MARS

MARS Report 396 | October 2025

In this bulletin…

MARS202538
Li-ion battery hazards

MARS202539
Close call in fog

MARS202540
A tripping hazard created

MARS202541
Chart plotter mishap

MARS202542
A crush on maintenance

MARS 202538

Battery fire

As edited from USCG Safety Alert 14-25
An integrated Li-ion battery bank recently caught fire on board a passenger vessel. It was found that loosely crimped lugs overheated and initiated the fire. No one was injured and the vessel sustained minimal damage, but this casualty highlights the safety hazards posed by Li-ion batteries.

The resulting investigation found, among other things, that all Li-ion installations used for propulsion, control and electrical power must undergo an engineering plan review and be fitted with supporting safety systems. Additionally, these systems should be tested and inspected at installation and periodically afterward, and be properly maintained by competent mariners, regardless of the battery bank size or end consumer.

Some notes on Li-ion batteries

Energy density: Li-ion batteries are used on vessels because their high energy densities allow for longer voyages and full electrification. However, high energy density increases risk because if a fire occurs, it will burn hotter and longer.

Thermal runaway: Upon internal failure or short circuit, Li-ion batteries may release high-temperature flammable gases that can catch fire or explode. The heat output of a fire can increase the rate of off-gassing, and those off-gasses in turn increase the size of the fire in an uncontrolled chain reaction.

Fire suppression resistance: A thermal runaway fire is very difficult to suppress once it has begun to propagate to other battery modules. Instead, fire management strategies focus on early detection, fire containment, and heat absorption with a water-based suppression system.

Toxic off-gasses: In thermal runaway, Li-ion batteries release varied toxic gases, many above their 'Immediately Dangerous to Life or Health' thresholds, placing passengers and crew in potential danger. Further, the composition of off-gasses varies dramatically across different Li-ion battery chemistries and manufacturer makes and models.

Battery Management: Li-ion batteries will often have a battery management system to prevent degradation from overcharging, undercharging, or over-cycling. Propulsion, electrical loads, topping loads, and recharging cycles are managed by complex integration systems, which are key in mitigating the increased risks of Li-ion battery systems.

Lessons learned

- Batteries should be visually inspected for signs of deterioration, such as bulging cells or corroded electrical connections. Documentation on the

completion of required maintenance should be maintained.
- Crew members responsible for battery operation and maintenance should be trained in the manufacturer's guidelines and operational procedures and familiar with the functioning of the battery management system.
- Crew should know how to respond to abnormal battery conditions or fires. Safety drills for Li-ion battery fires should be performed, and Li-ion battery system arrangements and risks should be considered when conducting other drills.

MARS 202539

Close call in fog

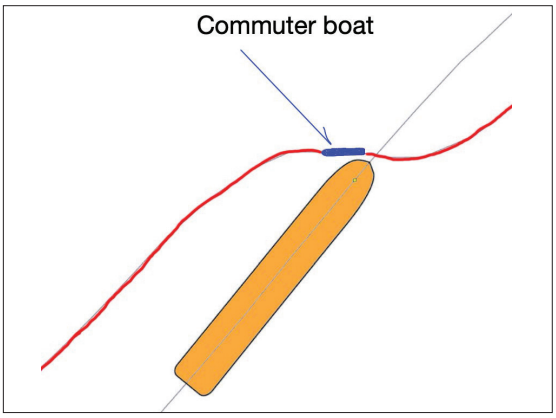
In fog, a passenger vessel was outbound in restricted waterway at 15 knots. The bridge team noticed an inbound commuter boat on the radar that appeared to be trending to its own port side. They decided to head slightly to port as well to give more room, presuming a starboard-to-starboard meeting, although no communication with the commuter boat had taken place.

Meanwhile, on the inbound commuter boat with 10 passengers on board, the Master was having problems with the starboard engine. An alarm was incessantly sounding. In attempting to silence the alarm the Master 'emergency stopped' the engine by mistake. He was then in telephone contact with the company's technical support while he and the deckhand tried to restart the engine. While still making 13 knots on the port engine, the Master was also manually steering the vessel. During this time, they had imperceptibly made way to their port side, that is, to the opposite side of the fairway. Soon after the starboard engine had been re-started, the two crew members on the bridge realized the outbound passenger vessel was almost directly in front of them.

