

THE REPORT



MAR 2025 | ISSUE 111

The Magazine of the International Institute of Marine Surveying

AN EXPERT'S GUIDE TO LITHIUM-ION BATTERY FIRE PREVENTION

**HOW TO IDENTIFY FALSE
READINGS OF EXHAUST
MONITORING EQUIPMENT**

**THE RISKS AND BENEFITS OF
AI TRANSLATIONS IN SAFETY
CRITICAL INDUSTRIES**

**SAFETY AND LEADERSHIP: THE
TWO IMPORTANT PILLARS OF
MARITIME EXCELLENCE**



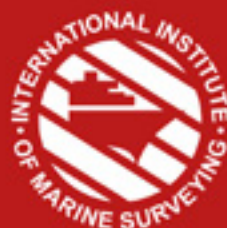
Inland Waterways craft and the vagaries of the conflicting regulations

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EDITOR'S LETTER

Dear Member and Fellow Industry Colleagues

Welcome to edition 111 of The Report magazine. I am proud of each and every edition the Institute publishes for the benefit of its members and the wider maritime community, but this one I particularly recommend to you for its diversity and depth of thoughtful content.

You will notice two very distinctive themes as you turn the pages of this edition. I have sourced several articles about lithium-ion batteries, a subject that continues to interest and concern me in equal measures! (i) 'Lithium batteries don't commit suicide. They're murdered' (page 74). (ii) 'An expert's guide to lithium-ion battery fire prevention' (page 72). (iii) 'Lithium-ion batteries - a growing risk for yacht fires?' (page 78). All three articles are required reading. As a surveyor, having at least a basic understanding of what is going on with this technology is becoming increasingly vital, especially as regulation is still lagging. And as the authors of article (iii) debate, there is potential for a surveyor to be held liable in the event of a lithium-ion battery boat fire in certain circumstances. A new reporting caveat would seem to be essential!

The other subject that has attracted my attention this month is AI (Artificial Intelligence). We may want to hate it. We may choose to ignore it, but that is becoming increasingly hard to do for it is omnipresent. AI is inexorably starting to get a deepening grip on the marine industry. But it is not all bad! There are three articles on this topic, all of which have been written for you by real humans! (i) 'AI is empowering shipowners to tackle new safety management challenges' (page 138). (ii) 'AI in the maritime industry: An overview' (page 135) and (iii) 'The risks and benefits of AI translations in safety critical industries' (140).

I am grateful to IIMS Past President, Geoff Waddington, and not for the first time. He has tackled another challenging subject that affects UK inland waterways vessels in his thoughtful article entitled 'Inland Waterways craft and the vagaries of the conflicting regulations' (page 101). To say this is a confusing landscape would be something of an understatement. Geoff explores this topic methodically as he tries to make sense of it all.

For the first time, 'The Day in the Life of' (page 143), does not feature a marine surveyor, nor indeed an IIMS member. Over the years I have got to know Captain Andy Moll, Chief Inspector at the MAIB (Marine Accident Investigation Branch), quite

well. The work that the organisation does in inspecting and reviewing the evidence after serious incidents and their resulting reporting is excellent and a wonderful resource. I wanted to know more about what makes Andy tick and to better understand the work of the MAIB, so I am most grateful to him for agreeing to share information with you.

There are several pages dedicated to electric boating, which seems to be gaining in popularity. I have published an article 'Celebrating The Gussies 2024 Electric Boating Awards' (page 81). It perfectly showcases the remarkable innovation that is going on in this transformatory sector. Continuing in the same vein, 'METRADE 2024 Electric boating overview: higher power and new outboards' (page 84), author Jeff Butler looks at some of the new innovative electric boating products which were exhibited at last year's show in Amsterdam.

Sadly, I don't have sufficient space to talk up some of the other great articles from other excellent and knowledgeable contributors, but as always, I am most grateful to them all for sharing their knowledge and experience for your benefit.

Survey well,

Mike Schwarz
Chief Executive Officer



PRESIDENT'S COLUMN

Dear Members and Fellow Maritime Professionals

As we embark on this edition of The Report magazine, we are reminded of the evolving challenges in our industry and the shared responsibility to foster a safer, more secure maritime environment. From the persistent issue of seafarer criminalization to the urgent need for robust accident investigation frameworks, these topics demand our immediate attention and action.

One of the most critical aspects of maritime safety is understanding why accidents happen, learning from them, and ensuring they don't recur. This is where the role of marine accident investigation becomes indispensable. The UK's Marine Accident Investigation Branch (MAIB) has long been at the forefront of this endeavour, setting

the benchmark for independent and thorough inquiries into maritime incidents. Their work has influenced global safety practices, ensuring lessons from past tragedies translate into improved industry-wide protocols. Recognizing the importance of this, our CEO, Mike Schwarz, has interviewed Andrew Moll OBE, Chief Inspector of Marine Accidents, MAIB, in this edition. We anticipate that this discussion will yield valuable insights into how accident investigations can continue to shape the safety landscape. The findings from this interview could prove crucial in strengthening preventive measures and refining risk management strategies across the sector.

At the same time, the well-being of our seafarers remains a top priority. On 22 January 2025, the Indian Directorate General of Shipping (DGS), formalized

an important partnership by signing an MOU with the Sailors' Society. This international organization, with over 205 years of experience in supporting seafarers 24/7, has been a pillar of strength for those who navigate the world's oceans. This partnership is not just symbolic; it reinforces the commitment of the maritime administration to enhancing welfare initiatives, ensuring that seafarers receive the mental, emotional, and logistical support they need.

This initiative aligns with my chosen focus during my presidency - security. Security extends beyond physical protection; it encompasses seafarer well-being, fair treatment, legal protection, and accident prevention. The threats faced by those at sea are



not just from operational hazards but also from regulatory gaps, unfair detentions, and the psychological toll of an often-isolated profession. It is our duty as industry leaders, regulators, and professionals to bridge these gaps.

In line with our commitment to professional development, I am pleased to announce an important one day IIMS Conference for commercial ship surveyors entitled '*Marine Surveyors, P&I Clubs, and Loss Prevention: Collaboration for Safer Seas*'. It takes place on 13 May 2025 in London. This one-day event will cover a range of topics pertinent to marine surveyors, providing an excellent opportunity for knowledge sharing and networking. I encourage all members to attend in-person or online and benefit from the insights that will be shared by an

impressive line-up of speakers. For more details go to <https://bit.ly/3DSyaCm>.

IIMS is considering the development of a mentoring program aimed at supporting upcoming surveyors and those specializing in specific trades. Mentorship is crucial in our field, as it ensures the transfer of knowledge, upholds standards, and fosters the growth of competent professionals who will lead the industry into the future. Watch for further developments.

I am also excited to share that the IIMS Learning Portal - the new on-demand training portal - is progressing well. This platform is being developed to provide accessible, high-quality educational resources to our members and other maritime professionals, further enhancing our commitment to

continuous learning and professional development.

In this edition, we explore these pressing topics and more, with expert insights, case studies, and developments that shape the future of marine surveying. As always, IIMS remains committed to fostering professionalism, advocacy, and best practices in our industry.

Thank you for your continued engagement with The Report magazine. I look forward to hearing your thoughts and working together towards a stronger, safer maritime future.

Sincerely,

Capt Ruchin Dayal
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10,000 tonnes of oil lost due to spills in 2024

Ten oil spills of more than seven tonnes were recorded from tanker incidents in 2024, the same number as in 2023, according to ITOPF statistics. According to the data, this brings the decade average to 7.4 tanker spills per year, which is a major reduction from the numbers reported in earlier decades but currently slightly higher than the average for the 2010s (6.3 spills per year).

Furthermore, six of the ten incidents in 2024 resulted in spills greater than 700 tonnes (classified as 'large' spills). These mostly involved spills of fuel oil and occurred in South America, Asia and Europe. The four other incidents (classified as 'medium' spills) also involved spills of fuel oil. Additionally, two occurred in Europe, one in Asia and one in North America.

Over the past half century, statistics for the frequency of spills greater than 7 tonnes from tankers have shown a marked downward trend. Spills in excess of 7 tonnes have reduced by over 90% since the 1970s. There has however been little change in the last decade.



MB92 Group acquires superyacht coatings specialist Pinmar

Leading superyacht refit, repair, and maintenance company MB92 Group has bought GYG Ltd., the superyacht coatings specialist, service and supply company that trades under the Pinmar, Pinmar Yacht Supply and Technocraft brands. MB92 reports that all brands will continue to operate independently across Europe and the US.

Pepe García-Aubert, chairman of MB92 Group, says: "We are honoured to welcome GYG to the MB92 Group. Over the past 30 years, our collaboration has been rooted in shared values, mutual respect, and a dedication to delivering excellence for our clients. Moving forward, we aim to build on this strong foundation, sharing knowledge and expertise to enhance our services while advancing sustainability and innovation initiatives that benefit the wider superyacht community."

MB92 will continue to collaborate with a range of providers, giving clients the flexibility to work with their preferred partners while benefitting from MB92's extensive expertise, developed through managing over ten large-scale paint projects annually across the group.



BIMCO expects Product tanker deliveries to jump 256% in 2025

Product tanker deliveries are projected to surge to 12 million dwt in 2025, marking a 256% increase from 2024's 3.4 million dwt and reaching the second-highest delivery record, according to BIMCO. The uptick follows a spike in new orders in 2023 and 2024, raising the order book from 10.6 million dwt in early 2023 to 41.2 million dwt by 2025.

While MR and LR2 tankers dominate the newbuilds, only 7% will be alternative fuel-capable, reflecting slow decarbonization progress. Meanwhile, low recycling rates have left 10% of the fleet over 20 years old, posing challenges to fleet renewal and efficiency despite anticipated 5-6% fleet growth.



New wreck removal insurance rules for Norwegian Ships

The Norwegian Maritime Authority has issued a guidance to inform shipowners that, starting on 11 February 2025, Norwegian ships of 300 gross tonnage and above must have approved insurance for the removal of wrecks, in accordance with the Nairobi International Convention on the Removal of Wrecks, 2007.

From this date, the registered owner of a Norwegian ship of 300 gross tonnage and above is required to have approved insurance or other security covering the cost of locating, marking and removing wrecks pursuant to the rules of the Nairobi Convention.

As such, a certificate confirming this insurance or security must be issued, concerning amendments to the Norwegian Maritime Code (removal of wrecks).

Ships that have a Wreck Removal Certificate issued by another Convention State before 11 February 2025 may continue to operate under that certificate as long as it remains valid. When the certificate expires, or becomes invalid for any other reason, a new certificate must be issued by the Norwegian Maritime Authority.



Düsseldorf names 2025 European yacht, powerboat winners

boot Düsseldorf has named its 2025 yacht and powerboat winners from fields of candidates thinned by disappointing sales that led many yards, especially sailing yacht makers, to cancel or delay projects. Two juries of experts – test directors and editors from 12 leading sailing and six motorboat magazines across Europe – selected the winners which were announced on Saturday during the show's first night.

The yacht and powerboat awards were presented for the 22nd and 19th time, respectively. Thinning fields of candidates in yacht categories marked the 2025 event. The pandemic-related boom of previous years is now followed by a drop in sales, leading many yards to cancel or delay projects. The field of entrants for the 2025 yacht awards was almost halved from 2024. The jury picked 16 nominees, but only 12 entered the tests.

The Hanse 360 (pictured) scooped the award in the Family Cruiser category

The 2025 European Yacht of the Year award winners are:

Family Cruiser: Hanse 360
Performance Cruiser: J/40
Multihull: Nautitech 48 Open
Luxury Cruiser: Contest 63CS
Special Yacht: Bay Cruiser 21

The 2025 European Powerboat of the Year award winners are:

Up to 14m: Wellcraft 38 T-Top
Up to 18m: Nimbus 495 Fly
Up to 24m: Cranchi Sessantadue 62
Powercats: YOT 41
Electric boats: Frauscher Porsche Fantom 850 Air



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Download the Volvo Penta International Limited Warranty Statement at <https://bit.ly/4h2a2Mn>.

Volvo Penta launches all-inclusive global 3-year marine warranty

This new comprehensive marine warranty applies to products delivered from 2025 and onwards and underscores our commitment to premium protection, ease of ownership, and support. The warranty covers Volvo Penta branded transmissions, engines, control systems, and accessories - ensuring seamless protection throughout the entire ownership journey.

The new 3-year standard warranty replaces previous offerings, providing a unified and expanded solution. This warranty reflects Volvo Penta's commitment to delivering premium protection and support for both marine leisure and commercial customers. It includes global coverage on all marine Volvo Penta branded products, supported by expert assistance, prompt repairs, and access to Volvo Penta's extensive service network.

For the first three years, the warranty covers all Volvo Penta branded products, transitioning to major component coverage in the subsequent two years. For commercial marine operators, the warranty terms are measured by years or total operational hours, whichever comes first, providing maximum assurance and flexibility.

More than 200 ships falsely registered under fraudulent flags

The number of ships falsely registered under fraudulent flags has increased, doubling in less than two years which has raised serious concerns about maritime safety, security, and environmental protection. According to a report submitted by the UK to the International Maritime Organization (IMO), over 220 ships are now falsely flagged, compared to 100 vessels two years ago.

Fraudsters are exploiting underfunded maritime authorities and geopolitical instability to keep substandard and sanctioned vessels in operation. These vessels often use fake documents to claim they are registered with legitimate flag states or are linked to fictitious registries that fail to verify ships and their owners properly.

