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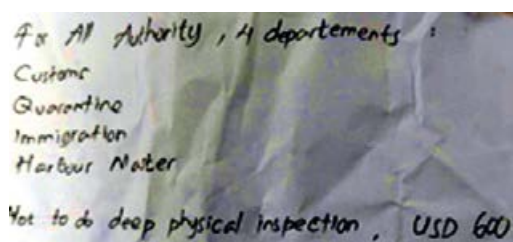


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\$3m oil tanker fire caused by exploding radio battery

We have all heard that lithium-ion batteries can be a fire risk, yet tankers are reliant on them. What can be done? Perhaps not charge them unsupervised? A report from the US National Transportation Safety Board about a tanker fire provided some insights and advice

A 2022 fire on a tanker "S-Trust" docked in Baton Rouge, Louisiana, was caused by an exploding lithium-ion battery for a handheld radio, a US National Transportation Safety Board investigation found. The fire resulted in \$3 million in damage.

The fire occurred on the ship's bridge, which was unoccupied at the time. The vessel's crew extinguished the fire, but the vessel's navigation, communication and alarm systems were damaged beyond use. No injuries or structural damage was reported.

"A lithium-ion battery cell can spontaneously experience a thermal runaway if damaged, shorted, overheated, defective or overcharged," NTSB said. Although it did not find which one of those issues had specifically caused the fire.

Crews can help to prevent thermal runaways and ensuing fires by following manufacturers' instructions for the care and maintenance of lithium-ion batteries; properly disposing of damaged batteries; avoiding unsupervised charging; and keeping batteries and chargers away from heat sources and flammable materials, it said.

NTSB also recommended that companies should ensure that lithium-ion batteries and devices that use lithium-ion battery packs are certified by Underwriters Laboratory or another recognized organization. The batteries in this case were certified.

Crew can attempt to extinguish lithium-ion battery fires using conventional fire extinguishers, including water, foam, CO₂, dry chemical or powdered agents designed for combustible fires.

How events occurred

At the time of the fire, the bridge was unmanned, because the vessel was docked, the master was working in his office, and the crew were working in the cargo control room managing cargo offloading.

The master was alerted to the fire because he had a monitor of a CCTV camera in the bridge, and at 1530 saw that the camera feed was no longer visible. When he went to the bridge to investigate, smoke came out of the door and activated a smoke detector at the top of the stairwell just outside the door.

The master quickly closed the door, went down to the cargo control room, and told the chief mate to stop all cargo operations. After doing so, the chief mate notified the terminal of the fire on the vessel. Terminal personnel then contacted the West Baton Rouge Fire Department. The master returned to the bridge deck to fight the fire. On the way, he used a radio to notify the other crewmembers of the fire.

After arriving on the starboard bridgeway, the master opened the starboard-side door to the bridge to evaluate the situation. He stated that the fire was coming from the communications table. He then proceeded to the port bridgeway and opened the portside door to the bridge, but the smoke was too thick to see into the bridge.

He returned to the starboard bridgeway. The master directed the crew to muster into two fire teams. One on the portside bridgeway and the other on the starboard-side bridgeway.

Once the master received notification that all of the electrical power to the bridge was secured, the fire teams began fighting the fire through the

port and starboard bridge doors using hoses. At 1550, the fire was reported to be out.

CCTV recording

The CCTV recording showed an orange flash immediately followed by a puff of smoke by the communications table at 1527. Following the initial flash, the video showed smoke rising and increasing in volume and thickness.

At 1529, the footage showed another orange flash in the same area as the first one, followed by an object on fire, which flew from the area of the flash to the starboard side of the bridge, where it landed on the deck in front of the lifejacket locker and continued to burn.

In the video, the fire on the communications table continued to grow. The visibility on the bridge decreased rapidly, and the camera lens became covered in ash and started to deform at 1536, preventing any further view of the fire within the bridge.

Radios and batteries onboard

The vessel carried 20 UHF handheld radios to be used during vessel operations, fifteen by Motorola and five by Entel.

The vessel carried twenty-seven 7.4-volt batteries for the radios. Fourteen of the batteries had lithium-ion cells, and thirteen of the batteries had nickel metal hydride cells.

The vessel had sixteen battery chargers: eight for lithium-ion batteries and eight for nickel-metal hydride batteries. Six of the lithium-ion chargers were Motorola chargers and two were Entel chargers.

The chargers were located throughout the vessel, including the bridge, the engine room,

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Photos from the bridge closed-circuit camera showing (1) a second explosion occurs, (2) an object is propelled on fire into the air (circled), and (3) the object, still on fire, landing on the floor. Source: Stalwart Management Ltd

the pump control room, and the officers' cabins.

While the radios, batteries, cells, and chargers were manufactured in different countries, they were all certified by Underwriters Laboratories.

Was the battery charging?

The report did not draw complete conclusions about whether the batteries had been charging at the time of the fire.

A crewmember informed investigators he believed that the batteries for those radios were

not charging the day of the fire.

However, investigators did find the remains of a lithium-ion battery charger and a nickel-metal hydride battery charger around the communications table, where the fire had begun.

They found the remains of a nickel-metal hydride battery around the charger remains, and the remains of two lithium-ion batteries.

All six of the individual cells within the nickel-metal hydride battery were found and exhibited fire damage.

For the lithium-ion batteries, for one battery which contained two individual cells, both cells were found. For the other lithium-ion battery found among the charger remains, neither of the cells were found. So, it is possible that these calls were the ones which had exploded.

TO

The full report is online at
<https://www.nts.gov/investigations/AccidentReports/Reports/MIR2323.pdf>



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Death on LPG carrier in Antwerp engine room fire

The dangers of promoting crewmembers without full evidence that they have the necessary skills were highlighted in a MAIB report on the death of a third engineer in an Antwerp engine room fire in August 2020

A third engineer died from smoke inhalation after an engine room fire on liquefied petroleum gas/ethylene carrier Moritz Schulte, in Antwerp, Belgium, in August 2020.

This is a synopsis of the full report by The UK Maritime Accident Investigation Board (MAIB). The full report can be downloaded at the link below.

The fire happened while the cargo of ethylene was being discharged.

The third engineer was working on the fuel filter of an auxiliary engine. The fuel system had not been effectively isolated.

A spray of fuel under pressure hit both the third engineer and the hot exhaust of an adjacent auxiliary engine, where it ignited.

Other crew members closed the space to limit the spread of the fire, but subsequently discovered that the third engineer was missing and had last been seen in the engine room.

The master prohibited the use of a CO2 fixed fire fighting system, in case it could inhibit breathing.

The vessel's search and rescue team made two attempts to enter the engine room, but

both were unsuccessful due to smoke and heat.

With the third attempt, staff made a 'sweep' of the area of the engine room where they thought the third engineer might be, but did not find him.

A shore fire team found the third engineer, an hour after the start of the fire. He was recovered ashore but died 9 days later from the effects of smoke inhalation.

The investigation found that the maintenance job was unnecessary, conducted in an unsafe way, and at an appropriate time, without any risk assessment having been done, and in the absence of any direct supervision.

It found that the vessel had a full range of safe systems of work in place.

Analysis of the third engineer's training programme activity log found that only two of the 65 rank-specific tasks he was required to undertake before his promotion to third engineer had been completed with the requisite evidence.

It also found that the training system permitted line management to confirm that training had been completed without evidence being provided.

This facilitated his promotion twice when he was not ready.

The investigation also found there was no evidence of the vessel crew having completed 'poor visibility enclosed space rescue drills' or 'escape drills using Emergency Escape Breathing Devices.'

The company's own investigation identified 32 actions relating to communication, crew and competence management, safety management and technical management.

The company has since equipped its four vessels that were built before July 2003 with additional Emergency Escape Breathing Devices.

As a result of the actions already taken, no further recommendations have been made by MAIB.

The full report can be downloaded here

<https://assets.publishing.service.gov.uk/media/64dce32e3fde61000d4a53bd/2023-4-MoritzSchulte-ReportAndAnnexes.pdf>



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The biggest crew concerns – OTG event

Today's crewmembers are often given technology which is difficult to use, and are often trained to use systems which are different to the ones they will encounter onboard, we heard at an OTG event in London

Some big concerns for crew, now and in the future, might include the growing separation between good and bad companies, technology which is not very user-friendly, and technology training which is not relevant to the systems someone will be using onboard.

The long tour durations for seafarers, still around 11 months, are perhaps not as big a concern as many imagine, we heard at the "Charting a course to success" Panel Discussion event organised by Ocean Technologies Group (OTG), a maritime technology company specialising in Human Capital Management Solutions, during London International Shipping Week on Sept 12. The event brought maritime leaders together to share views on strategies and solutions needed to empower the maritime workforce to perform.

Other highlights included perspectives from IMO's future secretary general, and the possibility e-navigation regulation is not going in the right way; a review of what today's seafarers think; and whether too many seafarers

are rejected for employment for health reasons which do not really affect their work, including high blood pressure and early-stage pregnancy.

IMO's next Secretary-General

Arsenio Antonio Dominguez Velasco of Panama, who has been elected as the next Secretary-General of IMO starting in January 2024 for a four-year term, gave an opening talk about the event, stating that IMO is open to input from industry about how it can do things better.

He cited the e-navigation rules as an area where a change in direction might be appropriate. "We've been working for years on e-navigation. Is it taking us in the right way? If not, it is something we need to look at," he said.

He is the current director of IMO's Marine Environment Division. "We've been very good at looking at environmental regulations. Perhaps we need to talk to [other areas]," he said.

"It is good to have these dialogues. I want to enhance the interaction [with industry] and see how we can move forward. The more we share

the experiences the better we can regulate."

"It's a few challenges we have ahead," he said. "We have 175 member states and have to find cohesiveness."

"On decarbonisation, we need the energy sector, without them we won't be able to do it. [But] they need us to transport the fuels. So, there's a bit of trade off there," he said.

"Diversity is a key area of work in the organisation," he said. As a technical organisation, it can be "difficult to be inclusive."

Peter Schellenberger

Peter Schellenberger, a maritime consultant who is a former VP supply chain with Thome Group among other roles, said that the shipping industry's role as the "backbone of global trade" is questioned by its current challenges in sustainability and crew retention.

There is a growing separation between good and bad shipping companies, he said. At one end we have "serious operators that follow rules and want to make things better," at the other end we have those "who go for the lowest possible input."

Smaller shipping companies can sometimes be better than larger ones in how they treat crew, he said. "Large organisations tend to be impersonal. Small companies know their captains for years."