The Master of the commuter boat applied engine power and turned sharply to starboard. The bridge team on the outbound passenger vessel saw the commuter boat coming out of the fog towards them and turning sharply to starboard, so they also initiated a turn to starboard. The vessels passed clear of each other by 10m.

Lessons learned

- The Master of the commuter boat was overcome by numerous complex tasks and telephone communications while attempting to manually steer in fog. This is a good lesson in setting priorities; what is more important, continuing



to make way at 13 knots or the safety of your vessel?
- Steering manually in fog needs your 100% attention.
- Making 13 knots can reasonably be considered too fast given a restricted waterway in thick fog while meeting other vessels and attending to other tasks.
- Always adjust your speed to the weather conditions and the operational circumstances.
- Assuming an unconventional meeting such as starboard to starboard in a restricted waterway and low visibility without validating with the opposing vessel is a risky proposition.

As edited from SHK (Sweden) 2025-15

MARS 202540

Tripping hazard unintentionally created

During dry dock work, a contractor was assigned to perform an electrical job in the steering gear compartment. Wooden deck covers were removed so that a ladder could be placed. When the ladder was removed, the wooden deck cover was not immediately placed back in position. The securing cleat for the deck cover, which protruded above the deck and was painted the same colour, was now a perfect tripping hazard.

Within a short time, a person tripped on this hazard and needed first aid attention.

Lessons learned

- Changes in a safety system can create new hazards. In this case a well-marked deck cover was removed without consideration of a new hazard being created, that of the newly exposed securing cleat.
- A review of the workspace by a safety minded crew before and after the task can help reduce existing risks or newly created ones.

MARS 202541

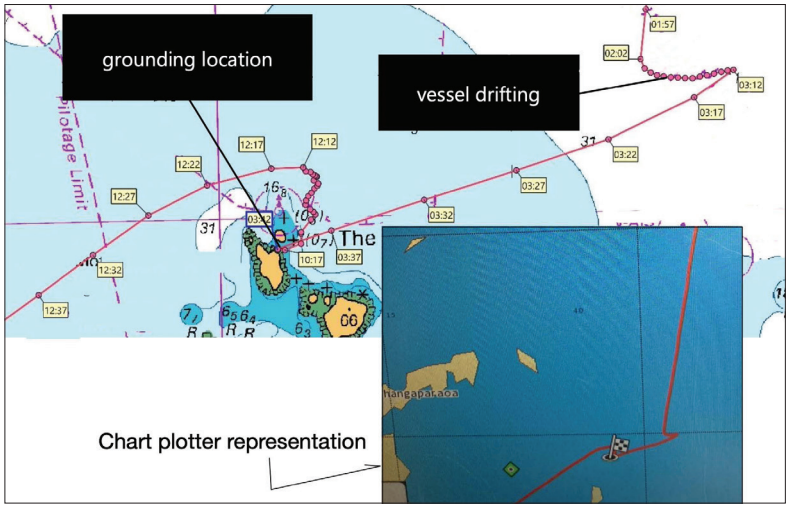
Failing to plan is planning to fail

A medium sized fishing vessel with 27 crew on board drifted overnight, waiting until the next day to make their scheduled arrival at the pilot boarding area.

When the Master and the chief officer took over the watch the next morning it was still dark. Using the chart plotter, which was not an ECDIS, the Master set the course straight to the pilot boarding area. About 40 minutes later, the vessel ran aground on charted rocks at the periphery of an island at a speed of about eight knots. The vessel did not have the proper large-scale charts for the area, and the chart plotter did not show the rocks.

A small hole was observed in the bow as well as a damaged propeller. Luckily, the vessel could be refloated at high water and towed into port.

The investigation determined that the Master had based his decision on an incorrect understanding that they had safe water. Had an appraisal been conducted and a formal voyage plan prepared based on the applicable charts and nautical publications, it is virtually certain the navigational hazards would have been identified and a course set that kept the vessel clear of those hazards.



Lessons learned

- It may seem like a 'beginner's mistake' not to have a proper passage plan and appropriate scale charts (or ECDIS), but the professional mariners involved in this accident were not amateurs.
- Relying exclusively on a chart plotter for positioning is obviously a mistake but other groundings have occurred while using fully compliant ECDIS. In particular, the safety depths (and/or contours) have been incorrectly entered, among others, thus showing safe water where none was for the vessel in question. See MARS 201505, 200930, 201660, 201875.