Gothenburg Boat Show has closed after more than 60 years

The Gothenburg Boat Show is closing down after being held in the city for over 60 years. Between February 1-9, the fair was held for the 64th and final time. The organisers report the fair has not been profitable enough.

"The project has developed over time, but for various reasons, the Boat Show has not been profitable enough in recent years. The decision to no longer organize the Boat Show is based on an overall assessment of the situation in the boating industry, the economy, new buying patterns and the demand and needs that exist. Despite attempts to adapt the fair to a changing industry and environment, it has not been enough to increase the project's profitability," says a press release.

"We will not close the doors to a future Boat Show if the situation changes, but at present no more events are planned," says Benny Karlsson, Commercial Director at the Swedish Exhibition & Congress Centre Gothia Towers.

New bill proposes establishment of Nigerian coast guard

Stakeholders and experts from Nigeria's maritime sector have expressed support for the Coast Guard Bill before the country's National Assembly, with many describing the proposed legislation as a boost to the federal government's efforts in securing the maritime space, the Nigerian Maritime Administration and Safety Agency (NIMASA) said via a press release.

Speaking at a public hearing convened by the Senate Committee on Marine Transport to discuss the proposed bill for the establishment of the Nigeria Coast Guard, the stakeholders presented varying views on the bill, with the majority supporting the creation of the National Coast Guard.

Dr Olisa Agbakoba, a maritime lawyer and former President of the Nigerian Bar Association, described the bill as timely but emphasised the need for professional input to address certain concerns within the draft.

Former NIMASA Director General Dr Ade Dosunmu offered full support for the bill, suggesting that the Nigerian Navy should focus on blue-water operations and national defence against external threats, while the coast guard should address maritime crimes and incidents along the nation's extensive 855-kilometre coastline using more adaptable resources.

Fully biodegradable shrink wrap set to revolutionise yacht industry



A groundbreaking shrink wrap material by Bioaqualife is making waves in the marine industry. It combines eco-friendly innovation with practical enhancements that simplify boat maintenance and winterisation. Entirely biodegradable and easier to install, this new product promises to transform how boats are protected during off-season or repair work.

Manufactured in the United States, the Bioaqualife shrink wrap addresses one of the most pressing environmental concerns - plastic waste. Unlike conventional shrink wraps made from polymers that resist decomposition, Bioaqualife's material incorporates a monomer-based plastic. This design allows microbes in landfill environments to consume the plastic, breaking it down into harmless soil within three years. Importantly, this process avoids the issue of microplastics, which are prevalent with traditional materials. Given that over 46,000 tons of shrink wrap are used annually by the six million yachts in the U.S. alone, this innovation offers a significant step toward reducing microplastic pollution in landfills and aquifers.

Beyond its green credentials, the Bioaqualife shrink wrap stands out for its ease of installation. The inclusion of printed centre lines and distance markers at 60cm intervals eliminates guesswork, enabling faster and more accurate alignment. Simon Milne, Bioaqualife's founder and a former professional yachtsman, emphasised that these features were designed with labour efficiency in mind. By streamlining the installation process, this product reduces labour costs and time - an important factor for large-scale shrink-wrapping projects.





Construction underway for luxury, low-emission Arctic cruise ship

Image credit: Selar

Work is underway to build what is being billed as the most sustainable cruise ship. Known as Captain Arctic, it is designed to present a new level of luxury expedition in the Arctic.

Goltens highlighted the keel laying and its role in the development of the new ship. The ceremony took place on November 22 marking the start of the construction of the 70-meter (230-foot) hull which Goltens notes is also a first for the UAE.

The concept for the ship was developed by Sophie Galvagnon who has worked for nearly 20 years in the commercial shipping industry. She notes for a decade she has led expeditions into the Arctic, but the trips have become “disconnected from the traditional ways.” Expedition cruising started with a focus on the destination but in recent years the cruise industry has focused on luxury amenities aboard the ships and add-ons such as submarines and helicopters.

Galvagnon reports she and the team spent the past two years designing the innovative ship, convincing the market of the opportunity, and funding the project. They launched a French company, Selar, which they believe will present a new approach to sustainable tourism.

World's first ship with full carbon capture and storage ready for testing



Photo credit: Solvang

Clipper Eris, the ethylene carrier owned by Solvang, is ready for pilot testing, becoming the world's first ship fitted with a full-scale carbon capture and storage system.

The pilot project is being undertaken as a joint effort between Solvang, MAN Energy Solutions, Wartsila and research institute SINTEF.

Besides this ship, Solvang has 7 more vessels being constructed. They are almost ready to be equipped with the same carbon capture facility that can decrease carbon dioxide emissions by up to 70% before it is stored in deck tanks for discharge to sequestration or use.

Edvin Endresen, CEO of Solvang ASA said that this technology is the shortcut to decarbonising the world's deep-sea fleet and is a promising solution for future vessels.

Roger Holm, President of Wärtsilä Marine said that this carbon capture system onboard Clipper Eris is a leap forward for achieving maritime sustainability and represents a change that has been made possible by a collaboration between our companies.

Pakistan shipyard to build country's first commercial ship in 40 years

Pakistan will be building its first cargo ship in four decades. Karachi Shipyard will build the containership for Pakistan National Shipping Corporation (PNSC) for \$24.75m.

The 1100 TEU Container Ship Project was revived by the country's Special Investment Facilitation Council (SIFC). The project is an opportunity for Pakistan to build ships at a lower cost compared to international prices, which supports the country's aim of reducing its dependence on foreign shipping companies.





ICOMIA, EBI and NMMA to develop first globally aligned recreational marine lifecycle assessment

Leading marine trade associations, the International Council of Marine Industry Associations (ICOMIA), European Boating Industry (EBI), and National Marine Manufacturers Association (NMMA) announced they are joining together to develop a global recreational marine lifecycle assessment (LCA) framework. This partnership establishes the first-ever global collaboration to assess, measure and report the industry's environmental performance of recreational boats.

As part of ongoing efforts to demonstrate environmental stewardship and harmonise global sustainability initiatives, and the recreational marine industry is committed to achieving a comprehensive framework that provides a methodology that quantifies the environmental performance of a recreational boat through every phase of its life, including raw materials, production, use phase, disposal and recycling.

ICOMIA, EBI and NMMA will complete an extensive review of LCA methodologies to identify the most relevant approach for the global market, building on the projects already completed or underway with EBI's Blue Boat Horizon project and ICOMIA's Marine Engine Committee (IMEC). In addition to the methodology, the global recreational marine lifecycle assessment project will ultimately include the development of standard inventory databases, tools, communications materials and educational initiatives to help manufacturers and other marine organisations.

Queenstown to host 2025 Marinas and Boatyard Conference

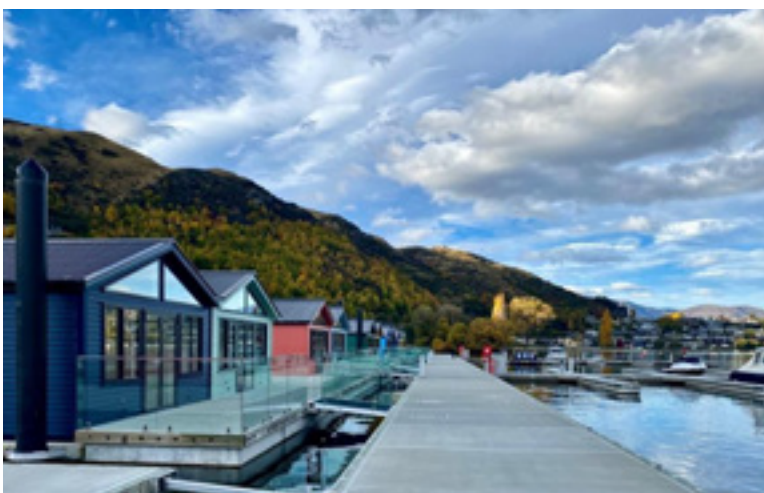


Photo credit: Queenstown Marina

The New Zealand Marina Operators Association has announced that its 2025 conference will be held from 10-12 September in Queenstown.

"Queenstown is home to one of the industry's most respected and innovative regional marinas," says NZMOA Chair Chris Galbraith. "They have done an exceptional job in Queenstown, developing an operation that provides safe berthage for commercial and private boats, respects the landscape and environment, and delivers superb functionality."

Chris also says that Queenstown is an aspirational location: "As an industry we can learn from land-based industries that provide infrastructure and share many of the same themes and faces similar challenges to our marinas and boatyards."

The event will be hosted at the Crowne Plaza in the Queenstown centre on Wednesday 10 and Thursday 11 September, with a tour on Friday 12 September.



Spanish marine market looks mixed

Jordi Carrasco, director general of ANEN – National Association of Nautical Companies, reveals a mixed bag for the Spanish marine sector.

The national nautical market has been stabilising since 2023, following the growth experienced during the covid pandemic and the following year.

Currently the data for recreational boat registrations in Spain is around 2019 figures, and with more pronounced descents in certain length segments. In particular, the market for smaller boats up to 6 metres, jet skis and folding inflatable boats has been challenging. Consumer confidence is yet to fully return with new boats, with construction and chartering still feeling the pinch.

In the case of the charter segment, competition from other charter destinations along with increased recreational options and general economic uncertainty has negatively impacted the Spanish sector.

Marinas, refit and repair sectors, maintenance companies and marine equipment suppliers are faring much better. Thanks to its strategic geographical location and the high-quality services available, Spain is a key destination for boat repair and maintenance and this sector is performing positively. Consolidated Spanish shipyards enjoy international recognition, and we are witnessing the emergence of new projects that contribute to diversifying and strengthening our offering. This positions Spain as a benchmark in the Mediterranean for the construction, maintenance and refit of vessels.

Since 2023 sailboat registrations have fallen below motorboat registrations, by an average of -12 per cent. However, as a trend, the hobby of sailing in Spain, especially in the north of Spain, continues to grow in popularity.

There are several key trends in the current Spanish nautical market. A trend towards larger boats and customisation is apparent. Customers are increasingly looking for boats that can be adapted to their specific needs and tastes, with high quality finishes and increased comfort. ANEN reports that sales of new and used boats were down by 20 per cent in the first six months of 2024 to 3,047 units. But sales of large boats over 16m were up by 21 per cent.

Sales of boats under 6m, including jet skis, saw a 23.7 per cent year-on-year drop to just over 2,000 units sold by around October 2024.

URGENT PRODUCT RECALL: Hutchwilco inflatable lifejacket

New Zealand lifejacket manufacturer Hutchwilco has launched a product recall of its 170N lifejackets manufactured from June 2021 to May 2022. The recall follows an advisory from the manufacturer's American supplier, Halkey Roberts, of a potential failure during testing of the green/red indicator. The recall is due to an occasional issue that only affects some units. Though the firing pin mechanism still functions, the indicator may show that the lifejacket is ready for use when in fact it isn't due to the cylinder not being screwed in properly or the cylinder being damaged. The lifejacket may not inflate if this happens.

If the mechanism on your lifejacket is a Halkey Roberts v96000, go to the website at <https://bit.ly/40M3dsN> for details of what to do next.

Gibdock launches superyacht services division in Gibraltar

Gibdock has introduced Gibdock Yachting, a new division focused on supporting business growth in the superyacht sector for its Gibraltar-based ship repair and maintenance yard.

The new superyacht services division will leverage Gibdock's experience in superyacht maintenance and refitting and also collaborate with BWA Yachting, a superyacht agency and service provider.

"Gibdock Yachting will bring unparalleled dedication and professionalism to every project, ranging from routine maintenance and certification dockings to large-scale refits, offering yacht managers and owners the quality of work and time management service levels available to a top-class repair yard," says John Barnard, commercial director at Gibdock.



Southern Wind unveils new flagship superyacht

Boutique sailing yacht shipyard Southern Wind has kickstarted 2025 with news of a new flagship model, the SW123, which will be the company's largest build to date.

The new superyacht model is already under construction in its Cape Town facility, with a projected launch date of February 2027. A standout feature of the SW123 is its light weight relative to other performance cruisers of similar length. It also represents the latest in the successful design collaboration involving Farr Yacht Design for the naval architecture and Nauta Design for the exterior and interior design. The SW123 has a LOA of 37.4m and beam of 8.18m. Full details are due to be released in Cape Town soon.



"This groundbreaking project not only expands their portfolio of high-performance luxury Smart Custom yachts but also takes the concept to unprecedented levels," the company says in a statement shared on its website.



Vision Marine files patent application for battery encryption system

Montreal based electric outboard manufacturer Vision Marine Technologies has filed its latest patent application with the US Patent and Trademark Office for its Battery Authentication Encryption technology. The system is designed to securely integrate proprietary components within the E-Motion electric powertrain, prevent third-party substitution, and gather valuable boaters' data, reinforcing the strategic value of Vision Marine's advanced technology.

"The importance of system security cannot be overstated as we transition into a digital marine era," says Xavier Montagne, chief technology officer at Vision Marine. "This patent application is the result of several years of research and development to make high-voltage systems compatible with the nautical field. Our unique skills in electronics and embedded software and our long experience in electric propulsion have made it happen."

The technology employs a sophisticated Battery Management Controller (BMC) to authenticate components within the powertrain. This helps ensure that only Vision Marine's proprietary components function in harmony with the system, eliminating risks associated with third-party substitutions that could compromise performance or safety. Beyond enhancing the system's security, this innovation enables the collection and analysis of boaters' data, a critical component in driving superior system performance and customer satisfaction.



Brisbane's first cruise ship passenger terminal deemed a success

The Port of Brisbane, Australia is celebrating its decision to invest in a cruise terminal after passenger movements at the Brisbane International Cruise Terminal (BICT) crossed the two million mark just two and half years after its opening.