Mr Schellenberger thinks the shipping industry may be underestimating the size of the safety risks which seafarers are subjected to.

He does not believe that the industry is ready for autonomous shipping, or "shore-faring", operating ships from shore. "We have such a captain-oriented way of decision making," he said.

A move to autonomous shipping would require changes to the industry's operational models. "I'm not sure how long that will take," he said.

The satellite communications system Starlink is already widely being perceived as a 'game-changer', he noted, offering communications at lower cost and faster speed than was available



Discussion panel at the OTG event. From left to right: Ronald Spithout, VIKAND; Johan Gustafsson, OTG; Chuck Kemper, ABS; Captain Jacqueline Burton, Kongsberg; Steve Yandell, ITF. Other participants not in the photo were John-Kaare Aune, Wallem and Peter Schellenberger, maritime consultant

before.

Mr Schellenberger shared some observations from the latest Seafarer Happiness Survey. Some seafarers reported corruption in seafarer recruitment, where seafarers are forced to pay fees to an agency to secure jobs onboard. Then, they often find their terms on board are different to as described in the contract.

Many seafarers say that their health onboard is not given enough priority. This is “an issue which I find very unsettling,” he said. “Owners save a couple of cents a month. We heard cases where not enough drinking water is available on board.”

“If we don’t have regulations to help us, [the industry] should say, ‘this is not acceptable.’”

Shipping companies need to do more than just comply with regulations when considering how to treat crew, and what training they need, he said. “There’s a big gap between regulatory training and what is perceived as helpful.”

The responses show that physical and mental health is very important to today’s crew, including access to remote support and advice, he said.

Many seafarers said they need more time for training.

Captain Jacqueline Burton

Captain Jacqueline Burton, head of Creative Design, Kongsberg Maritime and who formerly spent 20 years working in shipping in the US Naval Reserve and at sea as a master of LNG carriers, said that her wish is that maritime technology was “made for the people who use it”.

“The usability side of maritime [technology] has not advanced,” she said.

Captain Burton is also chair of the board of SAMS Norway, a Norwegian business cluster that focuses on developing systems for sustainable autonomous transport solutions used on land, air, and sea. She is on the board of the Norwegian branch of WISTA (the Women’s International Shipping & Trading Association).

The training provided to crew today about the technologies they use could also be much improved, she said. The training is like going through the pages of a manual, not showing people how the technology can help them solve problems.

Further, shipping companies do not seem to realise what a waste of time it is when someone is trained to use equipment from a different model or manufacturer to that on the ship which they will be serving on. For example, the ship has an ECDIS from one manufacturer and they have a training course to use an ECDIS from another manufacturer, where all the menus are

different. She has been sent on several training courses which turned out to be irrelevant, she said.

In any case, maritime electronics products should be designed for easy usability, so they do not need any training, just as no-one needs a manual for their phone, she said.

Another wish was that food served to crew onboard ships could be more exciting. “I have been served with rice every day, chicken for lunch every day. They don’t care about nutrition in what they are feeding you onboard,” she said.

Seafarer performance is typically best in the middle of someone’s ‘tour’ on a ship, she said. “It takes a week, 2 weeks to get people comfortable.”

But after about 4 to 5 weeks of good performance, it may decline again as people start thinking about going home. “They are looking down the gangway,” she said.

How long at sea

There was an interesting discussion about how long seafarers should stay at sea. An attendee from the Bahamas Flag said he had been involved in discussions with the International Labour Organisation about reducing the maximum time a seafarer may spend at sea from 12 to 11 months. Surely 11 months is still far too long?

InterManager’s Kuba Szymanski said that many seafarers would rather be at sea for 11 months than at home for 11 months. During the pandemic, many seafarers asked if they could stay on the vessels for longer, concerned that if they went home, they may not be able to get back on a ship.

Neil Dulling, manager of the Environmental Centre of Excellence Europe with shipping company Mitsui OSK Lines (MOL) said that the company once tried cutting tour length for its crew. They saw the unanticipated consequence that seafarers went on to immediately work with other employers, because they really wanted to work for 11 months. This meant they were less likely to return. “Our retention rates went down,” he said.

However, 12 months is seen as a maximum time a crewmember should be on a ship. MOL is proud that, during the pandemic, no MOL seafarer ever stayed on a ship longer than 12 months, he said. “That’s what a proper organisation needs to do”.

Captain Jacqueline Burton noted that companies ought to be able to be flexible, letting people choose how long to stay. “What if one guy wants 6 months, one wants 10 months?”

Long tours can be “great when you are single



Arsenio Antonio Dominguez Velasco of Panama, the next Secretary-General of IMO, speaks at the OTG event

and in your 20s,” she said. “You get plenty of money and do lots of great things.”

Another factor is that some ships are harder work than others, and you don’t know what the ship will be doing when you sign up. A particularly arduous assignment is on vessels transporting gas between Ras Laffan (Qatar) and Jebel Ali (UAE) during the summer, with a port call every 36 hours, she said.

Each port call requires mooring crew to be outdoors for four hours in the heat, and people were passing out. But there is no way of operating the vessels without crew having to be outdoors.

Ronald Spithout noted that while many seafarers say they want a 12-month tour, the accident rates can rise after 10 months.

Covid

John-Kaare Aune, CEO of ship manager Wallem Group, noted that there were cases during the Covid pandemic where shipowners were very restricted in making crew changes by the charterers.

In one crew change, the charterer had told a shipowner that if there was any Covid on the vessel after the crew change, and any subsequent delay, the shipowner would be fully liable for it. Wallem, as manager of the vessel, “made sure the team was double checked,” he said.

Kuba Szymanski, secretary general of the International Ship Managers’ Association (InterManager) noted that third party ship managers had been more responsible than shipowners in some cases during the Covid pandemic.

In many cases it was the ship managers who

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were insisting to owners that crew should be relieved from vessels even if the costs of doing so were very high, while shipowners wanted to keep vessels moving so they could maximise their revenues.

At IMO in November, there will be a “post Covid analysis – what went wrong and what went right,” he said.

The maritime industry arguably coped much better with Covid than the airline and logistics industry, he said.

But a problem in the maritime industry was that it does not seem to have anyone willing to take responsibility for the overall seafarer experience, he said.

Pregnancy

One audience member noted that shipping companies are routinely denying pregnant women from being able to work on ships as soon as they become pregnant. As well as losing the ability to work, they also lose contact with the industry, while also receiving no benefits or maternity leave.

“I have a friend who was 5 months pregnant working in a coffee shop, although she’s a licensed master with 16 years [experience],” noted Ms Burton, the former LNG master. This person had previously been working on a coastal vessel, so could have got medical attention easily if needed.

“I left the sea before I started a family,” she added. “There’s no possibility my husband and I, both sailing, would be able to have a [family].”

Training budgets

John-Kaare Aune, CEO of ship manager Wallem Group, was asked if he is ever forced to cut training budgets and wages to price competitively with other ship managers. “For us it is much easier to work with other aspects of the budget, not training funds,” he replied.

Wallem charges its clients per seafarer per month for training, and the money goes into a common fund. Wages are typically paid based on a current market wage for people of a certain nationality, he said.

Other comments

Erik Green, Managing Director at Green-Jakobsen A/S, a consultancy in maritime performance, said that there is a direct link between human performance, physical safety, and ‘psychological safety’, how safe people feel as human beings in the working environment.

Based on the company’s extensive surveys, “the vessels who understand psychological safety also perform better,” he said.

“There is no divergence of interest between having crew feeling good and

safety.”

Chuck Kemper, Chief Human Resources Officer with American Bureau of Shipping (ABS) said that it links back to the quality of leadership people are getting. “Safety has a high correlation to excellent leadership,” he said.

Ronald Spithout, managing director for “OneHealth” for maritime healthcare solution provider VIKAND, and a former president of Inmarsat Maritime, said he would like to see the shipping industry be less harsh in rejecting seafarers in their medical examinations before a voyage.

For example, seafarers with hypertension (high blood pressure) are routinely rejected for work onboard ships, although 20 per cent of CEOs on land also have it and manage to continue with their jobs. “Why do we treat captains in a different way?” he asked.

Steve Yandell, assistant co-ordinator for seafarers and inland navigation with the International Transport Workers Federation (ITF) said he would like to see digital technology able to effectively monitor the hours seafarers are working. It is commonly heard that seafarers work longer hours than is legal or recorded.

John-Kaare Aune, CEO of Wallem Group, said his one wish is that “seafarers can be treated with the respect that they deserve.”

Mr Aune would like to see better use of advanced digital technology, such as systems he has seen where someone can take a picture of a problem and instructions automatically come up with instructions about how to fix it.

Karen Waltham, a HR consultant, current commissioner with the UK government Maritime Skills Commission and former global head of talent and development with AET Tankers, noted that ten years ago, companies would not have had this discussion. “The passion you are showing is refreshing,” she said.

One pathway to improving the way crew are treated could be bringing more professional HR managers into companies, she suggested.

Johan Gustafsson, chief revenue officer with OTG, said that the industry needs to evaluate how to spend money on based on factors other than the immediate effect on company bottom line.

“We have to understand that all the money that we spend on people is an investment for the future, and we will all have double digit return on that investment.”

“Seafarers are key workers for the survival of people and global trade and the economy for many years to come. We need to make sure that we recognise that.”

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News from OCIMF

News from OCIMF: an ambition to support reduced emissions; concerns about a rise in piracy and loitering munitions; and events attended in Rio de Janeiro, Tokyo, Manila and London

The Oil Companies International Marine Forum (OCIMF), as a member of the Global Maritime Forum (GMF) Task Force on Operational Efficiency, has signed an “Operational Efficiency Ambition Statement” to support reduced operational emissions within the maritime industry.

In this effort it will advocate for “transparency” and will maintain a technology-neutral stance, supporting flexibility of choice, staying focused on risk management and the practicability of any chosen solution.

Piracy concerns rise

The International Chamber of Commerce’s International Maritime Bureau (IMB) latest report shows a rise in reported incidents in the Gulf of Guinea. It also reports concerns for operations in the Singapore Straits.

OCIMF shared the data in its newsletter.

Ninety-nine incidents of piracy and armed robbery against ships were reported in the first nine months of 2023, an increase from 90 incidents for the same period in 2022.

Over this period of 2023, 85 vessels were boarded, nine had attempted attacks, three were hijacked and two were fired upon.

Perpetrators successfully boarded 89 per cent of targeted vessels, with most incidents occurring at night.

