure of the seal resulted in oil spraying out and igniting on the bearing's hot surfaces.

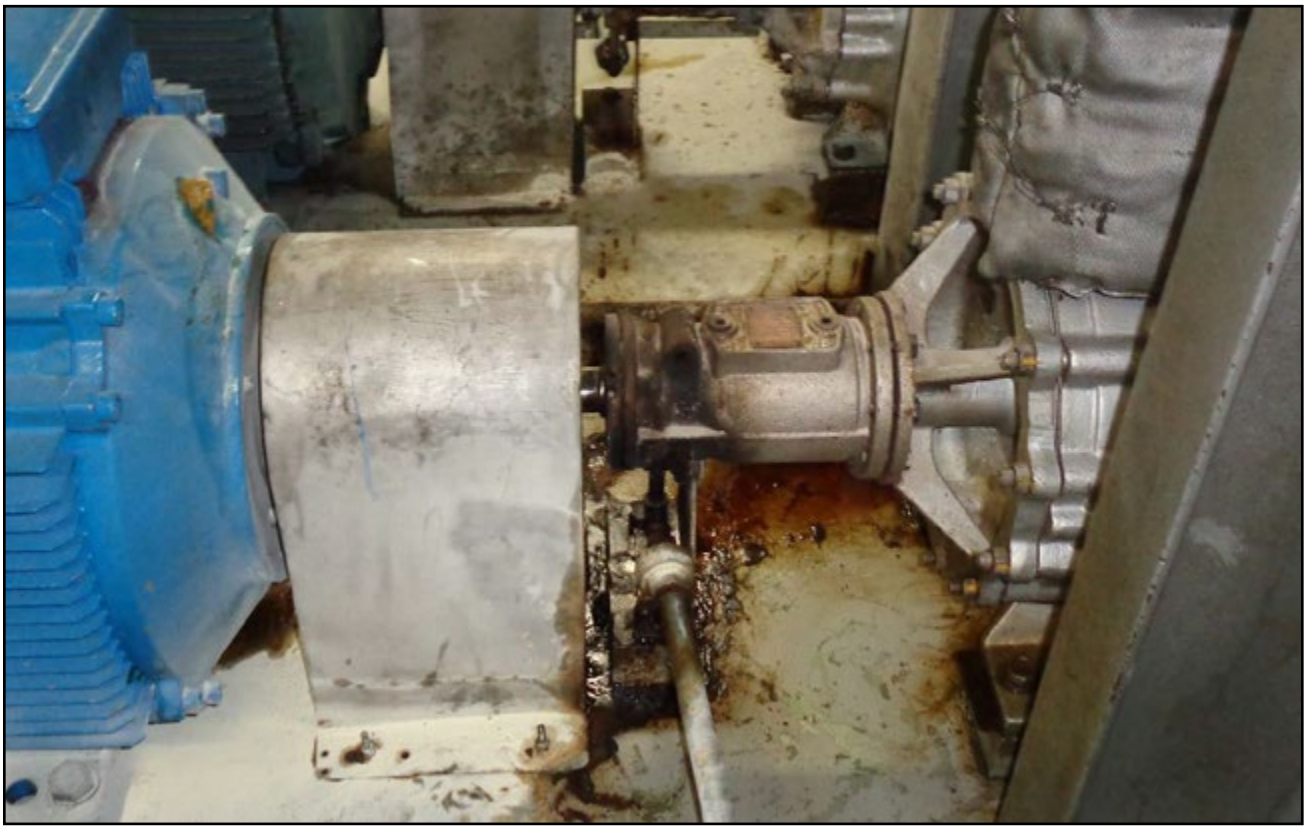


Figure: The scene of the fire, showing the fire damage around the coupling and leaked oil

The Lessons

1. Drills, training, exercises and toolbox talks all pay a big dividend when real emergencies occur. This was a well-organised ship's team that had conducted regular training and fire drills. As a result, the on-watch team took rapid and effective action to bring the situation under control, preventing escalation. Follow-up actions were also effective in restoring the availability of full propulsion capability for the bridge. In summary, the alarm was raised in a timely manner and effective actions were taken.

2. Smoke inhalation can be an immediate source of injury from a fire, so it was fortunate that the seat of the fire could be attacked at the same level, affording some protection for the 3/E from the smoke. It is wise to give consideration to using breathing apparatus to give protection from the smoke if the seat of the fire is not easily accessible.

3. The 3/E had to gain access to the fire using an emergency escape ladder, as the engine room's main access ladder had been removed to facilitate ongoing repairs unrelated to the fire. Potential consequences of even temporary blocking of main access routes should be carefully considered. The engine room is a high-risk compartment, especially when operating at sea. It was fortunate that the scene of the fire could be accessed by using the emergency escape. If access to the scene had been hampered, the potential delay could have allowed the fire to escalate requiring more drastic measures to be taken to control the fire.

Effective damage assessments

Narrative

During an outbound river passage under pilotage, a general cargo vessel grounded and suffered damage to its hull plating (see figure). Despite both the bridge team and pilot feeling the contact, no report of the grounding was made to the local Vessel Traffic Service (VTS) and the vessel proceeded to sea as usual after disembarking the pilot. Hull damage was not confirmed until the day after the incident and the full extent not realised until the vessel had completed its sea passage and entered a dry dock.

The master was on the bridge at the time of the grounding, but the pilot had control of the vessel and was steering using the tiller. It was dark and the vessel was proceeding at full ahead into a strong flood tide, making around 6 knots. During a turn to port, the pilot misjudged the effect the flood tide would have on the vessel and, even with full port helm applied, the vessel was set across the river and the bow made contact with the bank in an area of known underwater obstructions.