BICT, which was constructed at a cost of US\$110 million, achieved the two-millionth-passenger milestone after P&O Cruises Australia's Pacific Encounter called at the port. The call could be the last that this vessel makes at its Brisbane homeport under the Pacific Encounter name. This is because the ship is set to be rebranded into Carnival Encounter after Carnival Corporation announced it was ending the P&O Cruises Australia brand in March 2025.

"Carnival's long-term partnership with the world-class BICT has helped in the success of Queensland's growing cruise industry. As Carnival Cruise Line prepares for an exciting expansion in March, when Pacific Encounter joins the CCL fleet as Carnival Encounter, we can't wait to continue to deliver our guests unforgettable holidays from Brisbane, all year round," said Peter Little, Carnival Corporation Country Manager.

The hitting of the two million passenger mark is a significant achievement for BICT, which was opened in June 2022 and is touted as a strategic asset in Queensland's cruise tourism industry. The decision to build the terminal was approved in 2017, with construction completed in 2020. Its commercial opening was delayed due to the Covid-19 pandemic.

CRT Impact Report says historic canals championed as solutions to UK's modern challenges



A CRT Impact Report demonstrates how the UK's unique network of historic canals, a legacy of the Industrial Revolution, are being repurposed to address some of the greatest challenges facing society. The interconnected and ecologically rich man-made waterways are today playing a key role in addressing the UK's biodiversity crisis, improving public health and helping to mitigate the impacts of climate change.

The Canal & River Trust (CRT), the charity that cares for 2,000 miles of waterways across England and Wales, has published an Impact Report that shows the nation's canal network is proving more relevant than ever. The Report also showcases the charity's commitment to keeping canals open and alive in the face of some serious threats.

The UK is one of the most nature-depleted countries in the world, but canals provide a lifeline for wildlife. Forming the nation's longest corridor of freshwater habitat, canals create "nature highways" that provide essential linking habitats that allow species to thrive and move safely through the nation's increasingly fragmented landscape. The Report highlights how the network includes 304 conservation areas, 68 Sites of Special Scientific Interest, and countless corridors rich in biodiversity.

Download the CRT Impact Report at <https://bit.ly/42eDBWj>.

New guidance for smaller Remotely Operated Unmanned Vessels published

New guidance on smaller Remotely Operated Unmanned Vessels (ROUVs) has been released, published by the UK Maritime and Coastguard Agency (MCA). Marine Guidance Notice (MGN) 705 (M) came into force 31 December 2024 setting out a pathway for operation of the rapidly growing number of hi-tech ROUVs between 2.5-4.5 metres in length. It puts the UK among the first in the world to formally set out the scope of regulation and operators' obligations in this emerging category, as well as the MCA's commitments to well-founded oversight that keeps people safe. Publication is the first step since extensive consultation began in 2022 with a range of maritime industries.

The core of MGN 705 (M) is a two-year general exemption for eligible ROUVs. It runs alongside research commitments by the MCA to ensure future updates are underpinned by firm evidence and clear criteria.

Key obligations are set out for owners and operators, such as for eligible ROUVs to be under constant supervision by a human able to take control at any time.

A safety assurance assessment must be declared before operation, and speed will be limited to 6 knots or planing speed, whichever is lower. Other safety requirements cover vessel visibility, anti-fouling, and remote camera capability.

Read the MGN at <https://bit.ly/3ZYhvVu>.



Merchants, mariners and mavericks Lloyd's Agents, the first 200 years

Throughout time, every country, every community, every business and every home has needed insurance in one form or another. Society could not function as it does without it. With each new direction taken by trade and industry, insurance has adapted to deliver new protections and provide a safe springboard for future development.

Despite its value, the nature of insurance has also often been misunderstood. Insurance has always been based on analysis, research and the scientific study of risk. In other words, on information.

By 1811, the complexity of the information used by the insurance industry had evolved significantly, but it was the creation of a network of Agents by Lloyd's that year which profoundly accelerated both the reach and impact of that information.

For the first time, a global network of individuals could act as the eyes and ears of the market, finding out the truth, detecting problems and suggesting solutions. The flow of information they sent back to Lloyd's was a vital component of the consolidation and growth of both Lloyd's reputation and the added value and expertise it could offer its customers. In times of war and conflict the value of this information went far beyond policyholders, the Royal Navy and Admiralty both relied heavily on its accuracy.

As this book shows, Lloyd's Agents tended to be quite exceptional people. Courageous, curious and often eccentric, their commitment

to the role has shaped the culture of Lloyd's. And perhaps in no area have they made their mark as strongly as in their contribution to ensuring Lloyd's has always paid all valid claims.

Throughout this time, Lloyd's Agents have directly helped to give Lloyd's the global presence and brand that it enjoys today. Over the last 200 years, the Lloyd's community has had a great deal to thank its network of Agents for.

Download the 84 page book in pdf format at <https://bit.ly/4h2FGJs>.



Ecocoast and Noria unite to tackle pollution with solar-powered innovation

The partnership combines Ecocoast's durable Bolina Permanent Debris Booms with Noria's CirCleaner system, currently operational at Rotterdam's Keilehaven in the Netherlands. Together, they are setting a new benchmark for cleaning rivers and canals sustainably.

The CirCleaner system is designed to prevent plastic pollution and debris from harming marine ecosystems while improving the quality of local waterways. Ecocoast's custom debris booms, manufactured in Noria's signature orange, funnel an impressive 3 cubic meters of waste weekly into the CirCleaner, diverting it from reaching the sea and reducing pollution. Spanning 48 meters on one side and 34 meters on the other, the boom arms guide waste directly into the system, ensuring maximum efficiency.

The CirCleaner system operates on solar power and adjusts its collection cycles to the natural tidal flow, maximising operational efficiency. In addition to removing waste, the system incorporates fish-friendly technology, ensuring the protection of aquatic life while removing waste. Its solar-powered functionality and adaptability underscore its commitment to sustainability and responsible resource use.



New UK boat festival for 2025

A new boat show is set to launch in the UK's West Country this year with Plymouth Boat Fest being held at Plymouth Yacht Haven on 21 June.

Yacht Havens is set to host the highly anticipated festival at Plymouth Yacht Haven, bringing together maritime enthusiasts, families, and the local community for a day of nautical fun and exploration, as well as showcasing the region's maritime heritage and marine services.

The festival will feature a variety of boats, yachts, innovative watercraft, and traditional vessels. Attendees will have the opportunity to board the vessels, meet industry experts, and learn about the latest advancements in boat technology and marine services.



boatfolk partners with AI programme to drive sustainability innovation

UK-based marina group boatfolk has teamed up with environmental consultancy Bright Tide in the launch of Sustain.AI, an innovative accelerator programme that brings together artificial intelligence startups and industry leaders to advance sustainable development.

The initiative connects ventures leveraging AI technology to address pressing environmental challenges with leading corporations and investors.

boatfolk, which operates 11 marinas around the UK, is supporting the programme as a partner and mentor, providing practical know-how and support to programme participants on how to move from idea to reality in real-world settings.

Dominic Zammit, group commercial director of boatfolk, says: "We take our environmental responsibilities very seriously at boatfolk. As a boating business, the coastline is central to what we do and preserving it for future generations is essential.

"We believe emerging AI technologies provide a significant opportunity to help solve some of our most pressing environmental challenges, so we are pleased to be playing a part in making this happen by partnering with Bright Tide and Sustain.AI."





URGENT PRODUCT RECALL: Morco gas water heaters

A safety issue has been identified with Morco open-flued gas water heaters which may be installed in canal and houseboats as well as in domestic and commercial settings.

The product presents a risk of fire, explosion and injuries. There is a risk of gas leaking which, if ignited, may cause burns, explosions and injuries. The products are not in conformity with the requirements of Regulation 2016/426. Morco has initiated an urgent recall for the affected appliances.

For more information go to <https://bit.ly/4h28Qsn>.



Photo credit: Taylor's Abroad

Canal boaters released from breach site

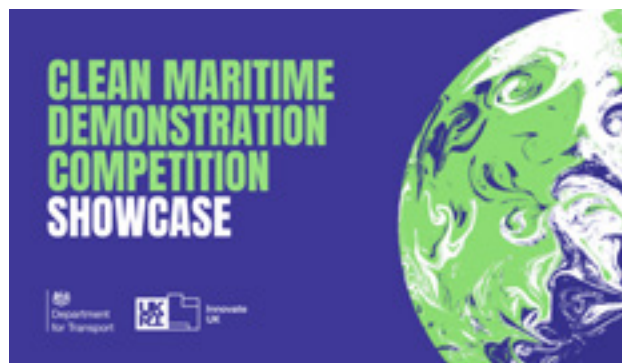
Boaters who became trapped by the Bridgewater Canal breach have been released from their moorings. Many liveboard boaters and owners of leisure craft found their vessels marooned after the breach of the canal at the end of last year, which resulted in water draining out of 1.9 miles of the canal either side of the breach at Little Bollington, near Dunham Massey.

Owner of the canal, the Peel Group, has installed temporary dams at Woodhouse Underbridge, Dunham and at Little Bollington, and water has now refilled the affected areas. The company warned boaters to leave their vessels while the operation was under way.

In a statement, Peter Parkinson, director of the Bridgewater Canal Company, said: "The areas of canal that are currently dewatered, including the moorings at Ye Old No. 3, will naturally start to slowly refill.

"A controlled syphoning will commence and be supervised throughout the day by Bridgewater Canal Company operatives. Please note that this operation will only be carried out during daylight hours.

"While we believe any risk during the controlled refilling and refloating is low, we strongly recommend that boaters vacate their craft during this operation and remain vigilant until the works are completed."



UK invests additional £30 million in clean maritime technologies

The United Kingdom has allocated £30 million for decarbonisation initiatives in the maritime sector in the latest round of the Clean Maritime Demonstration Competition. The sixth round of funding brings the total invested through the Clean Maritime Demonstration Competition (CMD) to £159 million. The £30 million funding comes from the latest round of the competition. CMD is designed to support clean maritime technologies including electric, hydrogen, ammonia, methanol, wind power and more.

Previous rounds of the competition have seen funding delivered to over 300 organisations, bringing in more than £100 million of private investment across the UK.

Successful projects have included the installation of Britain's first electric chargepoint network across ports in the South West, the largest ever retrofit of a hydrogen research vessel in Wales and the installation of carbon capture system on a vessel.

Shipping and Boating by Number 5

In this new feature, numbers are used to highlight the key points of the stories. Numbers are often considered more important than words when conveying precise information, as they provide an objective way to represent data, making it easier to compare, analyse, and understand facts quickly. Words can be subjective and open to interpretation. Here's what we have for you this month.



Image credit: Konecranes/LinkedIn

World's largest bulk export port orders two mobile harbour cranes

Pilbara Ports in Western Australia has ordered two Konecranes Gottwald ESP.9 Mobile Harbour Cranes for Port Hedland, the world's largest bulk export port by tonnage. The cranes were ordered in the fourth quarter of 2024 and are expected to be delivered to the port's Lumsden Point development in 2026.

The **two 200-tonne lifting capacity cranes** will help the port handle more containerized bulk material and project cargo. Each crane will have **a 100-metre cable reel** for an external power supply, improving energy efficiency and reducing exhaust emissions and noise on-site.

Race is on to save world's third-oldest warship

In a historic Scottish port city, preservationists are mounting an urgent campaign to rescue the **200-year-old** HMS Unicorn, one of the world's last surviving warships from the age of sail.

HMS Unicorn, the third oldest warship still afloat, has received **a \$1 million lifeline** from Britain's National Lottery, jumpstarting an **ambitious \$12 million** preservation project. But the clock is ticking for this maritime treasure.



"Unicorn is a symbol of Dundee's rich maritime history and without support may not survive," said Matthew Bellhouse Moran, executive director of the preservation society overseeing the vessel's restoration. "We urgently need the support of individuals, businesses, and organizations."

The Unicorn presents a unique window into naval history. Built in the aftermath of the Napoleonic Wars, she never received her masts or rigging, instead serving her entire career as a naval training and depot ship. For much of the 20th century, she was home to reservists before retiring from naval service in the late 1960s.

Now a floating museum in Dundee's harbour, the ship requires extensive restoration work as part of a broader waterfront revitalization project. The preservation society faces an April deadline to raise **an additional \$820,000** to unlock the **full \$12 million** in project funding.

Spanish marine market looks mixed

Jordi Carrasco, (pictured), director general of ANEN – National Association of Nautical Companies, reveals a mixed bag for the Spanish marine sector. The national nautical market has been **stabilising since 2023**, following the growth experienced during the covid pandemic and the following year.



Currently the data for recreational boat registrations in Spain is **around 2019 figures**, and with more pronounced descents in certain length segments. In particular, the market for smaller **boats up to 6 metres, jet skis and folding inflatable boats** has been challenging. Consumer confidence is yet to fully return with new boats, with construction and chartering still feeling the pinch.

Since 2023 sailboat registrations have fallen below motorboat registrations, by an **average of -12 per cent**. However, as a trend, the hobby of sailing in Spain, especially in the north of Spain, continues to grow in popularity. There are several key trends in the current Spanish nautical market. A trend towards larger boats and customisation is apparent. Customers are increasingly looking for boats that can be adapted to their specific needs and tastes, with high quality finishes and increased comfort. ANEN reports that sales of new and used boats were **down by 20 per cent** in the first six months of 2024 **to 3,047 units**. But sales of large **boats over 16m were up by 21 per cent**.