Even though reported violence towards crew members is among the lowest in three decades, the risk to crew remains real with 69 taken hostage, 14 kidnapped, eight threatened, three injured and one assaulted.

“The Gulf of Guinea stands as a region of concern with a rise in reported incidents, as opposed to the downward trend we have seen in the past two years,” said Michael Howlett, director of IMB.

Loitering munitions

OCIMF has developed a free information paper to inform and give guidance on the risks and mitigations possible against loitering munitions, a drone with a built-in weapon which can ‘loiter’ in an area until its target is detected.

They have been used to attack merchant ships in the Middle East region, and “their use elsewhere cannot be discounted,” OCIMF said.

The information paper describes the threat,



OCIMF visiting the Petroleum Industry Marine Association of Japan

and discusses trends for employment of these systems, and guidance for best practise for tanker operators.

OCIMF’s Environment Committee

OCIMF’s Environment Committee met in London in September. Topics discussed included a strategy review based on the IMO’s MEPC 80 outcomes.

Also, the establishment of a Carbon Intensity Indicator Working Group (CII WG).

There was an update on the environmental review of Tanker Management and Self Assessment 3 and the need for additional review of programmes’ question sets, including SIRE 2.0.

An Emissions Capture and Control Working Group aims to develop guidance for applying emissions capture and control technologies when a tanker is moored alongside an onshore berth.

Meetings

OCIMF and INTERTANKO jointly hosted an event to share current work and plans in Rio de Janeiro, Brazil, on 26 September, with the support of the Latin American Society of Marine Oil Terminals and Monobuoy Operators (SLOM).

Also, OCIMF was invited to attend the IOPC Funds/Japan Maritime Centre joint seminar in Tokyo on 18 October.

Presentations included the role of IOPC Funds in the protection of the marine environment now and in the future; the role of ITOPF in marine pollution incidents; safety in energy transportation by NYK; marine environmental protection and oil spill response by the Japanese

Coastguard; and policy initiatives to enhance marine safety and environmental protection by the Japan Transport and Tourism Research Institute.

OCIMF also attended INTERTANKO’s Seafarers’ Vetting Seminar in Manila on 2 October, represented by its SIRE 2.0 Technical Adviser, Captain Sashidaran Gopala, who gave an extensive overview of how seafarers should approach SIRE 2.0 inspections.

The event attracted nearly 1,300 seafarers and addressed diverse topics, from mental health and security to matters arising from SIRE 2.0. In the Q&A session, most of the questions related to SIRE 2.0, OCIMF reports.

OCIMF hosted an OCIMF Day on Sept 11 during London International Shipping Week, which attracted over 150 people.

OCIMF also hosted a meeting of the “Ethnicity in Maritime Network” during the week, discussing short, medium and long-term plans with clear objectives to help promote visible ethnic leadership and to root out casual racism in the maritime sector.

Goals included creating organisational learning so that negative cultures can be identified, especially addressing hidden aggressions and micro-aggressions; and encouraging visible leadership by people from diverse ethnic backgrounds, as role models for young people to aspire to join the maritime sector.

This article is a summary of OCIMF’s newsletters for August, September and October. The full text is online at www.ocimf.org

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Latest piracy advice from Britannia

A Britannia P+I Club webinar shared the latest advice on the piracy risk, including the changing picture around the world, how to best be prepared, what happens when you need to pay a ransom, and the insurance perspective

Nigeria is now seeing a “good downward trend” on piracy, with no reported incidents in 2022, said Charlie Cooper, loss prevention manager with Britannia P+I, speaking at a Britannia webinar in May, “Piracy and Armed Robbery.”

However on previous years Nigerian pirates have been violent and willing to kidnap, also stealing cargo, so it remains a threat.

Piracy incidents in Indonesia also show a “nice downward trend,” he said, with incidents being more about theft rather than kidnap and ransom. Pirates are “generally armed”. Indonesian Maritime Police are conducting regular patrols.

Singapore Straits is “the only area where we’re seeing a rise in the number of incidents,” he said. The Strait is narrow, with a lot of maritime traffic, and vessels go at low speed, so are easier to reach. Perpetrators are generally armed. The pirates are generally seeking to steal from vessels. “If they see crew are well-drilled they abandon the mission,” he said.

There have been some incidents in Peru. The pirates are “generally interested in property rather than kidnap and ransom,” he said. “They generally target vessels seen to be less well prepared.”

In the Philippines we see a similar ‘model’ to Nigeria, where pirates seek to kidnap and demand ransoms. Thieves are linked to political organisations. However there has been a crackdown on violent crime by the Philippines government. “The number of incidents has remained fairly low,” he said.

Overall, there was a peak in incidents in 2020, which has been attributed to Covid making it harder for law enforcement agencies. The incident rate so far for 2023 is down on 2021 and 2022, he said.

Under IMO definitions, an attack is classed as piracy only if it is committed for private ends in the high seas, Mr Cooper said. So the classification does not include state attacks, as have been seen in the Middle East. If the

attack happens in a state’s internal waters, it is classed as armed robbery.

Being prepared

For ships, “first of all it is very important to understand the threat and assess the risk,” Mr Cooper said.

You should follow the ship security assessment, approved by the flag authority.

There should be a ship security plan, showing how you will maintain security of the vessel when the threat is normal, known as Security Level 1. Then what you will do at times of higher threats, known as Levels 2 and 3.

The plan should include an organisational structure, with a named person designated ship security officer, and to describe their responsibilities. It should include security measures for controlling who can access the whole vessel and restricted areas on it, and ensuring cargo operations are not tampered with.

There should be best practise guides for transiting in areas where pirates are known to operate.

A first layer of mitigating actions is about being aware of what is happening and having measures to warn people away. Keeping a lookout for any potentially dangerous vessels; using CCTV on restricted areas of the vessel; having lighting; conducting patrols if it is safe.

A second layer is to install physical measures to deter pirates. Barbed wire is “cheap and easy to store onboard”, but “can be ineffective and there’s risks associated with installation,” he said.

Water hoses can be placed near areas someone might use to access the ship, which can be operated remotely.

You can install plastic barriers. “These are generally quite easy to install, but can take up quite a lot of space onboard,” he said.

Additional barriers can be provided to crew accommodation areas, which pirates may try to access if they are looking to steal. You can use

metal gratings and razor wire, and lock access from the outside. External ladders should be blocked.

A third layer is what to do if perpetrators get onboard. You should have a ‘citadel’ which is safe from physical attack, which has supplies of water and food, sanitation, and satellite and radio phones.

The crew should be trained, including understanding the security measures, when to use them, and their limitations, and doing drills including rigging and de-rigging of security equipment.

Any incidents should be reported to as many people as possible, including flag state, coastal state, and the piracy reporting centre.

Some studies have shown that 95 per cent of vessels attacked went on to be boarded, which might indicate that barriers to boarding such as razor wire are not effective. But this statistic does not include cases where pirates decided not to attack a vessel because they could see the barriers, he said.

No complacency

The overall trend might be defined as a move away from kidnap towards robbery, said Philip Cable, CEO of MAST Security. Companies are considering security risks in a more sophisticated way.

“Currently there is a tendency to view piracy as having been defeated. I think that’s a dangerous stance,” he said.

Mr Cable has a background both in law and as a mariner. He took a master’s degree in maritime law, then joined the Royal Navy at the age of 24 and served for 6 years.

“The last 10 years has shown safety of high seas can no longer be guaranteed,” he said.

People don’t say that we should relax our controls on maritime safety because there are less accidents, and in the same way we should not get relaxed about security, he said.

If companies do dismantle their security systems it makes it harder to put them back should they ever need to.

Whilst the need for armed guards is reducing, if you do need armed guards, there is a big regulatory challenge getting their firearms to and from a vessel.

A solution could be to keep them permanently on the ship, in a locker only the master has access to, he said. This idea needs flag state approval. However, “over the last 10 years, it has been considered and more and more accepted by the majority of flag states,” he said.

“I think it is about understanding that these things can be properly managed. The private industry in co-operation with shipowners have demonstrated that it can.”

How to pay a ransom

Mr Cable told the story of a case in September 2020 he was involved with, where a master and chief officer were kidnapped 25 nautical miles off the coast of Lagos, and a ransom needed to be paid.

The successful piracy attack was a result of the ship being “poorly prepared with insufficient watches,” he said. The first knowledge crew had of the situation was seeing armed men on the bridge.

The master and chief were removed at gunpoint, and put in a speedboat under a tarpaulin. They were held prisoner in a small community on land, near the town of Yenagoa, which is 75 miles from Port Harcourt.

They had been “threatened but not mistreated,” he said. However, their family members had been called, and were given threats which may occur if no ransom was received. The crewmembers were held captive for 66 days after a ransom was paid.

As consultant advisor, MAST advised that the shipping company maintain close control over all communications related to the case for the first two weeks. They also kept in close contact with family members, so they knew what was happening, had confidence in the company, and did not feel inclined to speak to

others about the case.

While the company wished to pay the ransom, they had to ensure it was legal. There had been another case where staff from a shipping company paying a ransom had been themselves arrested and accused of various offences, he said.

While Nigeria does not make it illegal to pay ransoms, it requires that everything is reported to authorities, including to make sure there is no collusion between kidnapper and shipping company staff, he said. In previous decades, ransom payments were often done secretly.

MAST was keen to keep all authorities informed, including money laundering authorities and commodores in the Nigerian naval command. The bank, facilitating the cash withdrawal, was informed about the source and purpose of the funds. MAST appointed a senior lawyer in Lagos to take a role of liaison with government authorities.

There were Russian crew involved, so the team engaged the Russian Embassy in Nigeria, so they could use their connections with senior people in the Nigerian government. “They were great support and very helpful to us.”

Negotiations about the size of a ransom payment typically start high and can be brought down, he said. “There is, bizarrely, a price list for different people depending on their nationality and importance.”

Once the size of the ransom had been agreed, the shipping company put together a team of 18 people to make the payment, including a lawyer, security and a logistics team. There was a representative of the shipping company and the insurer, to give confidence to their companies in Europe that there was no collusion or corruption going on.

They had to make a 12-hour journey to where the crewmembers were being held.

The kidnappers also demanded some “top of the range mobile phones” as part of the ransom. This was surprising, since their use can be tracked via their IMEI numbers. “But pirates and kidnappers were not concerned

about that.”