The vessel took a sheer towards the opposite bank of the river, which the pilot corrected with the tiller and, shortly afterwards, the master ordered an inspection of the vessel for damage and a position was recorded in the deck logbook. No further mention of the incident was made between the pilot and master and the vessel continued its passage to sea without the local VTS being informed.

Even though the initial damage assessment did not identify a breach of the hull, the next day an area of deformation in a cargo hold led to the discovery of a significant breach. The vessel was sent to a repair yard immediately on its next arrival and dry docked.

The Lessons

1. **The pilot took control of the navigation of a vessel in difficult tidal conditions. However, it is unclear how much knowledge of the vessel's manoeuvring characteristics he had. It is crucial that master and pilot take the time necessary to communicate the essential information needed for the pilot to take the con if this is decided more appropriate than the master maintaining the con. All vessels have manoeuvring posters on the bridge, which should be referenced in the creation of the pilot card.**
2. **Even if there has only been a suspicion of a vessel grounding, it is imperative that the local VTS is informed and a comprehensive check of the vessel made before proceeding to sea. Neither were done in this case, which not only contravened the local regulations and obligations of both the pilot and the vessel's master but also placed the safety of all the crew and vessel in jeopardy.**

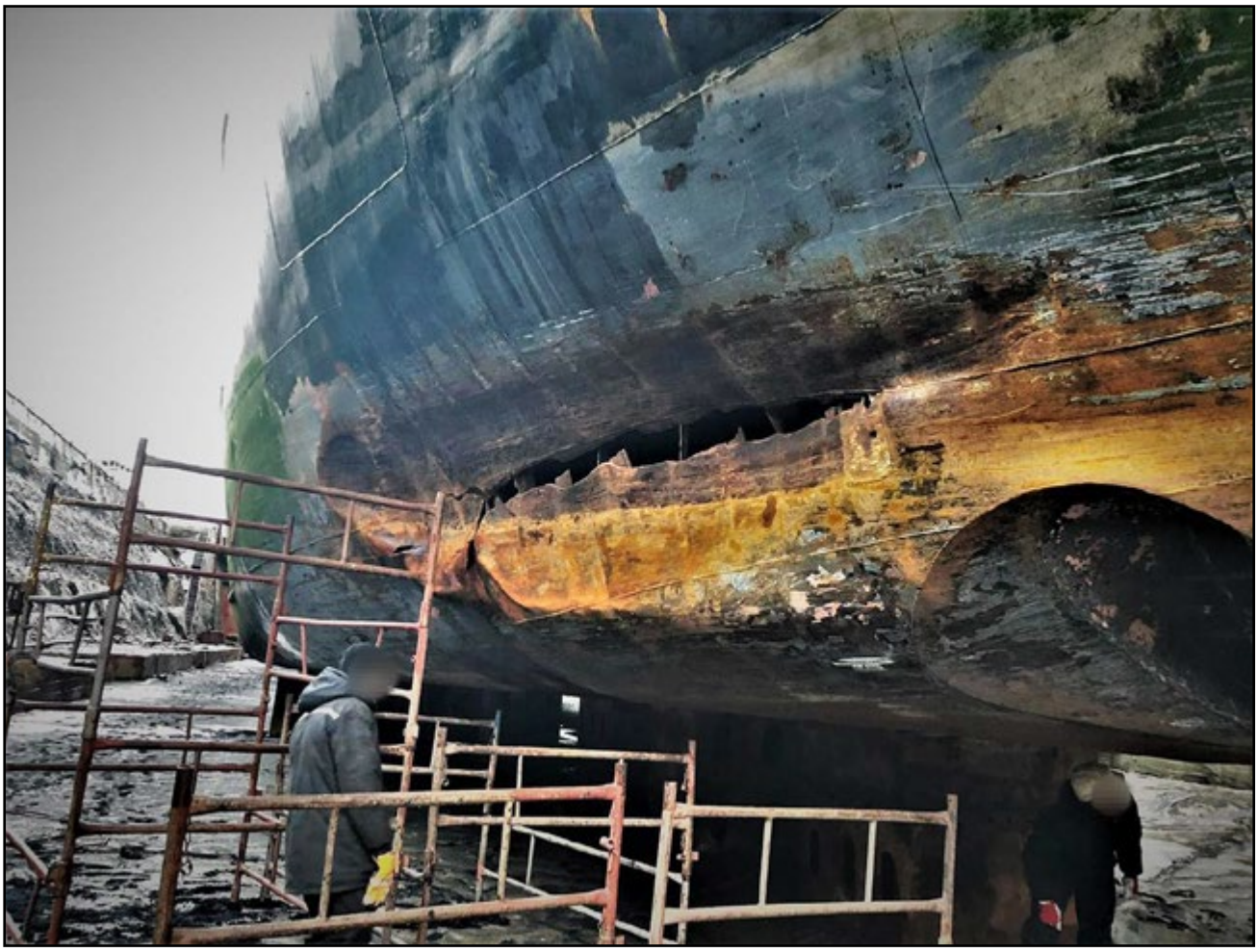
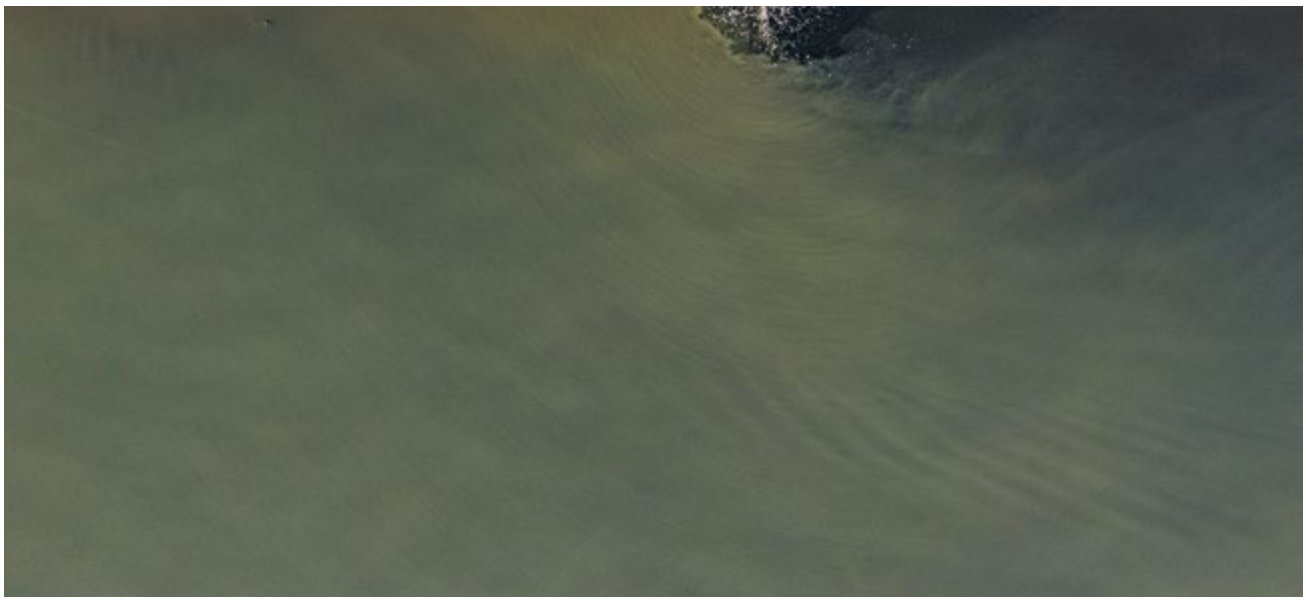