Sales of **boats under 6m**, including jet skis, saw a **23.7 per cent year-on-year drop** to **just over 2,000 units** sold by around October 2024.

RCR 2024 call-out figures

The UK inland waterway's River Canal Rescue (RCR) reports it responded to **171 major incidents in 2024** - emergency situations involving submerged, partially sunken or grounded craft, plus salvage work. The figure is **41% higher** than the **121 incidents RCR reported in 2023**, which managing director, Stephanie Horton, attributes to a busier than usual summer and sinkings due to unsecured weed hatches/seal issues and boats getting stuck on lock cills.

There were also **3,485 general callouts**, for electrical, fuel and engine issues, flat batteries, over-heating and gear box failures etc; a **4% increase from 3,335** a year earlier. **567 callouts were return visits** requiring additional work.

RCR engineers **responded to 86% of callouts; 14% were handled by approved-contractors**, and its Canal Contracting service **organised 521 visits** to undertake a variety of work, including: plumbing and electrical installations, gearbox replacements, inverter, solar installations and general engine maintenance.

592 engine inspections were booked in, **nearly 15% up from 2023; 437 of these were combined inspections with services**.



China hoists world's largest 20 MW floating offshore wind turbine

CRRC, a state-owned Chinese company, has successfully hoisted the world's largest floating wind turbine at the Shandong Dongying Wind Power Equipment Testing and Certification Innovation Base. The turbine named "Qihang" is a **20MW floating offshore wind turbine**, independently designed by CRRC. It was manufactured in Sheyang, Jiangsu.

The turbine was transported from Sheyang Port to Guangli Port in Dongying using a self-propelled modular transport unit before being moved to the test site for hoisting. The turbine has a **rotor diameter of 260 meters (853 feet)**, equivalent to seven football fields, and a **hub height of 151 meters (495 feet)**. Each rotation of the turbine can generate enough electricity to supply a household for 2 to 4 days.

Over a year, it can operate for **about 3,500 hours, saving 25,000 tons of coal** and reducing carbon dioxide emissions by **62,000 tons**. It is designed to **last 25 years**.



Photo
credit:
Brazilian
Navy

Location of WWII ship sunk by Nazi submarine confirmed

The Brazilian Navy has finally confirmed the location of the Vital de Oliveira, a Brazilian troop transport ship torpedoed and sunk by a Nazi submarine during World War II, after **more than 80 years of mystery**.

The wreck was identified using advanced sonar imaging, **lying about 65 kilometres off the coast** of Rio de Janeiro. The ship joined the Brazilian Navy in 1931 and became a troop transport during World War II.

On the night of July 19, 1944, the ship was torpedoed by the **German submarine U-861**. The attack led to the ship sinking, and **100 of the 270 crew members onboard lost their lives**. Vital de Oliveira became the only Brazilian military ship to be sunk by enemy forces during World War II.

In addition to the Vital de Oliveira, the Brazilian Navy lost two other warships during World War II. The Camaquã, a corvette, capsized in a storm in 1944, **killing 23 crew members**. The Bahia, a cruiser, sank in 1945 after accidentally detonating its depth charges during gunnery practice, resulting in the **deaths of 333 people**.

Image courtesy of Cochin Shipyard



India plans to
spend \$3 billion
to support its
maritime sector

India has firmed up its ambition to become a global maritime powerhouse, with the government allocating **around \$6 billion** to the shipping sector in the 2025-26 fiscal year. On Saturday, India's Finance Minister Nirmala Sitharaman presented to Parliament budget documents, revealing billions of dollars the government intends to spend in upgrading the country's maritime infrastructure.

The government has proposed **financial assistance of \$3 billion** to help set up a Maritime Development Fund (MDF). The government will **contribute 49 percent** of the fund with the remaining balance to be contributed by port authorities and the private sector. The fund will be accessed via equity or debt options. Primarily, the fund is targeted in financing ship acquisitions, consistent with the government policy of boosting Indian-flagged ships' share in the global market by **up to 20 percent by 2047**. In addition, an indigenous fleet will reduce India's dependence on foreign ships, improving the balance of payments. The government believes that by 2030, the MDF will be generating **up to \$17 billion in investment** in the shipping sector.



Source: Messe Düsseldorf: ctillmann

2025 boot Düsseldorf exceeds expectations

The world's largest boat and watersports show, boot Düsseldorf, drew to a close on Sunday, attracting **more than 200,000 people** during its nine-day run. They came **from 113 countries**, a third of them from abroad. The Netherlands, Belgium, Italy, Great Britain, France, Turkey and Switzerland led the statistics in terms of visitor countries, although the number of interested parties from North America and Asia continues to grow.

While visitor numbers were slightly down from last year's figure (214,000), manufacturers and dealers reported great interest in buying and many successful business deals were signed. Some **1,500 exhibitors from 67 countries** were present in 16 exhibition halls, confirming the show's pole position on the international trade fair market.

According to a visitor survey taken at the show, **94% of visitors** said they were "very satisfied" with the range of powerboats and sailing yachts on display, as well as surf and diving equipment, tourism and charter offerings. An important hallmark of boot is its high international attendance in terms of both exhibitors and visitors. **Over 63%** of the companies and dealers at the fair travelled from other European countries and overseas to Düsseldorf, with the major producing nations Italy, the Netherlands and France in the lead.



Norway introduces zero-emission requirements for World Heritage fjords

The Norwegian government has announced a groundbreaking environmental initiative to introduce zero-emission requirements for tourist ships and ferries operating in the country's World Heritage fjords. The new regulations, starting **from 1st January 2026**, aim to preserve these natural wonders, and promote sustainable tourism.

Minister of climate and environment, Andreas Bjelland Eriksen, stated, "The goal is to preserve these spectacular fjords and promote sustainable tourism. The zero-emission requirement will drive technological development, reduce emissions, and ensure that the World Heritage fjords remain attractive tourist destinations."

The regulations will initially apply to **tourist ships and ferries under 10,000 gross tons**, with a phased implementation plan for larger vessels. Ships exceeding this size threshold will need to comply with the zero-emission **mandate by 1st January 2032**.

In parallel with these fjord conservation efforts, Norway is implementing several updates to environmental regulations in Svalbard. These updates impact permanent residents, individual travellers, researchers, and tourism operators.

Key changes, **implemented on 1 January 2025**, include stricter camping regulations, which now require a permit from the Governor for extended stays. Drone usage is also more heavily restricted, with a ban on flights **within 500 metres (1,640 feet)** of bird cliffs between April and August. Additionally, speed limits have been introduced for boats near walrus haul-out sites and bird cliffs to minimise disturbances to wildlife.

Polar bear conservation measures have also been strengthened, requiring **a minimum distance of 300m (985ft)** from bears, **increasing to 500m (1,640ft)** from March to June.

REPORT bites

Royal Boskalis B.V. has announced the addition of a new subsea rock installation vessel, the “Windpiper,” to its fleet. With a massive cargo capacity of 45,000 metric tons, this new vessel will be the largest in the industry.

Western Belle, a cherished member of the Ullswater ‘Steamers’ fleet in Cumbria, UK, was launched in 1935 and is celebrating her 90th birthday this year.

Work is underway to build what is being billed as the most sustainable cruise ship. Known as Captain Arctic, it is designed to present a new level of luxury expedition in the Arctic.

CANAL Laureate Roy McFarlane has become an ambassador for Lichfield and Hatherton Canals Restoration Trust (LHCRT).

KRM Yacht has taken a significant step forward in the world of superyacht refit and repair with the successful testing and operational launch of its new 900-ton travel lift at its Tuzla, Istanbul facility.

Following last year’s successful relaunch, Germany’s SAY Carbon Yachts has announced ambitious plans for the brand and new product launches for 2025.

A team of divers exploring near Kalpeni Island in the Lakshadweep archipelago has found the wreckage of a European warship, believed to date back to the 17th or 18th century.

According to Bureau Veritas, IACS is starting a new campaign during 2025, to track the results of emergency power supply tests on ships.

Gibraltar’s Ocean Village and Marina Bay facilities now have an “innovative design of new superyacht berths” after an upgrade development was planned and overseen by Swanwick, UK-based Marina Projects Ltd.

The Dali, known for being at the centre of last year’s most prominent shipping incident, has resumed sailing.

IACS releases new guidelines on safety standards for surveyors

The International Association of Classification Societies (IACS) has introduced new recommendations to enhance safety standards for surveyors.

The new guidelines, Rec. 184, recognise that surveyors continue to face significant occupational health and safety (OHS) risks at work.

There is growing recognition that some of the safety challenges that surveyors’ face would benefit from improved collaboration and sharing of experience to establish a more consistent approach.

Designed to creating safer working conditions for surveyors and all personnel engaged in maritime operations, these guidelines outline critical measures to mitigate risks and addresses key areas such as risk assessments and situational awareness, ensuring that they are equipped to handle the hazards they may encounter.

By introducing these guidelines, IACS aims to enhance OHS standards, prioritising the safety and well-being of surveyors and all associated personnel. This initiative supports the development of consistent OHS practices across classification societies and contributes to a safer and more sustainable maritime industry.

Key highlights of the guidelines include:

- **Comprehensive Risk Management:** The document provides guidance for surveyors to exercise appropriate risk assessment and situational awareness prior to commencing work for prevention of accidents, near-misses, injury or ill health to surveyors, associated personnel and damage to property.
- **Increased Focus on Collaboration:** IACS encourages surveyors to share experiences and safety challenges to improve the overall safety culture across the maritime industry.
- **Fitness for Work:** The guidelines emphasize the importance of physical and mental readiness, including undertaking all periodical medical checkups required by their society.
- **Fatigue Management:** The guidelines stress the importance of ensuring adequate rest to prevent fatigue, which can impair performance and increase the risk of accidents.
- **Empowering Surveyors to Use Stop Work Authority:** Surveyors are empowered to stop work if they believe safety conditions are at risk, ensuring that corrective measures are taken before continuing with tasks.
- **Use of Personal Protective Equipment (PPE):** The guidelines mandate the use of appropriate PPE and provide instructions on the maintenance and replacement of worn or damaged gear.
- **Standardised Safety Practices:** The guidelines reinforce the importance of uniform safety practices, ensuring that surveyors adhere to a consistent set of safety protocols regardless of the work environment.

The guidelines further address activities that pose elevated OHS risks for surveyors, providing tailored recommendations to enhance safety. These include working at height, transfers between boats, and performing surveys in confined spaces or using rafts. The document also covers managing pressure tests, control of stored/electrical energy, and participation in sea trials. Additionally, it highlights precautions for exposure to extreme weather conditions, hazardous materials, and travel-related safety concerns, ensuring surveyors are equipped to navigate the varied risks associated with their roles.

Download the guidelines at <https://bit.ly/42DYYkp>.

SAFETY Briefings



AMSA's guidance on upcoming changes to SMS requirements

The Australian Maritime Safety Authority (AMSA) has released information on new safety management system (SMS) requirements for domestic commercial vessels, which comes into effect from 1 June this year.

Key changes

- Simplified SMS: Owners of some vessels under 7.5 metres will be eligible for a simplified SMS. Use our online simplified SMS tool to find out if the simplified SMS applies to you.
- Fatigue management: Vessel owners will need to identify and address the risk of master and crew fatigue in the vessel's risk assessment. This does not apply to Class 4 vessels.
- Drug and alcohol policy: Vessel owners will need to have a drug and alcohol policy in the vessel's SMS to manage the risks associated with drug and alcohol use.
- Cargo and dangerous goods: Vessels undertaking cargo operations, including the carriage of dangerous goods, will need to include a procedure in their SMS outlining how they manage the specific risks.
- Key operational procedures to be covered in every SMS: Class 1, 2 and 3 vessel owners will need to have procedures covering the key vessel operations in their SMS, if relevant.
- Vessel emergency plans: Loss of propulsion and oil or fuel spills will need to be covered in the vessel's emergency plan, if relevant.
- Master and designated person responsibility statement: The master's responsibility and authority statement has been clarified to better outline their authority and there is now a requirement to set out a designated person's responsibility statement. Different rules may apply to vessels eligible to operate under a simplified SMS in certain circumstances.
- Assembly station requirements: Alternative assembly stations will only be required if reasonably practicable based on the vessel's layout, characteristics and risk assessment. Different rules may apply to vessels eligible to operate under a simplified SMS.
- Record of vessel modifications: Vessel owners will need to identify risks to vessel stability in the vessel's risk assessment and maintain a record of vessel modifications impacting stability. This does not apply to Class 4 vessels and different rules may apply to vessels eligible to operate under a simplified SMS.

Find out more: <https://bit.ly/3ZMUzbz>.

Automatically deploying liferaft affixed to the retrofitted fiberglass top.



Figure 1 – The 41-foot commercial fishing vessel

USCG safety alert: Lifesaving equipment stowage on CFVs

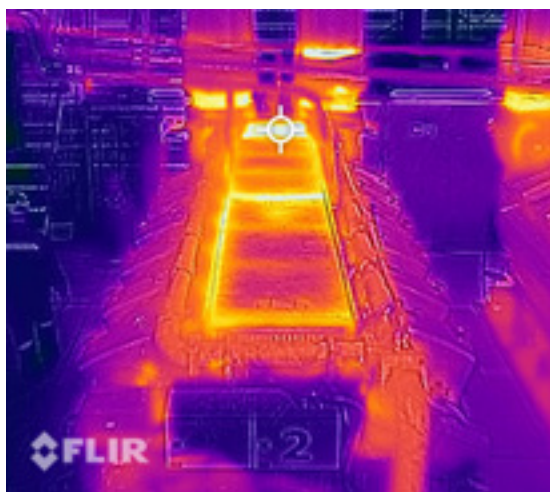
The United States Coast Guard has published issued Safety Alert 01-25 to address hazardous stowage of lifesaving equipment on commercial fishing vessels (CFVs) following two recent marine casualties. Both incidents demonstrated the critical importance of proper storage and accessibility of lifesaving equipment to ensure the safety of crew members during emergencies.