The team was asked to proceed to Yenagoa. Then the Nigerian authorities stopped making communication. “We didn’t know why. We had concern that perhaps our clearance to proceed had been withdrawn.”

There may have been poor communications between the various government organisations of different regions, he said, along with general nerves about paying ransoms. Although Nigeria has announced a “new era of transparency”, it has not yet “not translated to guidance on the ground,” he said.

“There was a feeling that getting involved would somehow make them culpable.”

The last part of the journey involved 24 hours in a boat along a stream of the Niger Delta. The crewmembers were released, then had a long journey to Lagos, where they were asked to stay for two weeks, to provide as much information as possible to government intelligence agencies. Finally, they were allowed to go home.

Insurance against piracy

Piracy incidents can be covered by Protection and Indemnity (P+I) insurance, so long as the piracy is not considered part of a war, since war risks are not covered, said Rishi Choudhury from the Claims Department of Britannia P+I Club.

Charter parties are not always clear about who pays for a vessel while it is unavailable for delivering cargo due to a piracy incident. In one case, a charter party had a clause stating that payment of hire can be suspended if a vessel is captured “by any legal process”. So, this would not apply to a piracy incident since it is not a legal process.

This same charter party had a clause saying payment for hire is suspended if a vessel is threatened due to piracy, he said.

Another charter party clause stated that owners are responsible for any “in transit loss” of cargo of more than 0.5 per cent. In this case, part of the cargo was stolen by pirates. The court determined that the clause did not apply since it was not an “in transit loss”.



Speakers at the Britannia P+I Club webinar about piracy risk. Philip Cable, MAST; Rishi Choudhury and Charlie Cooper, Britannia P+I

This article is based on a Britannia P+I Club webinar “Piracy and Armed Robbery” held on May 16. You can see the slides for this webinar here

<https://britanniapandi.com/wp-content/uploads/2023/05/Britannia-Loss-Prevention-Webinar-Piracy-and-Armed-Robbery-05-2023.pdf>

Stolt – refusing bribery is working

Stolt Tankers instructs captains not to pay bribes, and on balance believes this is the right approach

Maren Schroeder, managing director of Stolt Tankers, shared this note (see image) on LinkedIn, together with a message highlighting issues its captains have to deal with on a regular basis.

In this case, the captain followed Stolt Tankers' procedure and explained to the official that he was unable to provide cash or goods as he must abide by the law, specifically the UK Bribery Act 2010. He then reported the incident to his superintendent.

In this instance, the captain received excellent support from Stolt's agent on site, Ms Schroeder reports. No money or other payment of goods was paid and that 'deep physical inspection' never happened.

"I must say that I had mixed feelings about this in the beginning. While I am against any form of corruption, I could also see the problems that would arise for our captains," she said.

"In the old days it was normal practice in shipping to hand out cigarettes or bottles of whiskey, for example, to a pilot to ensure a safe canal passage."

"Intentional groundings by disgruntled pilots were not unheard of; ships were unduly delayed or detained (and immediately put on

hold by customers without asking questions) and occasionally ships were trashed by angry customs officials."

"But it soon became well known that Stolt Tankers would not give anything (other than onboard hospitality – a coffee or a meal during a longer stay) and people soon stopped asking."

"Our captains reported that they were very happy with the new approach and that their lives became easier."

"In 2021 we only had three demands for bribes reported, despite around 6,000 terminal calls during the year."

"However, in the post-pandemic world we have seen a change for the worse again."

"If it all goes wrong, our ship might get detained. However, it does not happen often."

"In two years, we've had two undue detentions in a fleet of more than 160 ships. In both cases our customers listened to our side of the story, reviewed the evidence and did not put the ships on hold. In one case, with the help of our Flag State, we successfully appealed the detention, and it was deleted from the records."

"In my 20 years in shipping, I have never before seen a successful appeal."

"We are creatures of habit. If people keep

giving 'gifts' or money, people will keep asking. Only if we collectively stop, can we make a difference."

A seafarer can be found guilty of bribery by agreeing to give any item of value, even cigarettes, to influence the actions of an official, said Ian MacLean, master mariner and Partner, Hill Dickinson commercial law firm, speaking to Stolt's company magazine.

The US, UK, all EU states and Singapore have anti-bribery laws with heavy fines.

It is enough to count as bribery if any small advantage is gained, such as a pilot performing a service he might otherwise delay or perform more slowly. Or a port agent agreeing to supply potable water today rather than tomorrow, to avoid delaying the vessel, in exchange for 200 cigarettes.

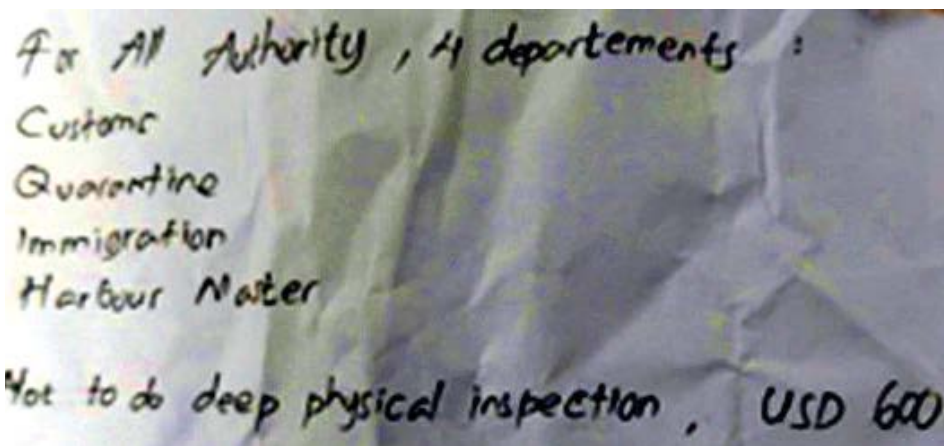
"The only safe course of action, irrespective of an individual's nationality or the country they are in, is to refrain from bribery practices and advise the company if asked for a bribe," he writes.

There are warning signs [that a fine request is illegitimate], such as only being advised about the fine verbally, where an official declines to submit the details of the fine to the agent, or if a payment is required in cash rather than to an official bank account.

The only exception to the law is when not paying a bribe can lead to a loss of "life, limb, or liberty," he says. If paying a bribe in these circumstances it is good to have another person to act of witness to the demand and transfer of the bribe, and it should be reported to the company.

This exception does not apply to economic duress, such as paying a bribe to avoid delaying a ship.

"The evidence is that, in many ports, those who used to solicit bribes now understand that it is pointless trying to do so with ships operated by those companies that have a firm policy against the practice," he said.



A note presented to a Stolt captain by a port official. "For all authority, 4 departments. Customs, quarantine, immigration, harbourmaster. Not to do deep physical inspection, USD 600"

Using side channel pumps on LPG tankers

Side channel pumps use a mixture of suction and rotational energy to move a fluid, so are ideal for gas-liquid mixtures, such as LPG. The suction part can move the gas, the rotational energy can move the liquid. The ‘side channel’ refers to a channel the gas-liquid mixture is moved into.

by Klaus Reischl, sales manager, SERO PumpSystems GmbH

Side channel pumps for the delivery of LPG are used on LPG tankers, capable of handling LPG volumes from 0.3 m³/h to 35 m³/h.

They always guarantee an uninterrupted delivery flow, even with gas entrainments in the pumped media.

In extreme cases, the SHP can reach a head of almost 1,200 meters at a flow rate of only 1 m³/h.

SERO’s “SHPmarine” side channel pump can be used in the hybrid ship propulsion system of a LPG gas carrier, in the Secondary Fuel Supply Systems (SFSS), to transport the LPG from the storage tanks on board to the propulsion engine of the seagoing vessel.

Both high-pressure and low-pressure versions have recently been integrated into the Secondary Fuel Supply Systems of various large gas carriers and successfully commissioned. Tugboats fuelled by LPG are also being considered.

The fuel consumption of a typical LPG tanker is between 3,000 and 5,000 litres of propane per hour depending on its size and maximum attainable speed. The SHP is required to

consistently feed the SFSS and in turn the main propulsion engine at this rate and with a pressure head of approximately 1100 meters.

The first seagoing vessels equipped with SHPmarine side channel pumps were gas carriers with an LPG transport volume of 86,000 m³.

Usually, two SHPmarine pumps are employed and work in conjunction with an intermediate service tank in the SFSS. This allows pressure and LPG temperature to be controlled according to consumption.

One of the key advantages of the SHPmarine is its low NPSH (Net Positive Suction Head) requirement. This is of great importance when extracting LPG from the upper deck gas tanks. Where space is extremely limited, low NPSH allows the tanks to be lowered and configured to efficiently feed the pumps.

Another feature of a side channel pump is that it is pulsation free. Side channel pumps do not cause any pressure fluctuations or impulses. Unlike piston diaphragm pumps, they operate continuously and provide consistent flow at the prescribed discharge pressure. Pulsation dampers are not required. SHPmarine is

resistant to the vibrations from the ship’s main drive engines that can be transmitted through the hull of the vessel.

The SHPmarine is the first pump of its kind to be approved both by Lloyd’s Register and DNV GL for maritime dual-fuel propulsion.

Marinising the design

The SHP side channel pump was originally developed to pump clean (solid-free) light hydrocarbons, petrochemical liquids, and any volatile process fluid with an entrained gas content of up to 20 percent by volume.

LPG tankers require specifically designed pump equipment to boost the pressure to approximately 55 bar within the Secondary Fuel Supply Systems, since it is a liquefied gas stored in unpressurised, chilled tanks.

To meet the shipboard service conditions, various marine adaptations were made to the basic design.

The pressure containing components are austenitic stainless steels or low-temperature chrome steel.

The corrosive environment and the extreme temperature swings had to be considered. The marinized version has spring-loaded stainless steel hardware and special low-temperature O-rings along with a five-layer marine paint to protect the structural components from salt water and UV radiation.

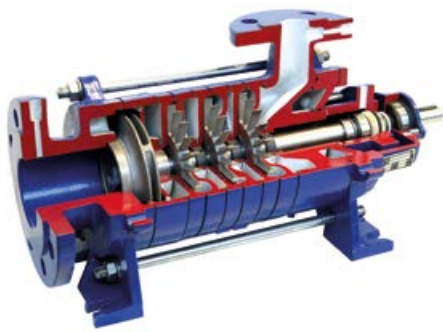
A special dry-running mechanical seal was designed to ensure leak free performance, meeting emission standards and ensuring safety. The cartridge seal provides the highest cost efficiency in operation and service.