Figure: Damage to the general cargo vessel's hull plating



Wet feet and red faces

Narrative

On early morning rounds while a ferry was alongside, a motorman noticed that there was significant flooding in the engine room bilges, with the water level reaching approximately 0.5m above the tank top. This came as a surprise as the bilge alarm had not activated.

The motorman raised the alarm and soon afterwards the master ordered the emergency bilge pump to be started. A pollution watch was maintained at all times and the coastguard was informed.

As the water level began to drop, the source of the flooding was identified as a test valve on the fire-fighting sprinkler system, which had been left open. This valve was closed, and pumping continued until the vessel bilge was dry. No pollution was seen at any stage.

On investigation it was established that, the previous day, the duty engineer had been carrying out routine maintenance on the sprinkler system but had become distracted and forgotten to close the test valve. The test valve discharged under the closed deck plating into a bin sat in the bilge (Figure 1), which would then be pumped out once testing was complete.

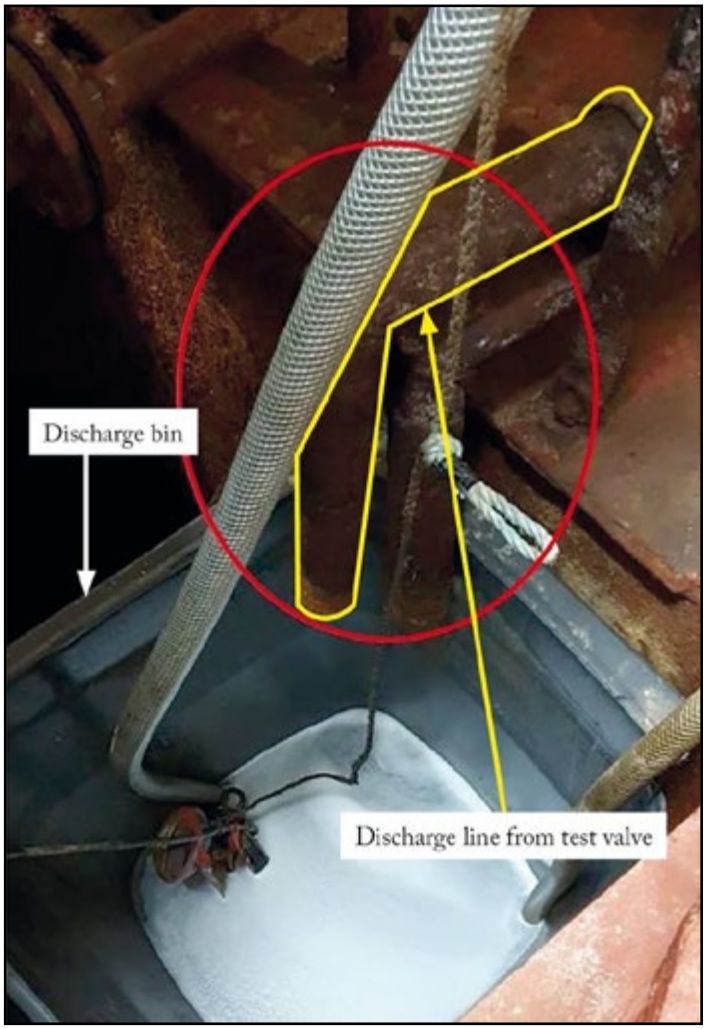


Figure 1: The discharge line from the test valve into the bin

On further inspection, the bilge alarms in the space were found to be clogged with oily deposits (Figure 2). As a result, seawater had been allowed to flow unchecked and unnoticed into the vessel for approximately 18 hours.