In the first incident, a 41-foot CFV capsized and sank within two minutes after taking on water. The personal flotation devices (PFDs) were not stored in a location that could be easily accessed by the crew. As a result, the crew was unable to retrieve the PFDs before abandoning the vessel. Additionally, the vessel's liferaft and its hydrostatic release unit were improperly attached to an aftermarket fiberglass canopy. This canopy broke away and floated free during the capsizing, preventing the automatic deployment of the liferaft. Fortunately, one crew member managed to swim to the floating canopy and manually deploy the liferaft, averting a worse outcome.

In the second incident, a 60-foot CFV caught fire, forcing the crew to evacuate rapidly. Although the crew retrieved PFDs before abandoning the vessel, these were not stored in a readily accessible location. Instead, the PFDs were stowed in the galley beneath bench seating, far from the crew's normal workstations such as the bridge or aft deck. Additionally, the vessel's throwable liferaft was stored under an internal pilothouse ladder located directly above the engine room, where the fire originated. The intensity of the fire made it impossible for the crew to retrieve the liferaft before abandoning the vessel.

To prevent similar hazardous situations, the Coast Guard strongly recommends that CFV operators take the following actions:

- Ensure that automatically deployable liferafts are securely attached to strong, permanent, and original structures on the vessel, with no overhead or nearby obstructions that could interfere with their float-free deployment.
- Stow manually deployable liferafts in compliance with U.S. Coast Guard requirements under 46 CFR 28.125, which mandate that they be stored in locations that are readily accessible for deployment during emergencies.
- Store PFDs in locations that are easy for all crew members to access, ideally in a manner that would allow them to float free in the event of a capsizing.



Report into fire on board ro-ro ferry

At 2115 on 11 February 2023, a fire broke out in the engine room of the roll-on/roll-off passenger ferry Stena Europe while on passage from Rosslare, Ireland, to Fishguard, Wales.

The fire on board ro-ro ferry caused significant damage to the engine room but nobody was injured and there was no damage to the environment. The fire was extinguished by the crew.

Safety issues

- The fire ignited on a main engine when pressurised fuel from a loose fuel pipe connection sprayed onto a high temperature exhaust pipe. Neither of the designed protections against fuel fires (spray shielding on fuel pipes and insulation of hot surfaces) were effective.
- The original fuel pipe connections had previously been identified as a system weakness, but the manufacturer's recommended modifications had not been fitted to the engine.
- The ship's crew were insufficiently trained to inspect engine fuel systems.
- The temperature measuring equipment used by the crew to monitor the engine exhaust insulation did not effectively identify any hot spots.

Recommendations

A recommendation (2024/170) has been made to the Maritime and Coastguard Agency to submit a paper to the IMO proposing the introduction of a requirement for the use of thermographic equipment to identify exposed high temperature surfaces. Recommendations (2024/171 to 2024/174) have also been made to Stena Line Ltd to: review the existing defect reporting system; provide training to improve equipment inspections; promulgate details of this accident to the ships in its fleet; and introduce the use of thermal imaging cameras for the identification of exposed high temperature surfaces.

Read the report at <https://bit.ly/3ChDBdS>.

New solution aims to address harmful mould infestations on vessels

The potential dangers of mould found on ships and boats is not fully understood by some marine surveyors. It can be extremely harmful and is a serious health hazard. VIKAND has developed a solution to address the growing concern of mould infestations on vessels.

Mould, particularly the black variety, poses a serious health risk in the damp, humid environments. It can lead to respiratory problems, allergic reactions, and long-term health complications. Mould often grows in hidden spaces such as air ducts, plumbing systems, and behind walls, making it difficult to detect until it becomes a larger issue.

If left unaddressed, mould infestations can undermine both the health of passengers and crew and the operational safety of the vessel. Timely intervention is key to mitigating these risks.

The air purification technology works by generating hydroxyls, natural molecules that neutralize mould spores, bacteria, viruses, and other airborne contaminants. The system provides continuous purification of both air and surfaces, offering a long-term solution to mould growth.

In practice, it has been shown to eliminate up to 99.9999% of viruses, bacteria, and mould, with significant reductions in mould levels within minutes, VIKAND claims.

"It is crucial to address mould growth promptly to prevent health issues. This includes maintaining low indoor humidity levels, fixing leaks, and ensuring proper ventilation. Overall, while mould is a common environmental issue, its potential health impacts should not be underestimated," stated Mattias Hallberg, Director, Technical Solutions.

Website: <https://vikand.com>

Cashew nutshell marine biofuel warning sent out

Several ships in Singapore and Rotterdam have reported issues after using cashew nutshell marine biofuel. Reported operational problems included fuel sludging, injector failure, filter clogging, system deposits and corrosion of turbocharger nozzle rings. CTI-Maritec carried out extended gas chromatography mass spectrometry testing for very low sulphur fuel oil samples from the vessels. The results showed the fuel was blended with Cashew Nutshell Liquid (CNSL) from undeclared source materials or production processes.

CNSL, a non-FAME biofuel, is a naturally occurring by-product of the cashew nut industry and acts as a low-cost alternative renewable fuel. It has high acid values and is therefore highly corrosive as well. High potassium found in CNSL blend fuels cause serious post-combustion deposits and corrosion of turbocharger nozzle rings.

The latest version of ISO:8217 specifies the accepted biofuels such as FAME-based biofuels, hydrotreated vegetable oil, defined by the specifications of EN 14214, ASTM D6751 and EN 15940 respectively. These fuels are now established and acknowledged by equipment manufacturers, classification societies and flag administrations as 'drop-in' fuels. There is no specification available for CNSL from any authorised body like above.

SAFETY Briefings

Proper stowage of mixed cargoes on bulk carriers

The American P&I Club has raised concerns that have arisen regarding the loading of finished and unfinished steel products alongside break-bulk, containerized, and project cargoes in the same cargo hold of bulk carriers.

Examples of break-bulk, containerized, and project cargoes include large, heavy, oversized items, machinery parts, crates, and heavy-duty wheeled items such as trucks, cranes, or pay loaders. Unlike vessels dedicated to carrying break-bulk, containerized, or project cargoes, bulk carriers are not fitted with suitable lashing and securing arrangements.

The irregular sizes, shapes, and weights of such non-pure-bulk cargoes are challenging to safely lash and secure, and typically require makeshift arrangements. Furthermore, such arrangements are challenging for the crew to supervise for safety when a vessel is at sea.

Wheeled cargoes pose a particular risk due to their higher propensity to shift. The stowage and securing of wheeled cargoes are addressed specifically in Annex 4 of the Cargo Stowage and Securing (CSS) Code.

Similarly, break-bulk or project cargoes are often stowed atop steel cargoes. While specified finished and semi-finished steel cargoes are subject to a pre-load survey, as stipulated in the August 19, 2024, Club Circular No. 16/24, Steel Cargo Pre-Load Surveys, operators should also consider employing experienced surveyors familiar with the stowage and securing of break-bulk, containerized, and project cargoes intermixed with or over stowed on top of other cargoes, given the related risk of damage caused by excessive weight or improper securing of such non-pure-bulk cargoes.

The cost of utilizing an experienced surveyor outweighs the potential losses to the cargo, vessel, or injuries to the crew that may arise from a lack of expert assistance during loading.

The essential steps that should be in hand and approved prior to loading cargo are as follows:

- The vessel's stowage plan should be made available well in advance of loading.
- Upon receipt of the stowage plan, the Master should input the relevant data into the loadicator to ensure the vessel's shear force bending moment (SFBM) and stability are within the applicable limits.
- It should be clear how the cargo is to be secured as per the Cargo Securing Manual (CSM), and that relevant stowage and lashing materials and equipment are available aboard the vessel in compliance with the CSS Code.

Shipowners have the responsibility to ensure that the vessel is suitable and fit for purpose to carry break-bulk cargo, containers, and project cargoes with due regard to statutory regulations and classification society standards. The flag State-approved CSM should be on board the vessel as it provides the approved lashing and securing arrangements, in addition to detailing the lashing devices available on board. However, the lashing material for break-bulk cargo, containers, and project cargoes is usually provided by the charterers.

If specified cargoes are not allowed to be loaded as per the vessel's CSM, the owners should notify the charterers and consult their classification society and/or flag State for further guidance. The Master ultimately has the responsibility to ensure that the cargo is safely handled, stowed, and secured as per applicable regulations.



Always review hazardous zone requirements

The US Coast Guard (USCG) has emphasised the critical need for hazard awareness and proper marking of hazardous zones following a recent marine incident involving a tri-fuelled vessel that resulted in severe injuries to crewmembers.

Despite being aware of nearby crankcase and LNG purge vents in their work area, the crew did not know that the vessel was actively using methane as a fuel source. As a result, the work was being conducted in a hazardous zone. Although marked as a hazardous zone on the vessel's plans, the zones were not physically or otherwise marked as hazardous on the deck, providing no visual indication to the crew of the potential hazards present.

While the crew performed assigned work on top of the pilothouse, a failed engine purge valve actuator released LNG vapours through the vents located in the crew's work area. Believing the area was gas-free, a crewmember struck a lighter, igniting the LNG fumes and causing severe injury to both crewmembers in the area. This incident shows the critical importance of hazard awareness, proper marking of hazardous zones, and strict adherence to safety protocols.

The Coast Guard strongly recommends that vessel owners, operators, and other stakeholders:

- Review hazardous zone requirements and ensure crewmembers are fully aware of the circumstances and dangers that define hazardous areas.
- Ensure all hazardous zones are clearly marked and crewmembers are aware of the locations and associated hazards.
- Marine inspectors, investigators, and surveyors should remain vigilant about these issues and take corrective actions as needed.

REPORT bites

Turkey's newest marina, Gazipaşa Gold Marina, has officially started operations in Antalya – a premier tourist destination located on the Turkish Mediterranean coast that attracts nearly 16 million tourists per year.

BC Ferries has formally submitted its largest-ever capital investment proposal to the BC Ferries Commissioner, seeking approval to build five New Major Vessels.

Heavy lift shipping specialist Boskalis has delivered the car carrier Fremantle Highway – renamed Floor – from the Netherlands to China using its semi-submersible vessel, Boka Vanguard.

It has been announced that Montenegro is reinstating duty-free fuel for foreign yachts and vessels starting in 2025.

At the end of 2024, the container ship order book was 8.3m TEU, a new record compared with the previous high of 7.8m TEU in early 2023, according to Niels Rasmussen, Chief Shipping Analyst at BIMCO.

The Australian government has provided First Port of Entry status to three ports in Western Australia's north: Wyndham, Ashburton and Dampier.

A new report, 'Economic Impact of International Yachting in Tonga,' highlights the potential for yachting tourism to boost the country's economy, reports talanoaatonga.to.

Pleasure boats will not return to Bournemouth Pier in the UK this summer following the deaths of two children in 2023.

Norwegian shipbuilder Vard announced it has joined the Nuclear Propulsion of Merchant Ships project, joining collaborators exploring the use of next generation nuclear reactors as a power source for ships.

NTSB report on dinner cruise vessel Spirit of Boston fire

An improperly extinguished chafing fuel heating canister, canned heat used to keep food and beverages warm, led to a fire on the passenger vessel Spirit of Boston last year while moored at the Commonwealth Pier in Boston Harbor.

On March 24, 2023, a fire broke out on the Spirit of Boston's first deck wait station after the scheduled cruise had ended, the vessel had docked and all passengers had departed. NTSB investigators determined the fire started under a plastic glassware rolling cart after an improperly extinguished chafing fuel heating canister was unintentionally dropped by hospitality staff in the area. None of the service workers who were onboard at the time of the fire were injured. The fire resulted in \$3.1 million in damages to the vessel.

All of the marine crewmembers had departed the vessel before the fire began. Without a properly trained marine crewmember onboard with the remaining hospitality staff, the emergency response plan for a fire could not be executed as intended. The NTSB found that the fire could have likely been extinguished before it grew had a marine crewmember been on board at the time. The NTSB recommended City Cruises US, operator of the Spirit of Boston, require at least one marine crewmember to remain on board its vessels until all noncrew personnel depart the vessel.

Investigators also found City Cruises US lacked documented procedures on how to handle open-flame devices on its vessels. Hospitality staff were verbally instructed on how to handle the heating canisters. NTSB investigators found in some cases the hospitality staff did not consistently extinguish canisters in accordance with the verbal instructions or manufacturer's guidance. The NTSB recommended City Cruises US develop procedures for crewmembers and hospitality staff on the proper handling of open-flame devices on board its vessels.

The NTSB also recommended City Cruises US implement a safety management system, or SMS, for its fleet. An SMS is a comprehensive, documented system to enhance safety for a company and its vessels and when implemented is an effective tool for safety oversight. Procedures for handling open-flame devices and requirements for crewmembers to be on board would typically be included in an SMS.

The NTSB also reiterated a safety recommendation to the U.S. Coast Guard to require all operators of U.S.-flag passenger vessels to implement SMS. The NTSB has advocated for SMS for passenger vessels since 2005, and in 2010, Congress explicitly granted the Coast Guard the authority to require such systems. Progress has been stalled since January 2021 when the Coast Guard took initial steps to address the NTSB's recommendation.