The pump has a modular design for the liquid end of the unit. It can be supplied with a variable number of stages so you can pick the number best suited to the specific flow rate and delivery head required on the ship.

This modular design using standard components guarantees cost effective and efficient production of the pump but ensures short and reliable delivery times.



The SHPmarine pump



Inside a side channel pump

Background to LPG fuelled tankers

Liquefied petroleum gas (LPG) is a gas mixture liquefied under pressure, consisting of propane and butane. It is produced during the extraction and refining of crude oil.

LPG tankers transport the gas from the point of production to consumers on six continents and in more than 125 countries. They can also use LPG as a fuel. LPG transported on the seaway is usually landed at large LPG terminals, where it is temporarily stored for further distribution.

On LPG tankers, the actual transported LPG, previously untouched as cargo, is used as the main fuel source.

After unloading the cargo, the gas consumption used for the voyage is deducted from the initial gross cargo load and payment is

settled between the ship owner and the client.

IFO (Intermediate Fuel Oil) now serves only as the back-up fuel or for manoeuvring with minimal engine power. Consequently, smaller loads of diesel fuel are required allowing for faster refuelling of the ship, saving both time and money.

LPG is sulphur free. This means that using it as a fuel allows easier compliance with the stringent emission limits on the high seas and the even stricter regulations near the coast.

Using LPG reduces operating costs as it is significantly cheaper than (low sulphur) IFO.

Bio-LPG can be extracted from waste, residues and sustainably produced vegetable oils, with the same physical and chemical properties as LPG. Both LPG variants can be stored under comparatively low pressure at room temperature, which makes transport easier and more cost-effective.

In comparison, liquefied natural gas (LNG) requires storage temperatures of -170 °C to -120 °C; compressed natural gas (CNG) requires pressurization of 200 bar to 250 bar to remain liquid. Storage technology and distribution logistics with these two energy sources are correspondingly complex.

Even though the LPG supply chain is significantly easier to manage from a technical point of view, for a long time the economic

value of LPG was so low that it was simply flared - i.e., disposed.

Attitudes towards LPG have changed, to make efficient use of dwindling resources, to protect the environment by reducing emissions and - at the latest since the beginning of 2022 - also to handle exponentially rising energy costs.

In the chemical industry and in process engineering, LPG is used in a wide variety of applications as an economically interesting raw material and energy source.

As a fuel, LPG is offered by more than 6,000 filling stations in Germany alone. Numerous vehicle manufacturers, such as Renault, are selling vehicles with combined gasoline-LPG drives as an alternative to electric hybrids.

In industry as well as in large residential and building complexes, LPG is being stored in main tanks and made available at a wide variety of consumption points, for example, to feed steam and generate electricity, for heating or to drive engines.

Due to its ease of transportability at low pressure, LPG is suited to be filled into LPG cylinders in automated plants and delivered to private households as well as companies.

The World LPG Association refers to more than 1,000 different applications on its website (www.wlpga.org) - many of them along the logistical LPG supply chain.

TO

Svanehøj pumps on third CO2 carrier

Tanker pump manufacturer Svanehøj reports that it has an order to supply CO2 deep well pumps for the third liquid CO2 carrier vessel to be used by Norway's Northern Lights project.

Tanker pump manufacturer Svanehøj reports that it has an order to supply CO2 deep well pumps for the third liquid CO2 carrier vessel to be used by Norway's Northern Lights project.

The Northern Lights project takes CO2 from emitting companies (initially cement and ammonia manufacturing in Norway) to offshore sequestration in the subsurface. CO2 is first taken by ship to a terminal on Norway's west coast. The CO2 is sent from the terminal to the offshore site by pipeline.

Svanehøj also supplied the pumps for the first two vessels in use on Northern Lights. These vessels are "the world's largest of their kind," it says, each with a cargo capacity of 7,500m3, with pressurised cargo tanks. The vessels are built at Dalian Shipbuilding Offshore (DSOC) in China.

Svanehøj first supplied a CO2 pump system for an LCO2 carrier in the 1990s, and is one of "very few" marine pump manufacturers with

experience with CO2 systems. It has identified carbon capture and storage as a future growth segment for the company.

"We see a lot of activity in the LCO2 segment, and we are talking with yards and gas contractors worldwide about opportunities that could materialize in the short term," says Nithin Sudarsan, Sales Director (Gas) in Svanehøj.

Babcock ethane handling contracts

Babcock reports that it has secured contracted to supply its ethane cargo handling and fuel gas supply system "ecoETHN" to 15 Very Large Ethane Carriers (VLECs) being built at Jiangnan Shipyard for shipowners Tianjin Southwest and Pacific Gas. The vessels will be delivered between 2025 and 2026. Tianjin Southwest will take delivery of nine, while

Pacific Gas will take six.

It means that Babcock has secured 27 ecoETHN contracts in total, all delivered in partnership with Jiangnan Shipyard in China.

Svanehøj LNG fuel pump units

Svanehøj reports that it has developed a high-pressure marine pump unit for LNG fuel, for two stroke engines.

High-pressure LNG engines offer lower fuel consumption and significantly reduced methane slip, Svanehøj says.

The pump has "three combined cold ends", it says. It is called "HPP Triplex Unit."

It has an "innovative low-pressure sealing arrangement that reduces friction, ensuring longer service intervals."

<https://www.svanehoj.com/solutions/fuel-gas-solutions/hpp-triplex-pump-unit/>

TO



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ABS' macro perspective on decarbonisation

Class society American Bureau of Shipping (ABS) presented its macro perspective on maritime decarbonisation – what can be achieved through efficiency, carbon capture and future fuels

The “macro” picture for maritime decarbonisation is that it can only be achieved by the worldwide fleet through a mixture of energy efficiency measures, carbon capture technologies, and new zero carbon fuels, said Christopher J. Wiernicki, Chairman and CEO of ABS, speaking at the ABS Maritime Sustainability Summit in London on Sept 11, during London International Shipping Week.

Continuing the macro picture, perhaps energy efficiency measures can achieve a 15 per cent reduction of total fuel consumption.

Shipboard carbon capture, which removes CO₂ from the flue gas onboard, could remove 70 per cent of CO₂ from flue gas, he said.

New zero carbon fuels can include biofuels, green fuels made with renewable electricity, and blue fuels made with fossil fuels plus carbon capture onshore, so only zero carbon fuels are loaded onto the ship.

ABS anticipates that vessels with conventional single fuel engines will continue to be constructed “until well into the next decade”. For these vessels, there will be no other option but energy efficiency measures and retrofitted shipboard carbon capture technologies, he said.

It would be useful if shipping companies could demonstrate their demand for low carbon fuel to fuel producers, he said, including by pooling their purchasing with other companies.

“Decarbonization of shipping is increasingly a question of the ability of alternative fuel providers to deliver green product at affordable prices,” he said.

So the question of whether we decarbonise can be “pretty much boiled down” to whether costs can be brought down, and efficiencies improved, in two critical technologies. These are electrolyzers and carbon capture, he said, speaking at the SHIPPINGInsight event in Stamford, Connecticut.

Electrolyzers are needed to use renewable energy to split water into hydrogen and oxygen, to provide hydrogen fuel (green hydrogen). Carbon capture is needed when reforming fossil methane into hydrogen and CO₂, so the

CO₂ can be sequestered into the ground (blue hydrogen).

Shipboard carbon capture is something different, separating CO₂ from a conventional flue gas onboard a vessel, putting it into a separate tank, then offloading it into a system which can deliver it to sequestration or utilisation.

“If you can’t reduce the cost of the electrolyser fast enough, then you’re into carbon capture, and you have to go from grey to blue to green,” he said.

It is already clear that we will be using multiple fuels in future and also combining our fuel use with technology, including digital technology, to work out how to move forward, he said.

There will be demand for green fuels from other industry sectors, including using ammonia for fertiliser. So, the shipping industry should perhaps not rely too much on them being available for shipping.

“Our findings show there is a significant amount of work to be done,” Mr Wiernicki said.

It would be useful to see a 5 per cent annual growth in green fuel adoption every year, so we could be using it entirely by 2043.

It would be useful for zero carbon methanol to be available over the next 20 years, so ships being built today to run on methanol could use it and be zero carbon, he said.

Decarbonisation is “thermodynamically achievable but kinetically challenging,” he said, meaning that from a technical point of view it is possible, but it will be hard to get there.

Onboard carbon capture

ABS analysed shipboard carbon capture, or what it calls “Onboard Carbon Capture and Storage” or OCCS.

It found it was viable for today’s technologies to capture 70 per cent of CO₂ from the ship’s flue gas onboard.

The attraction of OCCS is that it can be used on existing vessels. They will need capture equipment to remove CO₂ from a flue gas, a

liquefaction system so that it is dense enough to store onboard (for example cooling and pressuring to -20 degrees C and 20 bar), tanks to store it onboard at this temperature and pressure, ports capable of receiving it, and ensuring it is sent to sequestration or utilisation, not vented to the atmosphere.

“OCCS is deemed a viable way to effectively reduce emissions for tank-to-wake, which can benefit more on hydrocarbon fuels,” ABS said.

Commodity transport

ABS also made predictions about how transport of oil, gas, iron and box containers will change over the next 25 years in its latest ABS Outlook report.

It foresees transport of oil and iron could decline by 50 per cent between 2025 and 2050. Oil demand will reduce due to a move to electric cars, and iron demand will reduce due to an increase in recycling of scrap iron, which can be done close to the market.

However, LNG transport is expected to increase from 400m tonnes in 2022 to 750m tonnes in 2040. Container volumes will increase, and other dry bulk cargoes will not change.

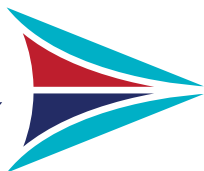
There will be a new maritime market in ships to transport liquid CO₂ from capture sites to storage or utilisation sites.

Grimaldi

Also speaking at the London event organised by ABS, Emanuele Grimaldi, President and Managing Director of Grimaldi, and chairman of the International Chamber of Shipping (ICS), noted that while the industry has “set the course” for decarbonisation, “we need to know the direction and speed we are in.”

The International Chamber of Shipping has particular concern about the 2040 checkpoint, which is “less than 20 years away”, with a need to cut total greenhouse gas emissions from shipping by 70-80 per cent.