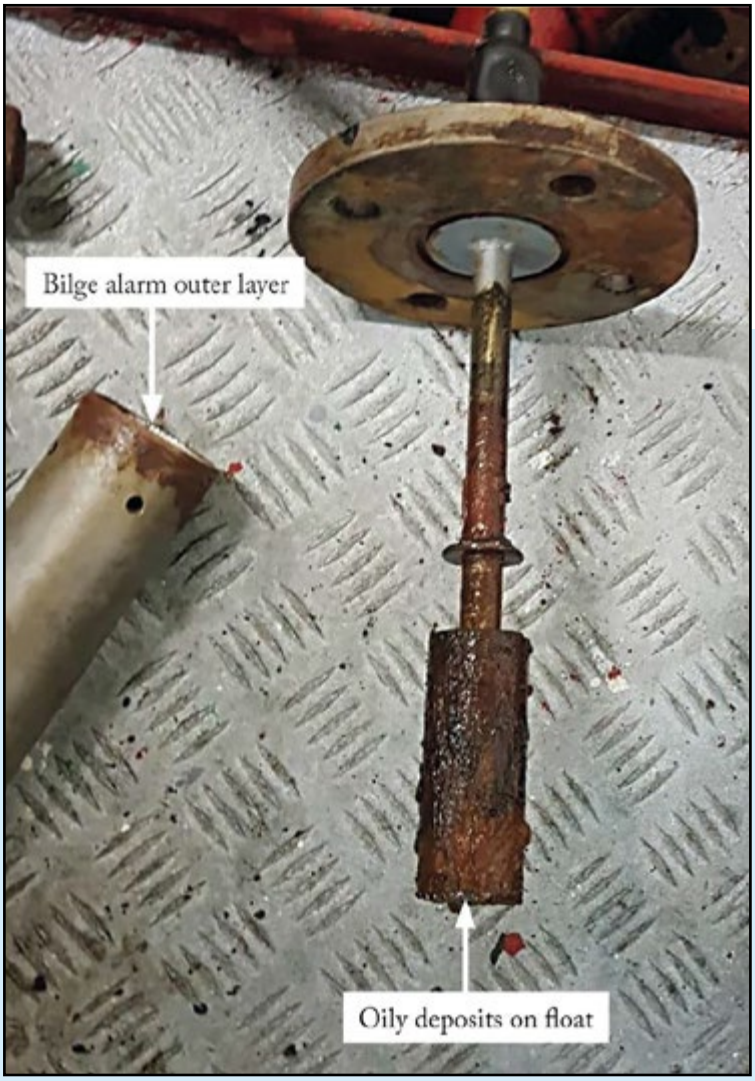


Figure 2: The disassembled bilge alarm, showing the build up of oily deposits on the float

The Lessons

1. **Just because a work around has always been in place, does not always mean it is right. The other vessels in the fleet had the corresponding test valve connected to an overboard discharge, therefore removing the hazard of unintentional flooding. Ship's crew and company superintendents need to be aware of the dangers of becoming blind to some hazards and continue to ask the question, "*Is this as safe as it reasonably can be?*".**

2. **The bilge alarms were tested every 4 months, the last test being 3 months prior to this incident. On that occasion and at times previously, notes had been left in the planned maintenance system that oily deposits had been found and cleaned off before the alarm could be successfully tested. The task was signed off as successful and the unsafe condition was not raised with the chief engineer and so no solution was sought. Planned maintenance systems will only work effectively if defects are proactively reported to the appropriate level of vessel or shore management, so that persistent problems can be resolved.**

3. **The deck plating in the flooded compartment comprised of solid plates so that, on rounds, the motorman would have to physically remove plates to properly check the bilges. Gratings in the floor plates in strategic locations would have enabled easier, more reliable bilge inspections. Can you inspect your bilges quickly and easily?**

We booked for fishing, not swimming

Narrative

A group of six recreational sea anglers booked a fishing trip after seeing an advert on social media. On the day of the trip the anglers met up with the skipper at a local marina before heading out to sea on board the sturdy sea angling vessel (see figure).

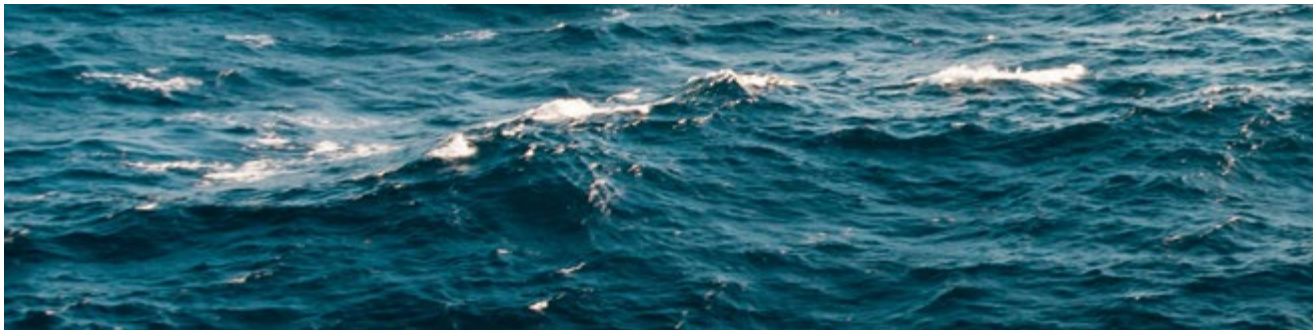
The forenoon had proved fruitless with only a few fish caught, so the skipper agreed to relocate the boat in search of a better catch in the afternoon. As the skipper slowed the boat down at the new fishing grounds, he heard the bilge alarm sounding, and the boat started to adopt a steep stern trim.