Read the report at <https://bit.ly/4a8JSod>.



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REPORT bites

The International Association of Classification Societies (IACS) issued guidelines for monitoring and safety functions of Exhaust Gas Cleaning Systems (EGCS) to ensure compliance with marine pollution regulations.

CalMac's long-awaited new ferry Glen Sannox has formally entered service after completing her first voyage with passengers, running from Troon to Brodick in Scotland.

Christchurch, New Zealand based Fabrum and King Watercraft have partnered to develop a hydrogen-powered rigid inflatable boat (RIB) designed for tourism, commercial, and recreational use.

Walter N. Meloan, former Correct Craft CEO and member of the Wakeboarding Hall of Fame, has passed away at the age of 87.

The French Grand Large Yachting group has announced a new science project with the Canary Islands-based Biocean marine science research and tourism company on an ambitious citizen science project.

DP World's global container terminal portfolio has grown by a third over the last decade to hit the landmark 100 million teu in capacity.

Goltens hosted a keel-laying ceremony for the innovative Polar expedition vessel Captain Arctic, which has been purpose-designed to redefine sustainable maritime travel.

Van Oord has taken delivery of the world's largest wind turbine installation vessel, Boreas, during a ceremony at China's Yantai CIMC Raffles shipyard.

DNV has launched a new family of class notations, Autonomous and Remotely Operated Ships (AROS), providing a framework for how autonomous vessels can achieve equivalent or higher safety compared to conventional vessels.

Proactive measures to mitigate fire hazards including thermal imaging

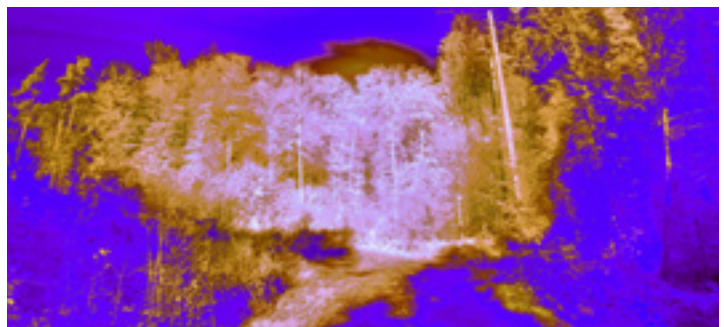


The American P&I Club urges operators to implement proactive measures such as maintenance and thermal imaging to mitigate fire hazards. Thermal imaging inspections are highlighted as an effective tool by the American Club in identifying early heat signatures caused by electrical faults, which could escalate into a fire if left unchecked. Fires of this nature often stem from one or a combination of three primary causes: electrical system failures, machinery malfunctions, and human error.

Although the likelihood of a fire may be low, specific conditions, such as defective thermal insulation on hot surfaces combined with localized fuel or oil leaks, can create a serious fire risk. Additionally, the complexity and number of electrical connections onboard vessels amplify the challenge of monitoring these systems during routine inspections, further underscoring the importance of rigorous preventive measures.

Thus, proactive maintenance and regular inspections of relevant components on board their vessels is an integral part of each vessel's planned maintenance system. Specifically, this should include:

- Implementation of a detailed shipboard maintenance plan based on the manufacturer's recommendations, operation, and maintenance specifications.
- Availability of specialized instruments, testing equipment, guidance, and the upkeep of adequate spare parts.
- Crew training to ensure the proper use of equipment and implementation of the shipboard maintenance plan.
- Ship management's commitment to supporting and following up on the maintenance plan and arranging timely shore-based service.
- Regular inspections of critical components, logging results using traditional testing tools and visual inspections, or preferably by using thermal imaging instruments.



SAFETY Briefings

MAIB report: Man overboard from potting vessel Pioneer with loss of 1 life

On the morning of 29 July 2021, the skipper of the UK registered potting vessel Pioneer (NN200) accidentally entered the water as the vessel was heading back to its beach standing in Hastings, England. Pioneer's sole deckhand was unable to pull him back on board and the skipper was later recovered from the water with the help of a rescue helicopter's winchman and airlifted to hospital, but he could not be revived.

The MAIB investigation found that Pioneer had a low bulwark at its aft deck, which did not prevent the skipper's fall into the water. At the time of the accident neither the skipper nor deckhand were wearing a personal flotation device, although two were available on board.

Critical safety equipment was either missing, incorrectly fitted or out of date. There were no risk assessments held on board, emergency drills had not been practised and the skipper had not undertaken mandatory risk awareness training. Collectively, these deficiencies indicated that Pioneer was being operated with a low standard of safety management at the time of the accident.

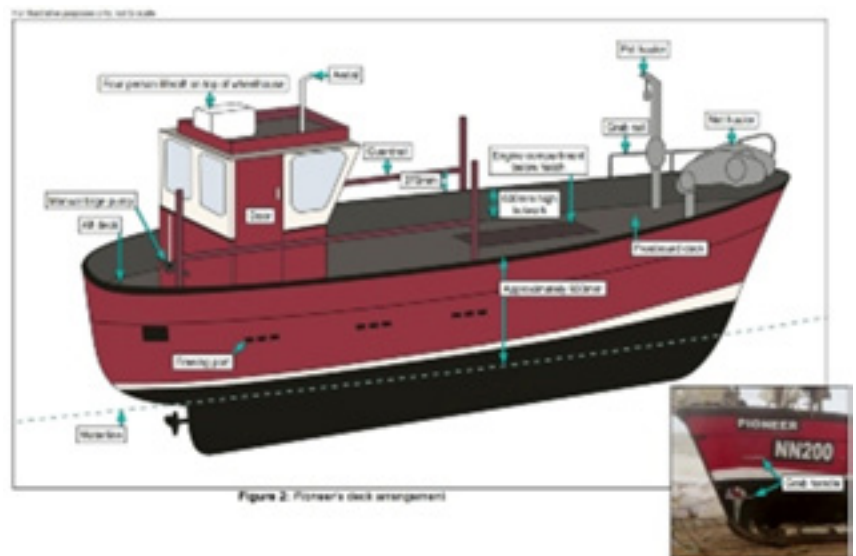
Conclusions

Safety issues directly contributing to the accident that have been addressed or resulted in recommendations

1. The low bulwark around the aft deck offered little protection from falling overboard, and the skipper was not wearing a tethered safety harness to mitigate the risk of falling overboard.
2. The lack of an effective means of recovering an unconscious person and the absence of MOB drills impeded the deckhand's ability to recover the skipper from the water.

Other safety issues directly contributing to the accident

1. The skipper's fall into the water was not observed but could have been the result of the vessel's movement, a slip or trip, or a non-fatal heart attack.
2. The skipper died because of immersion in the water leading to a heart attack and dry drowning.
3. The skipper was not wearing a PFD and it would have taken considerable effort to remain afloat in the developing swell.
4. The skipper had a pre-existing heart condition, which combined with the effect of cold-water shock may have affected his ability to respond to this accident.
5. The skipper had not completed the Safety Awareness and Risk Assessment course and so may not have had a full appreciation of the risks associated with his vessel's operation.



U.S.C.G. releases Lithium Battery Guide for shippers

The United States Coast Guard has published a helpful compliance resource, Lithium Battery Guide for shippers. The publication aims to assist shippers to safely package lithium cells and batteries for transport by all modes, including vessel shipments, with new regulatory requirements based on cell or battery configuration as well as Watt-hour (Wh) rating.

As described in the guide, the transport of lithium cells and batteries via vessel can be subject to both the domestic regulations and the International Code for the International Maritime Dangerous Goods (IMDG) that may require additional actions. Both publications should be consulted based on shipment route.

Download the PDF at <https://bit.ly/423e7el>.



Marshall Islands publishes Blue Cecil report after enclosed space entry deaths

The Republic of the Marshall Islands Maritime Administrator has released its report into the deaths of three crewmembers on bulk carrier Blue Cecil in 2023. The vessel's C/E, ETO and Fitter died after they were found unconscious inside of Cargo Hold No. 1. Despite a rescue attempt, with all three being recovered from the hold, they were unresponsive and did not respond to CPR. A post-mortem examination by the Philippine authorities determined their deaths was "asphyxia by suffocation."

The following lessons learned were identified:

- Entering a loaded cargo hold without authorization and without following established shipboard enclosed space entry and rescue procedures is extremely hazardous and should not be attempted.
- Physical boundaries are critical for preventing unauthorized access into an enclosed space.
- Enclosed space rescue procedures must be properly practiced and drills conducted as if they were a real emergency.
- Stop-work authority can prevent marine casualties. For stop-work authority to be effective, crewmembers must not only be aware that they have this authority, but they must also have confidence that the authority is non-negotiable and can be exercised without fear of repercussion. They must also be as familiar with how to issue and respond to a stop-work action or instruction as they are with their other shipboard duties.

The Republic of the Marshall Islands Maritime Administrator's marine safety investigation determined that the C/E, ETO, and Fitter had entered Cargo Hold No. 1 to recover the welding cable and other tools 9 without complying with the Company's enclosed space entry procedures despite the Bosun's prior warning to the C/E that it was dangerous and required permission from the Master.

Read the Blue Cecil report in full at <https://bit.ly/4jl2HJr>.



Marshall Islands issues fatal falls from height warning

The Republic of the Marshall Islands Maritime Administrator has published Yacht Safety Advisory 13-24 on fatalities due to falls from height.

Since 2019, falls from height on RMI-flagged commercial vessels have been the leading very serious marine casualty (VSMC) by incident type. It accounts for 31% of VSMCs and has resulted in 22 deaths. In the last two years, 11 seafarers have died falling from height. The maritime authority has stressed the importance of wearing fall protection equipment when a risk of falling from height exists.

Recommendations:

- The Administrator strongly recommends that the owner or the owner's representative review and amend, as necessary, onboard safe working practices to ensure they comply with the requirements outlined in the RMI Yacht Code (MI-103). The review should take into account task and location specific safety assessments addressing the risk of falling.
- Masters should hold a special safety meeting to review and discuss the information provided in this Yacht Safety Advisory and attached Safety Flyer on Falls to ensure that risks of falling from height are adequately understood.
- It is also recommended to display the accompanying Safety Flyer on Falls on board in areas where yacht crew are likely to interact with it daily.

Download the advisory and flyer at <https://bit.ly/4jrSqv9>.



Carriage of plastic pellets by sea in freight containers

The Liberia Maritime Authority has sent out recommendations for the carriage of plastic pellets by sea in freight containers. These recommendations are the first step in a two-stage approach aimed at reducing the environmental risks associated with the carriage of plastic pellets in packaged form by sea, pending IMO's consideration of future mandatory measures for their carriage.

Summary of the Recommendations

1. Plastic pellets should be packed in good quality packaging which should be strong enough to withstand the shocks and loading normally encountered during transport. Packaging should be constructed and closed to prevent any loss of content which may be caused under transport normal conditions.
2. Transport information should clearly identify those freight containers containing plastic pellets. Additionally, the shipper should supplement the cargo information with a special stowage request requiring stowage as outlined in item 3 below.
3. Freight containers containing plastic pellets should be properly stowed and secured so as to minimize the hazards to the marine environment without impairing the safety of the ship and persons on board, either under deck wherever reasonably practicable, or inboard in sheltered areas of exposed decks.



Improper use and installation of hoses may result in fire

The Norwegian Maritime Authority (NMA) issued an alert urging all shipping companies to ensure that hoses installed or intended to be installed in connection with the engine and in the engine-room of their vessels are type-approved and installed according to the supplier's installation instructions.

The Norwegian Maritime Authority highlighted that this is particularly important for hoses and fittings where damage or rupture could result in oil or other flammable liquids splashing onto hot surfaces, increasing the risk of fire.

A thorough mapping and risk assessment must be carried out for all hot surfaces that may pose a fire hazard. Additionally, the NMA recommends the protection and insulation of hot surfaces, hoses, pipes, connectors and related components.

MSC.1/Circ.1321 – 11 June 2009 – Guidelines for measures to prevent fires in engine-rooms and cargo-pump rooms.

- Hoses should be constructed to a recognized standard and be approved as suitable for the intended service, taking into account fire resistance, pressure, temperature, fluid compatibility and mechanical loading including impulse where applicable.
- Hoses should be installed in accordance with the manufacturers' instructions, having regard to: minimum bend radius, twist angle and orientation, and support where necessary. In locations where hoses could possibly suffer external damage, adequate protection should be provided. After installation, the system should be operated at maximum pressure and checked for possible malfunctions and leakages.

Following a fire in the engine room of a vessel, the NMA has been informed that the fire was caused by a ruptured hose, which resulted in oil splashing onto hot surfaces.

The hose used on board was not intended for use on board vessels (it was designed for industrial applications) and was not installed in accordance with the supplier's instructions.

REPORT bites

The U.S. Navy has announced the names for the fifth and sixth carriers of the Ford class. They will be named USS William J. Clinton (CVN 82) and USS George W. Bush (CVN 83) noting that it follows a Navy tradition of often naming aircraft carriers after U.S. presidents.

West P&I Club has fully acquired Nordic Marine Insurance (Nordic), subject to regulatory approval. The former initially acquired a significant stake in Nordic in 2020.

Correct Craft announced it is proudly to celebrating its Centennial Anniversary in 2025. Since its founding in 1925, Correct Craft has grown into a global leader in the marine industry.

COSCO SHIPPING announced that China Shipping & Sinopec Suppliers conducted China's first ever domestic ammonia bunkering operation.