An important part of getting there is finding ways to reduce the cost gap between conventional and ‘alternative’ fuels, he said. **TO**



Duty Officer Video Call (DOVC)

- Live video call and chat
- Invite colleagues to join the call/chat
- Share files



ALL FLAGS ARE NOT ALIKE

Duty Officer Video Call (DOVC)

The Liberian Registry's DOVC connects shipowners and operators to 24/7 live support within seconds. Receiving immediate solutions is as simple as going to liscr.com, selecting the "Duty Officer Video Call" button from the top navigation menu, providing your information, and clicking "connect now."

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Where we are going with decarbonisation – ABS event

Speakers from Mediterranean Shipping Company (MSC), The World Bank and Oldendorff Carriers shared perspectives on where the shipping industry is going with decarbonisation, at an ABS event in London

A sustainable company needs both economic viability and to “meet society’s expectations of how to do that responsibly,” said Bud Darr, Executive Vice President, Maritime Policy and Government Affairs, Mediterranean Shipping Company (MSC) Group, speaking at the event “ABS Sustainability Summit 2023,” held on Sept 11 2023 during London International Shipping Week.

“Sustainability is the art and science of finding the right balance,” he said.

MSC is the world’s largest container shipping company according to S&P (2022). It also operates cruise ships and ferries.

Mr Darr believes that the maritime industry wants to decarbonise whether it is forced to by regulation or not, because it is an expectation of its customers.

But decarbonisation cannot happen without the fuels being available, he said. “It is a stretch, to be honest with you.”

So far, the only lower carbon fuel which is widely available is LNG. MSC has “70 to 80” vessels on its order book with LNG fuel, he said.

There is uncertainty over true carbon benefits of using LNG, because a small amount of methane slips through the engine uncombusted (known as ‘methane slip’), and methane is a stronger greenhouse gas than carbon dioxide. Different studies have made a different calculation of the number of years it stays in the atmosphere, ranging from 20 to 100 years.

However, there are many other environmental gains of using LNG, such as the lower emissions of particulates, sulphur, and NOx, he said. The operating costs can be lower than conventional fuels.

In any case, LNG itself will gradually be decarbonised, as it is made more with biogas and synthetic gas with renewables. “I think the days of fossil LNG in mainstream fuel will be pretty limited,” he said.

MSC is considering converting some of its vessels to run on methanol fuel. But burning methanol also causes CO2 emissions, unless it is ‘green methanol,’ and that is “pretty much a



Speakers from left to right: Bud Darr, MSC; Christopher Fee, Oldendorff; Sophie Parker, World Bank; Mette Asmussen, World Economic Forum; Julian Bray, Tradewinds

unicorn at this moment in time,” he said.

Many environmental campaigners do not understand how hard it is to obtain low carbon fuels now. “There’s a substantial mismatch between the rhetoric of some of those trying to push industry hard, and the [market] volumes we’re seeing,” he said.

“We’re out in the market every day, trying to figure out where it comes from.”

We should not be too optimistic about how fast new types of fuel will be available, with typically an 8–10-year lag between then energy companies make investments and when the fuel is available on the market. “We need to be realistic but be ready,” he said.

Mr Darr sees the outcome IMO’s MEPC discussions, with a target to decarbonise by 2050 as a “remarkably good result.”

“They got the big-ticket items right. Zero by 2050, that is pretty good. It is what the industry has been saying for 2 years,” he said.

“I think those that were openly hostile to the outcome had no experience of making things happen at IMO, and certainly don’t have experience trying to decarbonise a shipping company,” he said.

The intermediate decarbonisation targets “are guesses but they are not bad guesses,” he said. “They send a signal of roughly the trajectory and commitments.”

Shipping companies should not need much extra incentive to improve efficiency, because it has direct business benefits. “You should run, when you find a solution which balances economical and environmental benefit,” he said.

MSC has been involved in a project to support ‘just in time arrival’ for the Port of Long Beach, Los Angeles, so container ships can adjust the speed of voyage, so they do not arrive early, so reduce fuel consumption. Before the project was implemented, there could have been as many as 120 vessels at anchorage off Long Beach. “It’s possible if everyone wants to pull in the same direction,” he said.

MSC is predicting that 7 to 10 per cent of the capacity in the [container] market could be scrapped due to inability to comply with CII. Some ships will comply by reducing speed, but there is a limit to how much this can be used to reduce CO2. “You reach a point of diminishing returns,” he said. Ship engines are

most efficient when operating near to their design power.

With CII, ships can get a better score if they carry less cargo, since it is based on the CO2 emissions per miles travelled, and an emptier vessel needs less fuel and so emits less CO2. This is a ‘perverse incentive,’ he said. And the left behind cargo would then need to be carried on another ship.

While CII was perhaps the only measure governments felt able to implement when the rule was created, now we are moving towards fuel standards and economic costs on emissions. This means direct financial impact of CO2 emissions, and so may be more likely to make a difference.

Mr Darr said nuclear power for vessels is “near and dear to my heart,” since he has an academic background in submarine nuclear engineering. There would be big advantages in never having to bunker the vessel, he said. “From a technical perspective, given time, I’m convinced it can work,” he said.

But there are other big challenges. For molten salt reactors, there are questions about availability of fuel, he said. And of course, it would need regulations and public acceptance, and that may take much longer than the technology.

With maritime e-fuels made with renewable electricity, a concern is that overall demand for electricity will continue to grow as heating and transport is electrified. Future governments may prefer that all available renewable electricity is used by the grid, where it can be used much more efficiently. In comparison, making e-fuels for ships from renewable energy is a relatively inefficient process.

The industry may have regrets if it does not “exploit the bio track,” he said. “I think its important to keep both tracks alive” [biofuels and e-fuels].

Asked for his thoughts about onboard carbon capture, he said that the challenge is the lack of CO2 reception facilities in ports around the world to take it.

Christopher Fee, Oldendorff

“Sustainability” in shipping means meeting high standards in all aspects of ESG – environmental, social and governance, said Christopher Fee, director of global engagement and sustainability with Oldendorff Carriers. Treatment of crew can be part of the ‘social’ component.

Oldendorff is considering engines which can run on methanol for its fleet. “It is proven, Technology Readiness Level (TRL) 9,” he said. “We can use the fuel with existing infrastructure.”

But there is a challenge in ensuring that methanol will be available where and when it is needed, he said. Vessels need to go where the cargoes need to go.

Other concerns about methanol are that the energy density is half that of conventional fuels, so fuel tanks twice the size are needed. And there may be very little ‘green methanol’ available by 2030.

Mr Fee sees ‘just in time arrival’ as a ‘low hanging fruit’ in decarbonisation. It is part of an international ‘task force’ working to optimise port calls, put together by the International Association of Ports and Harbours (IAPH).

Oldendorff believes there are so many flaws in CII it published a paper on its website about them. One of the biggest is that your emissions index decreases as distance travelled increases. “A vessel can be sailing around in circles to chase a good rating,” he said.

On the other hand, a vessel may be stuck in port for reasons beyond its control, emitting CO2 while not covering any distance.

Transshipment, where cargo is moved from one vessel to another, can also mean emissions with less miles. “We want correction factors, especially for transshipment,” he said. “I think it is critically important something is done.”



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MSEA – why we went for methanol

Tanker operator MSEA Capital brought five product / chemical tankers into its fleet, which can run on methanol and conventional fuels. CEO Modi Mano explained why the company is happy with the methanol pathway

In September 2021, MSEA Capital, a tanker operator with offices in Limassol (Cyprus), Jersey, Gothenburg, Mumbai and The Hague, bought five methanol dual-fuel tankers into its fleet. CEO Modi Mano explained why the company is happy with the methanol decarbonisation pathway.

Specifically, the vessels were acquired by “Clean Sea Transport”, a joint venture company with MSEA, Arkview Capital and Scorpio Tankers. Mr Mano also serves as CEO of the joint venture.

MSEA has 24 tankers in its fleet altogether, including medium range chemical and product tankers, ice class 1A tankers, long range product tankers and Aframax tankers. They are typically chartered out under long and medium term bareboat and time charter contracts.

The methanol tankers were formerly owned by Marininvest Group of Gothenburg. Marininvest and its tankers were acquired by Clean Sea Transport in 2021.

Marinvest had been involved with methanol vessels since 2012, with the first generation delivered in 2016, the second generation in 2019, and the third generation in 2021, which included the vessels which were acquired by MSEA.

A big part of the reason MSEA made the acquisition is that it seemed like a great way to get involved with the transition to alternative fuels and decarbonization, Mr Mano said.

Mr Mano has a background as a co-founder of Navig8 Group, a tanker trading and management company, where he served as chief information and finance officer. He also formerly worked in private equity investments for shipping and ship finance.

Why methanol

MSEA started thinking about the best way to get involved in decarbonisation projects in 2020. “We asked around, we read a lot, we attended seminars,” he said.

“We saw a lot of [fuels], they all seemed quite complex and far out, not always practical, not always of immediate impact.”

The company considered LNG fuel but was concerned about the complexity of working with it. It considered ammonia and hydrogen fuel, but “they seemed very futuristic, they’re not here and now,” he said.

In contrast, methanol has “a few things we like about it,” he said.

“It is a liquid - very easy to handle, operationally and from a safety perspective.”

The crews already load methanol and similar products as cargo.

Methanol is widely available around the world, although not yet widely available as a marine fuel.

“You can keep the simplicity, you start with what’s available today,” he said. “It didn’t seem a huge technological risk.”

Currently, only ‘grey’ methanol is available at scale. This is produced from fossil fuel, with some CO2 emitted in the production process. There is more CO2 emitted through the vessel’s exhaust, although not as much as with conventional fuel.

Not everybody agrees about grey methanol’s emissions on a well to wake basis, where production emissions are included. But there is agreement on its emissions savings over conventional fuels on a tank to wake basis, and this is used for calculating CII. So there is a CII benefit in using grey methanol fuel.

For the past 12 months, methanol has been cheaper than low sulphur marine gas oil (MGO), for areas where low sulphur fuels are required (MECA areas).

Most methanol fuelled vessels have been carrying methanol cargo to date, so crew were already trained in handling methanol, and the charterer knew it would be available.

During 2022, MSEA fixed one of its ships to Trafifera as a standard product tanker using methanol fuel, although it was not carrying methanol as a cargo. “They were keen to try it from a practical perspective,” he said.

They wanted to see if there were any operational challenges in switching from one fuel to another, such as for tank cleaning, and show it is not only a fuel for vessels carrying methanol as a cargo.

“They used it for a year,” he said. “We managed to stem [bunker] the vessel 5 times this year with methanol, sourced by a number of suppliers.”