The skipper realised that the boat was sinking so made a "Mayday" call using the VHF radio, which was acknowledged by the coastguard. He then grabbed the liferaft from the wheelhouse and told the passengers to go to the bow area to stay dry; he also handed out lifejackets to everyone. Despite the skipper pulling the liferaft's painter it failed to inflate so, as the boat sank, everyone slipped into the sea.

The "Mayday" call had also been heard by another fishing boat that was a long way off; the skipper of which had the presence of mind to phone a friend, who he knew had a leisure powerboat that would be capable of assisting quickly. The powerboat owner dashed to the harbour, got underway and was first on the scene, about 20 minutes after the accident.

When the powerboat arrived, the owner was able to assist everyone out of the water; they were all very cold and several had started to really struggle. The coastguard helicopter was next to arrive and, after ambulance paramedics had checked everyone ashore, it was used to fly three of the sea anglers to hospital, all of whom were exhibiting hypothermic symptoms. Fortunately, they were discharged from hospital later the same day.

Figure: The fishing vessel before the accident, showing the liferaft on the foredeck – on the day of the accident, the liferaft was stowed inside



The Lessons

1. Unexpected immersion in cold sea water has immediate and profound effects on the human body. This starts with the initial cold shock, then cold incapacitation leading to hypothermia and death. When help arrived, it was evident that all seven people in the water were in immediate danger, showing signs of incapacitation with some of them on the verge of giving up. Nobody in the water was able to climb the ladder into the powerboat unaided.

2. Call for help as soon as the situation starts to deteriorate. In such circumstances, it is critical that the alarm is raised as soon as possible. It was extremely fortunate that the skipper had the foresight to call "Mayday" as soon as the situation worsened, and that this call was heard and acted upon. In this case, the decision of another fishing boat skipper to alert his friend was also extremely helpful.

3. Although the cause of this flood was never determined, there is no doubt that it was rapid, quickly overwhelming the boat, which sank soon after the bilge alarm sounded. In a vessel of this nature, the significant flooding risks are from the hull structure or hull valves, in particular engine cooling inlets and 'wet' exhausts. It is vital for the safe operation of small boats that hull fittings are regularly inspected and well maintained. Measures to counter flooding, including bilge pumps and wooden bungs, should also be working and available.

4. It is important that everyone on board is familiar with the boat's safety equipment. Some of the sea anglers did not know how to don their lifejackets properly because the skipper had not conducted a safety brief prior to departure.

5. The liferaft that failed to inflate was not recovered, so the reason it did not work will remain a mystery. Nevertheless, this accident serves as a reminder to keep <u>all</u> safety equipment regularly serviced and in good working order.

6. The voyage on the day of the accident was commercial in nature as the sea anglers had paid the skipper for their day out. However, the boat had recently changed hands and, as a result, its commercial certification had lapsed. Had the new owner made arrangements for a survey, this would have included an assessment by a surveyor that the vessel was structurally sound and that the hull fittings were in good condition. It is reasonable to assess that such an inspection could have identified the weaknesses on board that resulted in the flooding.

We end this publication with two recently published opinion articles by experts in their fields regarding the high-profile Bonhomme Richard and Golden Ray cases. As you will read, there is a common thread running through the articles. The two incidents resulted in the total loss of both assets. Both incidents could have been prevented had proper training been provided and undertaken by those involved in having to deal with the situations they faced. There was an apparent lack of maritime professionalism on display, sadly something we are increasingly seeing and something that must be addressed with alacrity.

Editor

Fire, Fire, Fire:

How Navy Failures Destroyed the Bonhomme Richard

Sailors and Federal Firefighters combat a fire onboard the amphibious assault ship USS Bonhomme Richard (LHD 6) at Naval Base San Diego, July 12, 2020. (U.S. Navy photo by Mass Communication Specialist 3rd Class Christina Ross/Released)

"A guy with a flag simulates a flame, and a nozzleman says…I am squirting you with water…and then they say… fire is out."

This statement by a Navy sailor is found in the recently released Navy report on the USS Bonhomme Richard fire and typifies how many of the firefighting drills were conducted for the crew before the catastrophic fire, lasting five days, destroyed the ship in July 2020.

In addition to poorly run and deficient drills, many of the ship's crew had not donned Self-Contained Breathing Apparatus (SCBA) in over a year, did not know how to use or activate Aqueous Film Forming Foam (AFFF) or halogenated hydrocarbon (Halon) firefighting systems, and were unaware of where to locate and use Emergency Escape Breathing Apparatus (EEBA).

There was no "map of the ship" (Fire Control Plan as required by IMO SOLAS convention) available

to shoreside firefighters when they arrived at Pier 2 at the San Diego Navy Base to assist in the firefighting effort. And there were no fire standpipes on the pier to supply firefighting water.

As the fire aboard the 844 ft LOA, 27,000-ton Wasp Class Amphibious Assault Ship grew, temperatures reached over 1400 degrees F, melting her aluminum internal superstructure. Rapidly, the fire engulfed nearly the entire ship, enabled by chaos and confusion.

Mismatched hose threads, lack of compatible radios and common frequencies, inability to locate the fire, inability to provide firefighting water, no SCBA refilling capability, portable pumps inoperable, dead batteries in equipment, inability to accurately account for all crew, inability to take correct draft readings (required for stability calculations), not accounting for free surface effect, and a "leadership vacuum". These are just a few of the issues identified in the US Navy's report.