Stena Line's ferry services on the Holyhead-Dublin route resumed on 16 January 2025 following the closure of the ferry berths at Holyhead Port in early December 2024 caused by extreme weather.

U-Boat Worx, the Dutch maker of personal submersibles, hit a significant milestone in 2024, launching its 60th sub, a Super Yacht Sub 3.

Broom Boats, one of the UK's most respected boatbuilders, is delighted to announce the commencement of the build for its first new boat since 2019 – the Broom Admiral.

Brazilian President Luiz Inacio Lula da Silva has signed into law a bill authorizing the development of offshore wind farms, a statement said.

After two years of review, the National Oceanic and Atmospheric Administration (NOAA) has decided to drop a proposed speed-limit rule intended to protect endangered North Atlantic right whales from ship strikes.

Spain has reported a 15.9% fall in recreational boats and personal watercraft in 2024.



Fire damper location importance highlighted in circular

Companies should review the placement and labelling of fuel quick-closing valves and assess the operation of fire dampers, advises the Norwegian Maritime Authority. The recommendation comes following a fire on a Norwegian vessel.

During the incident, quick-closing valves were used to shut off the diesel supply to the auxiliary and main machinery. However, the control handles for the quick-closing valves for the emergency generator were located in the same cabinet, leading to the unintended shut-down of the emergency generator.

On the same vessel, handles for closing fire dampers were located within a partially enclosed area. As a result, crew members tasked with closing the dampers had to enter a smoke-filled area, exposing themselves to smoke and requiring medical attention.

The Authority now recommends companies assess and improve the location and labelling of quick-closing valves. More specifically, quick-closing valves for the emergency generator should be positioned separately from those controlling the auxiliary and main machinery. Additionally, it is crucial that the crew members are familiar with the location and operation of these systems during inspections and drills.

Alarm instructions should align with the procedures practised during on-board drills.

It added it advises companies and ship designers to position fire damper controls in a way that minimises the risk of smoke exposure. For existing vessels, it recommends identifying potential risk areas and implementing corrective measures as necessary. During on-board fire drills, particular attention should be given to any areas that may lead to smoke exposure for the crew members.





Transport Malta investigation into boiler explosion death

Transport Malta has released an investigation report into the boiler explosion on board oil/chemical tanker Torc, resulting in the death of a crewmember.

The incident took place on 8 January 2024 as the Maltese-registered ship was traveling between Agioi Theodorai and Genoa.

On 03 January 2024, Torc departed Agioi Theodoroi, Greece, after discharging part of its cargo of Paraffin. The vessel was bound for Genoa, Italy with an expected date of arrival of 10 January 2024. Shortly after departing from Agioi Theodoroi, the engineers changed over the boiler fuel consumption to very low sulphur fuel oil (VLSFO) for both boilers. However, the starboard boiler failed repeatedly to start. Eventually, both boilers were restarted on low sulphur marine gas oil (LSMGO). On the morning of 08 January 2024, the engineers, in consultation with the master and chief officer, decided to change over the fuel consumption of the boilers from LSMGO to VLSFO.

Just before 1400, the boiler fuel consumption was changed to very low sulphur fuel oil. Both boilers failed to fire because of low fuel oil temperature. Subsequently, the port boiler started working normally, but the starboard boiler failed to fire. Eventually, another attempt was made to restart it. While it was on the purge cycle, the second engineer went up to the burner platform to inspect it. At 1406, a loud explosion was heard and a fire started at the top of the starboard boiler. The fire alarm sounded within a few seconds.

The engineers went up to the boiler platform, to find the second engineer lying unconscious on top of the starboard boiler. The water mist system installed above the port boiler activated and the crew extinguished the fire with the help of portable extinguishers. The second engineer was carried outside onto the poop deck and placed in the dry provision room. The master sought medical advice from the company doctor and broadcast an emergency signal on the Digital Selective Calling system. Although the crew members attempted cardiopulmonary resuscitation, the second engineer passed away at around 1450.

Chemical analysis results made available to the safety investigation revealed that at the time of the explosion, the boiler was burning LSMGO and in the process of changing to VLSFO. The safety investigation believes that the cause of the explosion on boiler no. 1 was excessive vaporised LSMGO inside the unit and the likely presence of unburnt LSMGO inside the boiler.

Read the report in full at <https://bit.ly/4au23Fl>.

Counterfeit pilot ladders lead to USCG warning



The United States Coast Guard (USCG) has issued a safety alert after discovering counterfeit pilot ladders during a Port State Control examination at the Port of Baltimore. The identification plate on the ladder contained several errors, including referencing ISO 779-1 instead of the correct standard, ISO 799-1, and lacking the ISO 799-1 designation type.

Additionally, while the serial number on the ladder matched the accompanying certificate, the number of steps and the length of the ladder did not align with the specifications listed on the certificate. The plate and certificate indicated that the ladder was produced by "QINGDAO GOOD BROTHER MARINE LIFE SAVING APPLIANCE Co. LTD.," a company that manufactures SOLAS-approved pilot ladders. However, in March 2019, the Australian Maritime Safety Authority (AMSA) identified counterfeit pilot ladders falsely bearing this company's name and SOLAS certification.

The Coast Guard strongly recommends that ship owners and operators:

- Thoroughly inspect pilot ladders to ensure vessels are outfitted with genuine SOLAS-approved equipment.
- Verify certification details. Check for proper ISO approval numbers and ensure the specifications on the certificate match the actual ladder.

Download the marine safety alert at <https://bit.ly/3DZBSKt>.

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IIMS is dedicated to developing the next generation of marine surveyors by offering quality qualifications that are recognised throughout the maritime world. Both IIMS professional qualifications are equivalent to a level 4/5 education qualification and can be studied on a distance learning basis. All you need is access to the internet.

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LETTER TO THE EDITOR

Dear Sirs,

Having read "ISM Code: The Maritime Scam of The Century" by Hon FIIMS, Past President Mr. Bertrand Apperry, in The December 2024 report, I decided to express my opinion regarding some aspects of the above-mentioned article.

First, I would like to thank the author because of the main conclusion – the ISM Code to be revised based on the 30 years of its implementation experience. As a marine principal surveyor and ISM/ISPS/MLC lead auditor/inspector of the leading RO (30 years of activity) I think that I can express my opinion about problems pointed out in the article.

1. Introduction: Why have we created the ISM Code?

Comment: In 1993 LR organized in the Odesa Institute of Marine Engineers, Ukraine, presentation of the ISM Code for local shipping companies, mariners, etc. The speaker was Capt. Burney from LR HQ. In the very beginning of this presentation, he said that IMO did an analysis of the ship's accidents and concluded that 70% is in the West part of the world and 30 % is in the East part of the world (At that time it was the Cold War). What was the reason for such results? That time crews of the East countries were only citizens of these countries and only one working language was used on board. The planned maintenance scheme and drills were on the top of the Captain and Chief Engineer concern. Many ships had two crews – one at sea, second on vacation, crew members considered their vessel as their second home and there was not any experience regarding cheap crew from another country.

2. The weak points of the Code and its application.

Comment: Audits by RO on board consists of two parts – documents review (in the ship office and engine room office) and tour on the ship, supervision of the drill, interview of the seafarers. DPA and CSO are not always on-board during audits. Now ISM/ISPS/MLC audits/inspections are planned for a few man-days and may be done by at least 1 or 2 auditors to manage audit during one visit (especially it is important for container vessels, tankers, car carriers). Sometimes the PSC officer is on board, and it may increase the time of the audit. According to ISM Code company to be audited annually, vessels – one time for a 5-year period. During 2-3 years on board many crews changed, some LSA, FFE, emergency, security equipment may be changed without appropriate reflection in the SMS or SSP. Such a situation is not a rare one on board now.

3. Final Conclusion.

Comment: I did not touch on some problems mentioned in the article regarding training, company responsibility, captain's responsibility, etc. As a conclusion I can say that the ISM Code to be revised based on all criticism that may be expressed. Vessel audits to be done annually. DPA and CSO must attend at least one of the vessel's annual audits. Responsibility of the DPA and CSO to be in some items increased and it has to be reflected in the scope of the DPA and CSO training programs and certificates.

Best Regards,
Oleksandr Ryzhkov
Marine surveyor/auditor
Odesa, Ukraine

Letter



Obituary: John de Freitas *MIIMS*

Written and spoken by his friend and colleague Capt Allen Brink HonFIIMS.

Today, we gather to honour and celebrate the life of a truly extraordinary person, my dear friend, mentor, and business partner, John de Freitas.

John and I first crossed paths while working within the Rennies Shipping Group in Durban. He was a Director at Rennie Murray & Company, the Lloyd's Agents, and I was a marine surveyor with their sister company, P&I Associates.

Our connection began in the most unexpected way when we discovered that we shared the same birthday, the 17th of May. That moment, on our birthday in 1981, marked the start of a friendship that would last a lifetime. Despite being 16 years my senior, John and I quickly developed a close bond during my three years at P&I Associates.

In July 1983, I took the leap of establishing my own independent marine surveying and consultancy company, A R Brink & Associates. While I ventured into this new chapter, John and I remained friends. Then, in August 1987, after 33 years with the Rennies Group, John made the decision to join me as a partner.

John was a man of remarkable honesty and unwavering integrity. When he left Rennies, he made it clear that he would not approach any of his former clients before officially joining me. He couldn't guarantee that his move would bring additional business to our partnership, and he wanted to ensure everything was above board.

A couple of months into working together, John visited his former clients, not to solicit business, but simply to inform them of his new chapter. Their response was astounding. They followed him to our company; demonstrating the immense respect and trust they had in him. To them, John wasn't just a representative of Rennies; he was *their* surveyor. This trust was a testament to John's unparalleled character and the relationships he had built.

With John as my partner, our business flourished beyond our expectations. We expanded, hired new staff, and in 1989, acquired our own office building in Maydon Wharf, proudly named ARB House. Many will remember the two large ship's anchors that adorned the front entrance, a symbol of the solid foundation we built together.

John chose to retire at the age of 65, some 22 years ago. Even in retirement, he continued to contribute to the marine surveying industry, never one to sit idle. He regularly visited the office, mentoring junior surveyors, consulting on projects, and even building a client base of his own. John often joked that staying active in work kept his mind sharp, and it certainly did. He was a remarkable example of vitality and dedication.

Sadly, in mid-2024, John's health began to decline, and we lost him on 26 December.

John was so much more than a colleague or a friend. He was a true gentleman, a mentor, and a confidant. He touched the lives of everyone who knew him with his warmth, wisdom, and unwavering kindness.

To Eleanor, Marco, and Alex - may John's love, legacy, and the countless memories you shared bring you comfort, peace, and strength in the days ahead.

We have all lost an incredible friend, an extraordinary man, and a rare soul. He will forever remain in our hearts and memories.

Rest in peace, John. You will be deeply missed.

Your friend, Allen Brink



Announcing an essential one-day hybrid IIMS London Conference on 13 May 2025

After a few years' absence from London, IIMS is delighted to announce a return to the 'Big Smoke' for an important one-day Conference. The event will be held at the Thomas Miller building, 90 Fenchurch Street, London, but online delegates are encouraged to attend. The event is open to IIMS members and all comers.

Boldly titled "Marine Surveyors, P&I Clubs, and Loss Prevention: Collaboration for Safer Seas", a heavyweight group of well-known authoritative speakers has been lined up including Guy Platten (Key Note speaker), Stuart Edmonston (UK P&I Club), Nick Sloane, John Lloyd (Nautical Institute), Jeremy Russell KC (Quadrant Chambers), Karley Smith (Brookes Bell) and Amelia Dunn (ITIC).

For full details of the speakers and presentation topics, and to reserve your place go to <https://bit.ly/3DSyaCm>.

An IIMS memory from back in time: How it all started

Capt Erik Hammarstrom writes...

When cleaning my desk after well over 40 years in the marine surveying field I found a copy of notes from the inaugural meeting for the formation of IIMS together with some photographs with participants from the meeting at Baltic Exchange on 14 August 1991 when the decision under the chairmanship of Capt Bill McDonald was taken to initiate the founding of IIMS.

Looking back to that day when we met at the Baltic Exchange, it is quite rewarding to see that the seed planted on 14 August 1991 has grown into a sturdy professional organization with a number of important branches, today rooted all over the world and serving the marine industry in varying ways.

And most important is that the idea of establishing a platform for initial and further education of marine surveyors has been achieved in order to set professional standards and expanded knowledge to ensure clients with urgent needs of marine surveying will be served by a professional, competent, experienced and certified attendee.

Date for your diary: IIMS Annual General Meeting

Members are hereby notified that the 2025 IIMS AGM will take place as an online only event on 3 June. Watch for more details.



IIMS is considering launching a formal mentoring scheme for members and students

If you are an IIMS member and are interested in potentially becoming a mentor to other less experienced members and perhaps students, then we would like to hear from you – no obligation at this time of course.

Over a number of years, IIMS has assessed the possibility of developing a mentoring programme, but it is not an easy task. But thanks to an IIMS member who has come up with a blueprint, the proposal is now under serious consideration. But before any scheme can be launched, we need to know that there are enough potential mentors at worldwide locations who might be interested in doing this.

Many of us throughout our careers will have benefitted from being mentored by a more experienced colleague. It is one of the ways in which we grow and develop as individuals.

Mentoring is described as a collaborative relationship where an experienced person, or mentor, helps a less experienced person, or mentee, grow and develop through shared knowledge and experiences. Mentoring can take place in a variety of settings, using various different methods.