Bunkering locations included Korea, Antwerp, Rotterdam, US Gulf and the Caribbean.

We have also recently seen TotalEnergies charter methanol fuelled vessels, which are not planned to carry methanol as a main cargo, he said. “I’m not sure whether the vessel [tanks] will be coated as a methanol carrier,” he said.

“I’m not arguing there’s a single alternative

fuel,” Mr Mano says. “There’s a lot of positive talk about ammonia. That’s a bit more far out. You may have a ‘shipping Elon Musk’ developing a battery to operate the ship. I don’t know. We need to do the best with the tools we have,” he said.

“At some point you need to take action. You can’t sit on the fence forever.”

“How do I look at the eyes of my children and tell them with pride what I do for a living? I’m not cynical about this. They talk about global warming in school.”

We need to get on the right side of this [and] we need to make a living, keep the world economy moving.”

Greening methanol

Ships running on methanol will not be using only grey methanol for very long. “The industry needs to go to biomethanol and blue methanol,” he predicts.

With methanol there is a “clear path for a green future,” as blue and then green methanol become available.

The fuel itself does not change, only the method of producing it. So, there are no further changes needed on the ship as methanol itself becomes decarbonised.

This means that, “the vessels we are building are future proof,” Mr Mano said.

“The most important thing is to have a transition which is least disruptive to shipping, to our business, to the global economy,” he said.

With blue methanol, made with natural gas plus carbon capture, then bringing in carbon of biogenic origin, Mr Mano estimates that the well to wake CO2 emissions of a vessel can be reduced by 60 per cent.

“Going even longer term it is probably bio methanol, which is a form of green methanol,” he said.

Maersk has announced that it has secured supplies of green methanol for several methanol-enabled ships it will receive from 2024.

Mr Mano believes that bio methanol will be widely available for shipping in 2025, although is unable to reveal further details at this stage.

Moving to low carbon biofuels needs a charterer able to commit to paying the price and making a long-term commitment, so that producers are comfortable investing in systems to produce it, he said. What’s important is that it is

all possible. "It is not pie in the sky."

If you want to source bio methanol, you need to sign a contract with it for the supplier, just as you would for fossil-based methanol. Although you would need to commit for the longer term and can expect to pay "through the roof" for bio methanol or green LNG, he said.

There may be yet more ways to develop green methanol developed in the future, he said.

A big obstacle is that fossil fuel will probably always be cheaper to produce. Regulators need to find ways to "equalise the prices through regulation or tax."

"Eventually there will be enough financial incentive and corporate responsibility incentive to drive people to procuring blue methanol and bio methanol."

Operating methanol vessels

Crew do need more training to work with

methanol.

While engine staff need to know about its combustion in the engine, other crew need to know about its handling, just as they would need to know if they were loading methanol as cargo. MSEA's technical ship managers have provided in-house courses.

Methanol fuelled vessels do not need any additional crew members.

Meanwhile, MSEA has been gathering experience operating methanol tankers using conventional fossil fuel-based methanol. As of September 2023, it has operated vessels for over 60,000 engine running hours. Its office and shipboard staff have a great deal of experience. "We're going to be more ready than anyone else," he said.

MSEA is cleaning its methanol tanks using methanol as a cleaning material. It is sprayed onto the tank surface from outside, in a process

known as Butterworth.

With this process, there is no need to do the wall wash test to check tank cleanliness. Wall wash tests require a seafarer to enter the tank, and so is thought by many to be too hazardous.

MSEA has been experimenting with using a methanol and water emulsion fuel, to help meet IMO's "Tier 3" emission requirements for NOx emissions, without having to treat the exhaust gas. "We have 3000 engine running hours on that emulsion concept," he said.

The methanol fuelled vessels have other energy saving devices, including propeller boss cap fins. "The best way to save on emissions is to save on consumption," he said. "The less you consume the less you emit."

Other energy saving methods include shaft generators to avoid using the auxiliary generator during voyages, and using bio lubricants and additives to improve fuel combustion.

TO

ABB propeller 25% efficiency

ABB has launched a propeller and 'propulsion concept' called Dynafin which promises 25 per cent improved fuel efficiency, with the help of digital technology and automation

ABB has launched a propulsion 'concept' called Dynafin, with narrow, vertical 'blades,' arranged in a circle, so forming a cylinder shape, which rotates. Each blade can be controlled individually during each revolution, to get the best "angle of attack" to the water.

The propeller fin creates a special sort of wave, with the technical term of "trochoidal," which is similar, the company says, to the wave made by a whale's tail. It is a more efficient way of moving the vessel through water.

With conventional propulsion, you can take the bubbles as evidence of inefficiency. Energy used to make bubbles is energy not used for propulsion, said Antti Ruohonen, SVP Marine & Ports at ABB Finland. The Dynafin does not create any bubbles.

"The screw propeller has reached its limit in terms of efficiency improvements," Mr Ruohonen said.

ABB claims that Dynafin can achieve 25 per cent fuel efficiency on a conventional propeller.

The systems are electrically powered, so there are no gears and a low number of components. It can be optimised for different ship types and hull shapes.

As well as being much more efficient, it can achieve improved onboard comfort and reduced underwater noise.

The Dynafin can be seen as an evolution of the azipod. ABB first introduced its 'azipod' propulsion system in 1991, a marine propeller in a 'pod' suspended below the ship's hull,

which can be rotated to any angle.

This has since "brought unparalleled efficiency to marine transport, in everything from ferries to cargo ships and ice breakers," said Björn Rosengren, CEO of ABB.

The Dynafin brings together ABB's expertise in automation, controls, mechanical systems, hydrodynamics, and ship electrification. "I dare to say this new concept could not have been developed by anybody else," Mr Rosengren said.

The customers showing the most interest initially may be vessels with a high level of running hours, so can see the biggest returns on the investment in the propeller, such as ferries, Mr Ruohonen added.

But the system may ultimately be of interest to the largest vessels which have the most fuel consumption, such as tankers. ABB is interested in retrofit markets as well as newbuilds.

The system would be very useful on dynamically positioned vessels, which need to be kept steady in one position, such as shuttle tankers receiving oil from offshore platforms.

Development process

The system has been in development over the past 10 years, Mr Ruohonen said. The system is being put through trials on physical ship models on lakes and doing hydrodynamic modelling on computer. The first pilot implementation on a ship is expected in 2025-2026.



ABB's Dynafin propeller concept

For now, the Dynafin units are being manufactured at 1-4 MW size. Ships are expected to install between 2 and 4 units, so will have a total installed propulsion of 2 to 16 MW, said Janne Pohjalainen, Global Product Line Manager, ABB Marine & Ports.

The company is investigating ways to make higher powered units, which could make it possible to use on very large vessels such as a VLCC. "The original concept doesn't have any limitations," Mr Pohjalainen says.

The system could be used with a conventional ship combustion engine, but only if the engine were re-configured to generate electrical power (acting as a generator). It could theoretically take direct mechanical power via a gearbox, but ABB is not planning to offer this.

"For now, we are fully concentrating and committed to this fully electric version," Mr Pohjalainen said. "That is what we believe in at ABB."

TO

Gibraltar news round up

An LNG bunkering license for Peninsula Petroleum; Gibraltar Maritime University offering an IGF course and building ties with Morocco; new customers for Sandvik Electronics; a spill when bunkering a gas tanker

In October 2023, Peninsula Petroleum of Gibraltar was granted an LNG Bunkering Operator license by the Government of Gibraltar and the Gibraltar Port Authority.

The company recently announced the arrival of its purpose-built, 12,500 m3 Liquefied Natural Gas (LNG) supply vessel, Levante LNG, to the Strait of Gibraltar.

The new vessel will be operated by Peninsula and will enable the company to service customers with LNG requirements in both the Gibraltar Strait and other Mediterranean ports.

"This license allows us to meet lower-carbon product demand across the Western Mediterranean," said Nacho de Miguel, head of alternative fuels and sustainability with Peninsula.

"The LNG-propelled vessel orderbook is

looking very healthy and we want to offer solutions now to those customers taking a proactive step towards decarbonisation. As the gateway to the Mediterranean, the Port of Gibraltar will be an integral piece of the decarbonisation puzzle."

Separately, in April this year, Peninsula took the 2021 built chemical tanker Hercules Sky into its fleet. It will be able to use the vessel to supply biofuel and biofuel blends. It has a tank capacity of 9000cbm and a pump rate above 500cbm/hr.

University of Gibraltar

University of Gibraltar Maritime Academy reports that it continues to strengthen ties with the Moroccan Maritime sector.

Aaron Lopez, manager of the Maritime

Academy, recently met representatives of the Moroccan Maritime industry to explore potential collaborations and training opportunities.

The Academy has been successful in attracting Moroccan students to its full-time academic programs since its inception, including to the BSc (Hons) Maritime Science with Cadetship Programme.

Separately, the University of Gibraltar hosted a World Maritime Day Symposium on October 6. Discussion topics included MARPOL regulations (with experts from the Gibraltar Maritime Administration, Gibraltar Port Authority and the Environmental Agency of Gibraltar); and Sustainable

Shipping (with representatives from the university).

There were also sessions on alternative fuels (with panellists from bunker suppliers Peninsula and World Fuel Services, and ferry operator FRS); and a session on going beyond MARPOL compliance, with representatives from Ribbon (a Gibraltar company which makes a financial services app), the UK Maritime and Coastguard Authority, and OSM Thome Ship Management.

The University Maritime Academy has also launched a Basic Training Course for the IGF code (International Code of Safety for Ships Using Gases or Other Low-flashpoint Fuels).

The course is available in person or online. It is provided together with the Maritime Skills Academy Viking Maritime Group.

Sandvik new customers

Sandvik Marine Electronics, a specialist in bridge electronics and communications equipment based in the Bay of Gibraltar, reports that it has signed up a number of new customers to its fleet maintenance service.

In the tanker sector, this includes all the BW Gas Fleet, Westfal Larsen and Odjell. Other new clients include Eagle Bulk Shipping in the US and a number of container ships operated by Hapag Lloyd.

The company sends its own personnel onboard to main equipment, while the vessel is in port, transit or dry-dock. It also works with a network of service providers around the world.

Gas tanker spill

A gas tanker Gas Venus leaked an estimated 1000 to 2000 litres of heavy fuel oil into the Bay of Gibraltar after a problem during a bunkering operation at anchorage offshore Gibraltar in early August 2023.