Upon reviewing the recently released 434-page US Navy report on the USS Bonhomme Richard fire, I am saddened by the multitude of identified needless errors, as well as the realization that possibly our vulnerabilities as a military are not threats from Russian hypersonic missiles, or North Korean nuclear bombs, but ourselves.

Our military bureaucracy has become so complicated and filled with incomprehensible manuals and flowcharts that we are now disconnected from the critical need for mastering the basic skills needed to be an effective maritime professional. Firefighting is just one of many skills which all mariners must embrace, in addition to marlinspike seamanship, damage control, ship handling, stability, and small boat operation.

As a Coast Guard-approved Basic and Advanced Firefighting Instructor, I have led hundreds of mariners through live-fire training, attacking and extinguishing fires fueled by propane, gasoline, diesel fuel, aviation fuel, wood, and electrical sources. Firefighting requires combat skills, where the enemy (fire) is ruthless and ingenious. Temperatures exceeding 1500 F bring flashovers, explosions, and reflashes when you naively believe a fire is out. Fires will flashback and consume everything in its path. Only rapid action, aggressive tactics, tenacity, expert training, and experience brings success. You cannot simulate fighting a shipboard fire, you must fight a real fire in training to grasp the skill necessary to succeed in an actual event.

Firefighting demands fearless leadership, not wardroom leadership. Boots on the ground, where rapid assessment of a situation initiates a swift response. An incipient fire develops exponentially, and if not attacked and contained within minutes will quickly become a fully engaged fire, producing temperatures over 500 F, igniting everything within its surroundings.

Technology has deluded us into believing shipboard fires are no longer a threat. Ubiquitous alarms, complicated fire control systems, and distractions make fire prevention a non-priority. Reviewing the USS Bonhomme Richard fire report shows priorities were placed on completing repairs on time, managing an overwhelming amount of shipyard work, with many projects conflicting. Bonhomme Richard had been in the shipyard for over a year when this fire occurred, and there existed a plethora of shipyard projects, dismantled systems, and confusing priorities. Her crew suffered from lack of clear leadership and direction.

Shipboard fires are terrifying; they are the most significant threat to a ship. Well-trained crews keep their ships scrupulously clean, bilges free of oil and grease, trash receptacles emptied before they become full, electrical systems monitored, alarms checked, and a constant roving watch using their sense of sight, smell, hearing, touch, and well-honed training to detect threats which can be remedied immediately.

Loss of the USS Bonhomme Richard was due to a fire; but the fire occurred due to preponderance of failures within our culture for identifying priorities and caring for our Sailors and ships. The fire was small when an arsonist started it, and had it been detected early, could have been extinguished. Bonhomme Richard was lost because we have lost touch with the basic skills and professional focus needed to be maritime professionals. We are managing ships as if they are floating office buildings. Our leaders need to reclaim the importance of inculcating the fundamental proficiencies which define being a Maritime Professional.

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This article was first published on the gCaptain website and is published here with our thanks.

The missing question from the NTSB Report on MV Golden Ray: WHY?

Photo Credit: Petty Officer 3rd Class Ryan Dickinson | U.S. Coast Guard District 7 PADET Jacksonville | Date Taken: 09/09/2019 | https://bit.ly/3qtn7a7

*By **Salvatore R. Mercogliano**, Ph.D.*

Two years after MV Golden Ray capsized while departing the port of Brunswick, Georgia early in the hours of September 8, 2019, the National Transportation Safety Board released their final report on the incident. The accident occurred as the ship, under the supervision of an embarked pilot, executed a 68-degree turn heading out to sea.

With the vessel increasing speed, and 20 degrees of rudder ordered, Golden Ray heeled past 8 degrees and never recovered. The ship maneuvered out of the main shipping channel, but with a list of 60 degrees to port, and an open hatch for the pilot, the vessel flooded and sank to the bottom of St. Simon's Sound. The Coast Guard and tugs responded and quickly removed the pilot and nineteen members of the crew. Rescue efforts cut out the remaining four crew trapped on board.

The 46-page report is filled with information and factual data about the event gathered from eyewitnesses, testimony, and research from NTSB experts. After their review of the facts and their analysis, they determined that:

- The probable cause of the capsizing of the Golden Ray was the chief officer's error entering ballast quantities into the stability calculation program, which led to his incorrect determination of the vessel's stability and resulted in the Golden Ray having an insufficient righting arm to counteract the forces developed during a turn while transiting outbound.

The NTSB ruled out weather, the transfer of ballast or fuel during the transit, malfunction of the propulsion and steering systems, the shifting of cargo, obstructions in the channel, or a fire in the hold. With none of those present, the bureau focused on the actions – or more appropriately, inactions – of the First Mate, who also served as the cargo officer, in failing to properly input the readings from the ship's 21 ballast tanks into the shipboard stability computer (LOADCOM). This error resulted in the incorrect determination of the vessel's stability. With that error, and the ship lacking the adequate metacentric height (GM) to properly right the