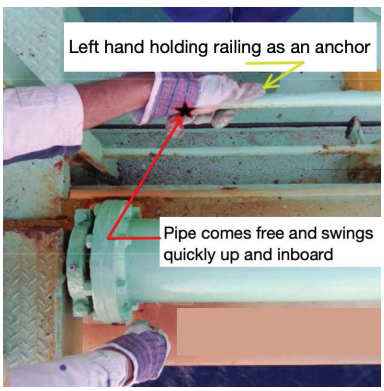
As edited from TAIC (New Zealand) report MO-2024-203

MARS 202542

A crush on maintenance

Deck crew were removing the starboard gangway's torsion tube for repairs. After removing the nuts and bolts, the tube remained stuck in place, probably due to paint and corrosion. To free it up, a crew member hammered the tube with his right hand while holding the shipside railing with his left hand as an anchor. Two other crew members were assisting, pulling at the other end of the torsion tube.

When the tube came free it swung up and inboard with force, hitting the left ring finger of the crew member holding the ship side railing. The finger was caught and crushed between the flange of the tube and the railing, resulting in a complex fracture.



Bird's eye view of the accident

Lessons learned

- Some jobs appear mundane and routine, but every task can have hidden risks. If things don't go as planned, stop and re-evaluate. What is the best way to solve the problem?

Thank you to all our Nautical Affiliates for their continued support

ABC Maritime
www.abcmaritime.ch

A. R. Brink & Associates
www.arbrink.com

AIMS Institute of Maritime Studies
www.aimsmaritime.com

BMT
www.bmt.org/surveys

Britannia P&I Club
www.britanniapandi.com

Chevron Shipping
www.chevron.com

Commissioners of Irish Lights
https://www.irishlights.ie/

ECDISPLUS Training Solutions
https://www.ecdisplus.com/

Excelerate Technical Management
https://excelerateenergy.com/

Exmar
www.exmar.be

Fundacion Avante
https://fundavante.com

Gard
www.gard.no

The Gdynia Maritime School
https://www.morska.edu.pl/en

Green Bow Maritime
https://www.greenbowmaritime.com/

IAMI
http://iami.info

IMAT
https://www.imat2006.it/

IMCS
www.imcs-group.com

JMP Marine Surveyors
https://jmpmarinesurveyors.com/

KASI GROUP
www.kasimalaysia.com

Louis Dreyfus Armateurs
www.lda.fr

Marine Society & Sea Cadets
www.ms-sc.org

Maritime Training Services
https://oceantg.com

Marlins
https://marlins.co.uk

Martech Polar
http://martechpolar.com

Metropolitan College
https://www.mitropolitiko.edu.gr/

Mintra
https://mintra.com/

Modern Asia Marine Training Center

MOL Group
https://www.mol.co.jp/en/

Neopoint
https://neopoint.ro/

NorthStandard
https://north-standard.com/

NorthLink Ferries
www.northlinkferries.co.uk

Norwegian Hull Club
www.norclub.no

Ocean Technologies Group
https://oceantg.com

Pacific Basin
https://www.pacificbasin.com

Pan Arab E-Navigation
https://pa-en.com/

Philippine Merchant Marine Academy
https://pmma.edu.ph/

The Port of London Authority
www.pla.co.uk

Poseidon Sea Pilots
www.poseidonpilots.com.au/

Poseidon Maritime
https://www.poseidon-maritime.com/

The PTC Group
http://ptc.com.ph

SDT Ultrasound
https://sdtultrasound.com

Seagull Maritime AS
https://oceantg.com

Shipping Federation of Canada
https://www.shipfed.ca

Skuld
www.skuld.com

Steamship Mutual
www.steamshipmutual.com

STARGATE
https://www.stargatecrewing.ro/

The Swedish Club
www.swedishclub.com

Stolt Tankers
www.stolt-nielsen.com

SUNY Maritime College
www.sunymaritime.edu

Tsakos Group of Companies
https://www.tsakoshellas.gr/

UK P&I Club
www.ukpandi.com

Vertex Oil Spill Supply
www.vertexoilspill.com.br

Videotel
https://oceantg.com

West of England P&I Club
www.westpandi.com

WAVES GROUP
www.waves-group.co.uk

A very warm welcome to our new Nautical Affiliate and MARS supporter, ECDISPLUS Training Solutions.

Our Nautical Affiliates help us make a difference to the shipping community by ensuring that our MARS safety scheme is available to the industry for free. Find out more at: www.nautinst.org/affiliate