The vessel was released from detention a week later, after the operator deposited a £1.5m bond to Gibraltar Port Authority to cover clean-up costs.

The oil spill reached the shoreline, causing the temporary closure of Camp Bay and Rosia Bay. A clean-up operation was set up.

The ship's captain was interviewed and arrested by the Royal Gibraltar Police on suspicion of a pollution offence under port rules. He was subsequently fined £20k after pleading guilty to a discharge of oil.



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Ballast water – 2024, training, Canada research

From 8 September 2024, all vessels subject to IMO's Ballast Water Management (BWM) Convention must meet the performance standards contained in regulation D-2. So any vessels without a ballast water treatment system must install an approved system before the deadline.

It applies to all ships over 400 GT, with some exceptions and additions.

It is possible that Port State Control inspections will take samples of the vessel's ballast water to test it.

The US is not a party to the BWM Convention. So vessels discharging ballast water into US territorial waters must comply with the US BWM Regulation. The US maintains a separate list of ballast water treatment systems approved by the US Coast Guard.

Insurance company Gard recommends that the company's Safety Management System (SMS) includes all relevant regulations, familiarisation with the vessel's ballast water plan, instructions on operating and maintaining the system, emergency procedures, and the required recordkeeping in the ballast water record book.

Optimarin's crew training system

BWMS provider Optimarin has developed an online training programme for crew called Opti Learn. The course has been completed by over 1200 people so far. It can be taken

using a smartphone or PC.

Optimarin also provides training on system simulators at its office in Sandnes, Norway, and at training centres operated by Anglo-Eastern Ship Management in Mumbai and Manila. The training provides crew with an overview of the system, its components, how it operates and the maintenance requirements.

Ballast water treatment is still a "relatively new technology for shipping," since IMO's Ballast Water Management Convention only entered into force in 2017.

Incorrect operation of the system can lead to non-compliant ballast water discharge and possible fines, Optimarin says.

There is a risk of damage to equipment and components if crew do not know how to operate them properly, such as if they run the pump dry.

Optimarin did a test comparing the operation of BWMS on two vessels with identical equipment and found that one vessel had higher maintenance expenses than the other. This was a direct result of poor operation of the system, it said.

However, if crew are well trained and

so use the system properly, the need for replacement spare parts and other items is much reduced. "If the operator understands the system and knows how its components work, this makes it possible to anticipate and quickly resolve issues so the BWTS can run effectively with low maintenance costs over many years," Optimarin says.

Canadian research

In February 2023, the Canadian government launched a new CAD \$12.5m program with aim of "protecting the Canadian Great Lakes and St Lawrence River regions from invasive species carried in ship ballast."

It said that the region had particular challenges for ballast water treatment, such as cooler temperatures and heavy sedimentation rates. The program will fund research projects to develop ballast water systems optimised for these water environments.

"Most ballast water management systems have been developed for warmer salt-water conditions typically encountered by ocean-going vessels," it said.

TO

UniBallast's mobile BWMS

UniBallast of Rotterdam offers a mobile ballast water treatment service, perhaps for shipping companies who have a problem with their onboard ballast water system.

It has built two systems. They have been operated so far in the ports of Eemshaven and Rotterdam (Netherlands) and Arbatax-Sardinia (Italy), and are scheduled to for operations in the UK, Morocco and Singapore.

The BWMS inside is manufactured by TeamTec of Norway. It is approved by the US Coast Guard and the IMO.

It can process up to 1,500m³ an hour, with an energy consumption of up to 13 KW. The ballast water is processed using sodium hypochlorite. It contains no filter.

The container can be connected to the vessel ballast water tanks via the external manifold and hoses.





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Prepare for 2026 foam firefighting ban

Some foam firefighting systems will be banned from 2026. Time to make a strategy, says Scanunit

A new IMO resolution will see the phase-out of foam firefighting systems that use fluorinated foams containing perfluoro-octane sulfonic acid (PFOS) as the foam-producing component.

The new rules come into effect under a rolling programme beginning in 2026.

Swedish maritime engineering specialist Scanunit believes that a proactive replacement strategy should be put into effect now.

Foam firefighting systems on ships typically make use of a family of synthetic chemical compounds known as perfluoroalkyl and polyfluoroalkyl substances (PFAS).

They are used in a variety of applications aside from firefighting because of their very useful properties.

But their use is now being questioned as they have been shown to be toxic, bio-accumulative, and very persistent substances in the environment.

The common PFAS-compound in foam systems is perfluoro-octane sulfonic acid (PFOS), although other PFASs may also be used.

PFOS has been restricted in most Western countries since 2009 under the Stockholm Convention because of its impact on human health.

These restrictions have led to an industrial transition and replacement of PFOS, although some of the replacements are other PFASs that may also be considered hazardous after more study.

Following work by the Ship Systems and Equipment (SSE) sub-committee at the IMO, the Maritime Safety Committee (MSC) adopted resolutions MSC.530(107) amending SOLAS

Chapter II-2 and resolutions MSC.534(107) & MSC.535(107) amending the HSC Codes (1994 and 2000) to prohibit the use of firefighting foams containing PFOS.

This ban applies to both fixed and portable systems and comes into effect for new ships on 1 January 2026.

Systems on existing ships will need to remove the PFOS and dispose of them safely ashore no later than the first survey date on or after January 1, 2026.

Extending the ban

The IMO is also looking at extending the ban to other fluorinated substances, in addition to PFOS.

For this reason, the changes to SOLAS and the HSC Codes have been done by the addition of a new section, "Fire Extinguishing Media Restrictions", in each text making it easier to include future prohibitions or limitations of extinguishing media.

"Shipowners need to understand the implications of the rule changes for existing ships and to consider how best to comply with the impending and future rules as there are some pitfalls to avoid", says Mikael Laszlo, Sales Director, Scanunit.

What happens on shore

It should be noted that shore systems in most countries have already transitioned to new chemicals.

The requirements of regulatory bodies such as the ECHA in Europe and the EPA in the US suggest that PFAS in fire-fighting foam and equipment be limited to 1 ppm in the foam.

Shipping is likely to follow along this path so with the possibility of a future ban on other fluorinated substances by the IMO, the choice of replacement needs to be carefully considered from the outset.

Points to consider

It may not be immediately apparent as to whether the foam contains PFOS or PFAS.

There should be some mention in the foam certificate or product safety data sheets, but this is not always the case.

So, it is important to analyse the foaming agent currently in use to ascertain its composition.

The IMO guidelines for testing detailed in MSC.1/Circ.1312 have comprehensive

instructions for testing the operational aspect of firefighting foam concentrates. But they do not contain any mention of their chemical composition.

Similarly, the type-approval certificates for foam concentrates supplied by classification societies and testing laboratories are equally unenlightening.

Another point to consider is that manufacturers are already switching to alternative products and there is always a possibility that supplies of foaming agents will dry up before the IMO ban comes into effect.

If that happens, ships will be required to make an immediate change in any case and perhaps have trading opportunities restricted until this is done.

For existing ships affected by the IMO rules, replacing the foaming agent is not simply a matter of emptying the tank and exchanging the agent with one that does not contain PFOS.

To ensure that no restricted substances are released during testing or deployment the whole system will need to be decontaminated.

Scanunit's services

Scanunit, in partnership with Swedish company LifeClean, is offering a turnkey solution for decontaminating and replacing the foam onboard vessels.

The process need not be done in drydock and can be arranged to suit the vessel's schedule.

The process involves removing the old foam and then refilling the whole system with Sani A, a cleaning fluid developed by LifeClean, that remains in the system for around four hours.

The system is then emptied, and the process repeated.

A sample is then taken from the hoses and tested to ensure that the level of PFOS is at or below 1 ppm.

The process is safe and produces less wastewater than other methods, says Ragnar Krefting, Founder, LifeClean. Independent tests have shown that 99.97% of all PFAS substances in the tanks and foam system have been removed, he says.

Occasionally, a system may need to be upgraded for use with the replacement fluorine-free foam or perhaps because the owner considers this desirable. Scanunit can handle all the arrangements and documentation to do this.

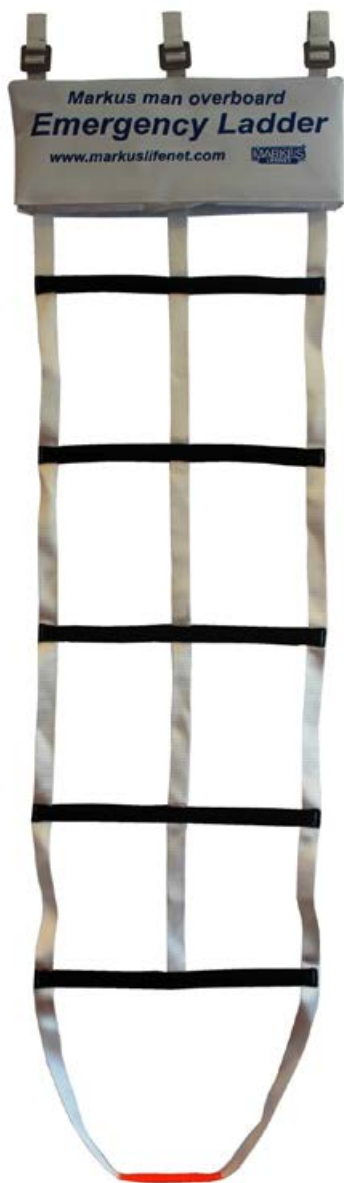


Foam firefighting systems – new rules in 2026

Markus Lifenet ehf

Specialized in development and manufacturing of man overboard recovery systems. Most known for the Markusnet type MS and the variety of Markus Scramble-nets type SCN, Markus Emergency ladders type MEL2/SCN2 and Throw-line type RLC.

www.Markusnet.com



Emergency ladder

For upto 1,8 metre freeboard. Provides safe passage back on board at the side of the boat, can be pulled down from the water and it is made to go 1 metre into the water in lowered position.



Markusnet

For commercial and leisure. Lloyd's Register EMEA type certified for ISO19898/2019

MOB Boat Rescue-net

Light, quick fastening, takes little space, provides easy and fast method to place the casualty in the net, is soft but firm around the casualty, provides easy lift by one or two persons and is easy to repack after use



Throw line

For all types of ships and boats. Ideal to carry on hikes near water.





★ MOBILITY

★ SUSTAINABILITY

★ CREATIVITY

MIDDLE EAST FUJI

Provides complete range of maintenance, repair & operations (MRO's), chandlery and provision supplies for our customer vessels trading in Middle East & HOA Region.

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