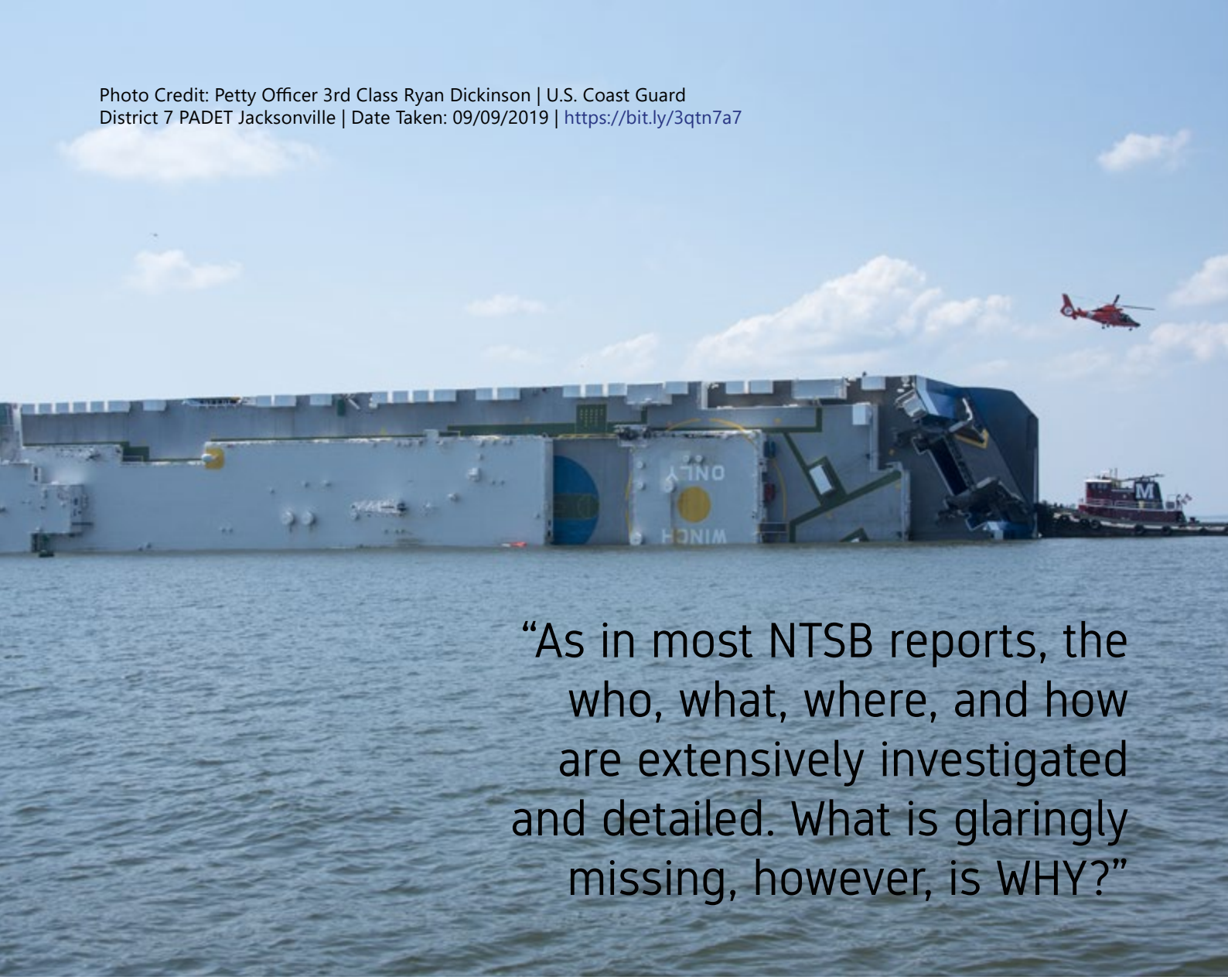

Photo Credit: Petty Officer 3rd Class Ryan Dickinson | U.S. Coast Guard
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"As in most NTSB reports, the who, what, where, and how are extensively investigated and detailed. What is glaringly missing, however, is WHY?"

vessel in the final turn toward the open sea as the vessel sped up, it resulted in the centers of gravity and buoyancy rolling the vessel when she heeled past 8 degrees.

As in most NTSB reports, the who, what, where, and how are extensively investigated and detailed. What is glaringly missing, however, is WHY? Why did the Chief Mate, who had been serving on the ship for over six months, with six years in car carriers and ten years as First Officer, fail to input the correct data from the ballast tanks into the LOADCOM. Why, after he ordered the quartermaster to sound the tanks to ensure that the computer soundings matched the actual readings, did he input the incorrect data. Why did he fail to use the automated feature on the system that automatically linked this data directly to the LOADCOM computer? Finally, why did the NTSB not ask these questions?

In the end, the NTSB made two recommendations to the operating company, G-Marine Service Company, Limited. First, to revise their safety management system to establish procedures for verifying stability calculations and implement audit procedures. According to the investigation, the Chief Mate had only 3 to 4 hours training on the LOADCOM, even though he used it to determine the stability of the vessel before and after every loading operation. He was also the only person on board who accessed this information. G-Marine used a firm to develop their load plans, but final information after loading was not received until the vessel sailed; in this case, two hours after the ship capsized.

The second recommendation had to deal with several watertight doors that had remained open during the transit and when the ship took its catastrophic list and led to the flooding of the vessel and the entrapment of the four engineers. Amazingly there were no recommendations or actions that would prevent this accident from happening again. There was no requirement that any car carrier leaving the port of Brunswick, or any US harbor for that matter, provide a statement or report on its stability. But perhaps the most glaring issue not addressed in the NTSB report is why was the data inputted incorrectly?

The Chief Mate gave a deposition following the accident, but he failed to appear or make himself available during the NTSB hearing. The fact that incorrect data was fed into the LOADCOM indicates the mate was grossly negligent in his duties, which is alleged by the fact that he was unfamiliar with the primary tool he would use to solely determine the

stability of the vessel he had served on for six months. Or he intentionally submitted false data and failed to use the automatic link from the ballast tanks to the LOADCOM for fear that it would show that instead of having 8.3 feet of GM, which was required, he was at 6 feet. We again come to the question, that is never asked in the NTSB report, why?

Not once discussed in report is the ship's ballast water treatment plant. It is represented in a graphic on page 46 that details the ship's water ballast system. When Golden Ray sailed into Jacksonville, Florida, the port before Brunswick, it had offloaded 1,500 MT of ballast to raise the vessel to make the required draft of 31 feet. After sailing, it did not take on any more ballast. When it arrived at Brunswick, it also failed to take on ballast as it navigated the 36-foot channel, with a maximum permissible draft of 33 feet. In Brunswick, the ship offloaded and loaded vehicles and increased its cargo weight by 373 MT, but failed to take on ballast; why?

The answer lies in the fact that when a ship loads ballast, the water runs through the ballast water treatment plant. It takes time to remove sediment, silt, and biological organisms from the water before it could be loaded in the tanks. There is less of this material in the open blue water of the Atlantic compared to the brown water of St. Simon's. Additionally, the material gathered in the ballast water treatment plant cannot be discharged in US waters but pumped ashore for further treatment, according to the US Coast Guard.

So, why would an experienced Chief Mate input false reading into the LOADCOM when he knew that the computer soundings had been verified? As the LOADCOM data was destroyed in the accident, we cannot know for sure, but it appears that the Chief Mate intended for the ship to show an acceptable GM, not thinking that the ship would suffer a catastrophic heeling motion. He probably intended to load ballast water once clear of the coast and in blue water. We do not know if the Chief Mate intended to ballast once clear of Brunswick, or even wait until final cargo operations were completed in Baltimore.

The failure of the NTSB to address this issue means that car carriers entering and leaving Brunswick, Georgia currently, and for the past two years, and every other port in the United States, may have officers on board the ship inputting false data to avoid fouling their ballast water treatment plant. Failure to have the LOADCOM computer directly linked to the ballast tank sensors, verified with soundings, and then uplinked to the company's engineering firm to determine the stability of the vessel, and waiting for the verification of the load and stability data were not addressed in this report. Yet, these factors contributed to the accident.

By focusing solely on the Chief Mate, and to a lesser extent on G-Marine Services failing to have an effective ship management system regarding ship's stability, the potential for another car carrier capsizing in US waters has not been eliminated or even substantially diminished.

The public docket for the investigation can be viewed at **https://bit.ly/2XLB1IB** and contains more than 1,700 pages of factual information, including interview transcripts, photographs and other investigative materials for your perusal.

The NTSB Marine Accident Report is available online at **https://bit.ly/3CosGcO**.

I cover this topic and more in my video, ***What's Going On With Shipping? Why Did MV Golden Ray Capsize?,*** over on my Youtube page at **https://www.youtube.com/watch?v=SwQSZa34V1E.**

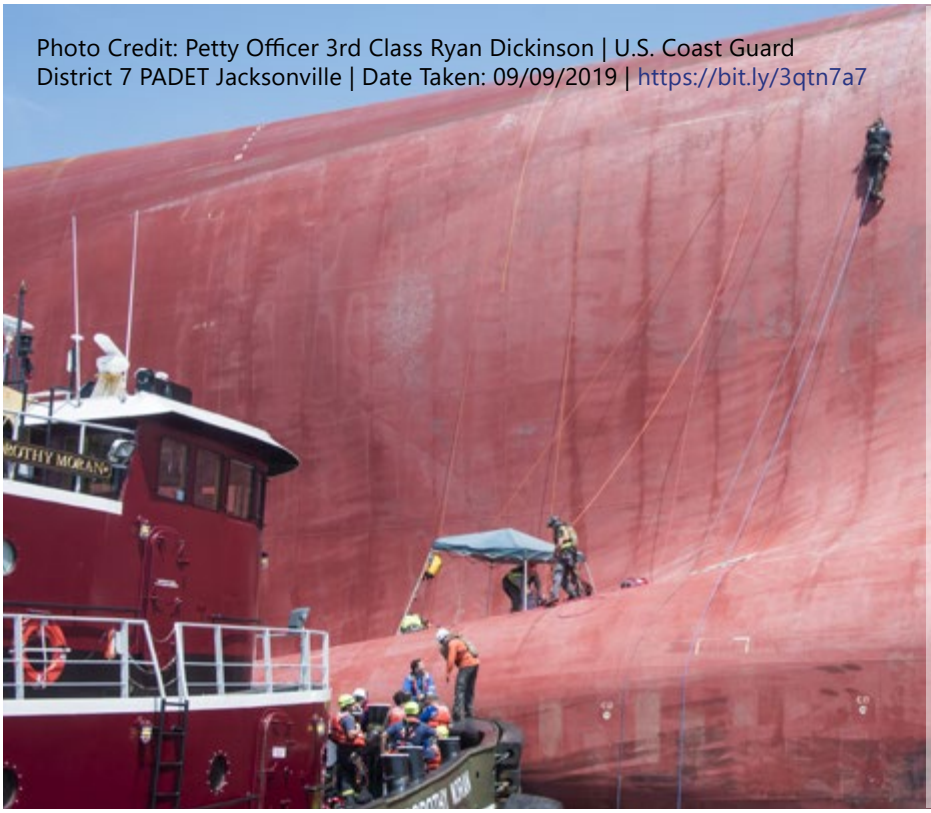

Photo Credit: Petty Officer 3rd Class Ryan Dickinson | U.S. Coast Guard District 7 PADET Jacksonville | Date Taken: 09/09/2019 | https://bit.ly/3qtn7a7

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THE REPORT

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