To express your interest in receiving more details about becoming an IIMS mentor at some point in the future, please complete the simple online form at <https://bit.ly/4j8DC4b>.



Norrköping 4 January 2025



There's a new face at IIMS HQ

Alex Ockenden joined IIMS in February 2025 in the position of Web & Social Media Administrator. In her new role, Alex will be focused on curating and managing content across all social media platforms as well as helping to develop the company's web presence. Additionally, Alex will take responsibility for monitoring and mediating the various IIMS WhatsApp groups.

Alex has two degrees; one in digital media production and the other a master's in digital marketing. Alex is an avid reader of fantasy and historical fiction and also enjoys gaming and writing.

We wish Alex well in her new role.

IIMS Yacht & Small Craft training event 13 March 2025

(Southampton and Online)

09:00 *Registration, tea and coffee.*

09:30 – 10:10: Welcome and introduction by Mike Schwarz, IIMS CEO with an update on the Institute's activities and new initiatives.
10:10 – 11:00: Jamie & Liam, Ocean Safety, will give a brief overview of things surveyors should be expected to look for when inspecting a vessel. They will bring an Ocean ISO liferaft (packed and armed) ready to fire. Some of the features of the rafts will be explained along with changes to the latest ISO 9650 standard and the differences between the ISO and SOLAS standards.

11:00 – 11:15: *Coffee Break.*

11:15 – 12:30: David O'Neill, Advanced Energy Solutions: Basic understanding of Lithium based marine solutions, strengths and weaknesses.
12:30 – 13:15: Marcus Jones who sits as part of the IMarEST special interest group looking into lithium-ion batteries follows David to give his view of this technology.

13:15 – 14:00: *Lunch.*

14:00 – 14:45: Phil Duffy talks about how to value large yachts and small craft.
14:45 – 15:45: Karen Brain, Matrix Insurance (Insurance topic to be confirmed).
15:45 – 16:30: Graham Harrison, Chaucer Insurance, speaks from an underwriter's perspective (to be confirmed).

16:30 *Close*

To book your place securely online go to <https://bit.ly/4hFpH4F>.



Recent new IIMS members, upgrades and graduates

Full members

Mohamad Shahrin Bin Basoat	MIIMS	Indonesia
Edward Borger	MIIMS	Panama
Luis Gomez	MIIMS	Mexico
Malcolm Mackellar	MIIMS	UK
Geetansh Kapoor	MIIMS	Oman

Affiliate members

Arif Erdem	AffIIIMS	Turkey
Serkan Kotel	AffIIIMS	Turkey
Vasyliov Vadym	AffIIIMS	Netherlands

Associate members

Ioan-Romeo Toma	AssocIIIMS	Canada
Darrell Broscomb	AssocIIIMS	UK
Jonathan Spiller	AssocIIIMS	UK
Richard Thompson	AssocIIIMS	UK
Theophilus Ablorh	AssocIIIMS	Africa
Olimpia Lischi	AssocIIIMS	Italy

Technician members

Zbigniew Piatkowski	TechIIMS	Poland
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Graduate members

Ugur Pehlivanoglu	GradIIMS	Turkey
Venugopal Gangadharan	GradIIMS	India
Alistair Dingwall	GradIIMS	UK
James Johnson	GradIIMS	UK
Dominic O'Donnell	GradIIMS	Australia

IIMS congratulates Dominic O'Donnell, James Johnson and Ugur Pehlivanoglu for completing their studies in the IIMS Professional Qualification in Yacht and Small Craft Marine Surveying.

IIMS congratulates Alistair Dingwall and Venugopal Gangadharan for completing their studies in the IIMS Professional Qualification in Cargo & Commercial Ship Marine Surveying.

eCMID AVI scheme set to celebrate its tenth anniversary

The Marine Surveying Academy (MSA), a trading division of IIMS, successfully launched the eCMID Accredited Vessel Inspector scheme nearly ten years ago for IMCA (International Marine Contractors Association). Over that time, the relationship between the two organisations has flourished, as indeed has the scheme and it is now unrecognisable from where it started.

If you are not familiar with the eCMID platform, its aim is to provide a structure for the audit, or inspection of commercial vessels used in the offshore industry, conducted by accredited vessel inspectors working on behalf of owners or clients.

So, the aim of the eCMID system is not to assess a vessel's suitability for a task or contract, but to provide three measures of vessel safety and environmental assurance:

1. the safety of personnel;
2. the protection of the environment;
3. and to visually assess the internal integrity of the vessel's hull (watertight integrity).

Over 1,000 applications for accreditation have been received and processed by MSA since its launch in May 2015. It seemed only fitting to mark this milestone anniversary with a face-to-face gathering (although more distant online delegates are welcome too) which is being held in Amsterdam on Tuesday 20th May 2025. The event is preceded the night before with a special gala buffet dinner.

Here's what we have planned: (subject to amendment):

09.20 - Mike Schwarz

CEO, IIMS (International Institute of Marine Surveying) & MSA (Marine Surveying Academy): Welcome and introduction.

09.50 - IMCA (International Marine Contractors Association):

- **Mark Ford** (pre-recorded presentation)
- **Adam Hugo** presenting remotely: eCMID AVI system and pathway updates

Ade Adebanjo from the IMCA IT department will be at the event in person and can answer any further system-based questions.

10.50 - Coffee break

11.05 - Mike Schwarz in conversation with **Ian Coates**, one of the first AVIs to be accredited and the scheme's initial tutor.

11.30 - Joe McWilliam

eCMID AVI Assessor & Tutor (subject to confirmation): Robustness of the scheme and lessons learned over ten years.

12.00 - Mike Proudlove

FIIMS, IIMS Vice President: Things you would rather not see on inspection!

12.40 - Lunch

13.40 - Bo Kiel Jespersen

Lead Marine Inspector, Ørsted: Consistency of eCMID inspections and findings from a client's perspective.

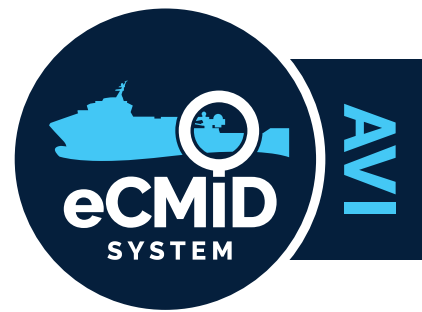
14.10 - Peter Solvang

Managing Director, DP & Marine Assurance Norway AS: MASS / USV eCMID developments.

14.50 - Kerrie Forster

CEO The Workboat Association: IMCA International workboat code and challenges for the AVI scheme over the next 10 years.

15.30 - Questions and close.



10 years

To book your place go to <https://bit.ly/41mDAPC>.

New vessels review



Aquila Boats launch two new coupe models

Aquila introduced two new coupe models at February's 2025 Miami International Boat Show. The 42C and 46C are the first in a whole new line of coupe-style performance cruisers and include Aquila's trademarked Aquila Hydro Glide Foil System.

The system has one forward foil and one aft foil between the hulls to help lift the boats partially out of the water. Together with narrow, chined hulls, the foils will help get the boat on plane and allow it to semi-foil to reduce the hull's wetted surface area for greater speed and efficiency.

Both models are offered standard with twin outboards or optional twin inboard sterndrives. Standard power on the 42C comes from twin 400-hp Mercury V-10 Verados. Optional power is by twin Volvo 440-hp D6 DPI sterndrive diesels. The 46C is offered standard with twin 600-hp Mercury Verado V12s. Optional power is by twin Volvo 440-hp VD6 DPI Volvo sterndrive diesels. Top speed for both boats is over 40 knots.



Fast crewboat trio to support West Africa oil and gas operations

Singaporean shipyard Strategic Marine has delivered new aluminium-hulled surface effect ship (SES) crewboats to Dutch operator All Energies Services (AES).

The Bureau Veritas-classed, 35-metre (110-foot) long Energy Craft 3514-01, Energy Craft 3514-02, and Energy Craft 3514-03 were designed in collaboration with French marine engineering firm Aircat Vessels and Norway's Espeland and Skomedal Naval Architects (ESNA) specifically for offshore crew transfer operations.

With a reinforced hull and SES active motion dampening technology, each crewboat was designed to ensure safe and efficient transfers even in sea states characterised by wave heights of up to 2.5 metres (8.2 feet). By utilising a network of sensors and computer-controlled air dampers, the vessel dynamically adjusts to changing sea conditions, optimising both efficiency and comfort at high speeds. This advanced system ensures real-time adaptation to the marine environment for superior performance.

New dual-fuel car carrier delivered to China's BYD

China's Guangzhou Shipyard International recently delivered a new pure car and truck carrier (PCTC) ordered by local vehicle manufacturer BYD.

The newbuild has an LOA of 199.9 metres, a beam of 38 metres, a design draught of 8.6 metres, a capacity of 7,000 vehicles distributed across 13 decks, and a dual-fuel propulsion system that will run on both LNG and conventional fuel oil. BYD opted for LNG to serve as the ship's primary fuel due to its significantly reduced NOx and SOx emissions compared to conventional marine fuels. LNG fuel is fed to the engines and the generators by two IMO Type C storage tanks. In LNG mode, the ship can still attain a speed of 19 knots and sail up to 15,800 nautical miles.

Image credit: Strategic Marine



New vessels review



Spain's tax agency takes delivery of new offshore patrol vessel

The Spanish Tax Administration Agency (Agencia Estatal de Administración Tributaria; AEAT) recently took delivery of a new offshore patrol vessel (OPV). Peregrino I will be operated out of the AEAT's station in Cadiz. The vessel's duties will include patrol, surveillance, interception, counter-smuggling operations, and enforcement of both national and international law within Spanish waters.

The OPV has an FRP hull, an LOA of 35.3 metres, a beam of 6.2 metres, a depth of 3.4 metres, two 12,000-litre fuel tanks, and space for 10 crewmembers and other personnel.



First flying electric ferry in the U.S. destined for Lake Tahoe

Swedish boatbuilder Candela and a company called FlyTahoe have announced that the first U.S.-based electric foiling ferry, the Candela P-12, will soon debut on Lake Tahoe.

The P-12 is a 30-seat vessel, designed to accommodate both skis and bikes, uses hydrofoil technology computer-guided underwater wings to fly above the water's surface.

The wings lift the hull above the water, significantly reducing drag and cutting energy consumption by about 80 percent compared to conventional vessels. The P-12 can be fully propelled by renewable electricity instead of fossil fuels, while providing a smooth ride above the waves at high speeds, making seasickness an unlikely event.

New electric river ferry to be operated in West Bengal, India

Indian state-owned shipbuilder Garden Reach Shipbuilders and Engineers has handed over a new electric catamaran ferry to the Transport Department of India's West Bengal state. Dheu ("Wave") has an aluminium hull, an FRP superstructure, a length of 24 metres, an air-conditioned cabin that can house 150 passengers, and a 246kWh liquid-cooled battery that drives two 50kW motors connected to propellers to deliver a top speed of 10 knots. The battery can be charged via shore connection or a set of onboard PV panels with a total output of 18 kWh. A 50kW diesel generator is also fitted for use during emergencies. Dheu was built in compliance to Indian Register of Shipping class rules.



New vessels review



ACUA Ocean launches new SWATH unmanned surface vessel

Autonomous unmanned surface vessel (USV) developer ACUA Ocean, United Kingdom, recently completed the test launch of the USV Pioneer from its base at Turnchapel Wharf, Plymouth, England.

The Pioneer-class program began in 2022 with funding from the UK Department of Transport's Clean Maritime Demonstration Competition. Initial concepts and designs were developed by naval architect John Kecsmar of Ad Hoc Marine Design, specializing in small waterplane area twin hull (SWATH) vessel design. The design phase was completed in February 2024, and construction began at Aluminium Marine Consultants (AMC) on the Isle of Wight in March 2024.

According to ACUA, the 46.5' vessel exceeds the stability and seakeeping performance of monohull vessels over 10 times its displacement and three times its length.

Palm Beach announces new GT RS Series

Palm Beach Motor Yachts isn't a builder that tends to shy away from a thrill ride and its new GT RS series should thrill any boater. The hulls will use Palm Beach's unique V-Warp technology, which besides lightweight construction, according to the builder also includes "a fine entry, a graceful curvature amidships and minimal deadrise at the transom."



The GT70 RS can be outfitted with triple Volvo Penta 1,000-hp IPS 1350s, while the GT60 RS will be powered by quad V12 600-hp Mercury outboards and the first GT50 RS will sport quad V8 500-hp Mercury Racing outboards.



Germany's first fully electric seagoing vessel completes trials

The first fully electric seagoing vessel in Germany, a catamaran ferry, has completed its acceptance trials and is preparing to be deployed. It joins a growing number of battery-powered ferries that are demonstrating the growing opportunities for electric power.

The vessel, E-Kat, designed and built by Damen Group in Gorinchem, Netherlands. The ferry is built of aluminium with a length of approximately 106 feet (32.3 meters) and a capacity for up to 150 passengers. It has a payload of 11,250 kg.

The first-of-its-kind ferry for Germany will operate at speeds of 16 knots (19 maximum capability) between Norddeich in western Germany on the North Sea and the Norderney, one of the East Frisian Islands. That will make it possible to reduce the travel time by almost half to just 30 minutes. They expect to make up to eight trips a day.

MasterCraft Boats has announced the all-new XStar lineup

With a complete redesign spanning from bow to stern, the new XStar lineup will include both a 23-foot and a 25-foot model. For nearly three decades, Mastercraft has offered the XStar as its gold standard in performance and innovation.



"The new XStar is more than just a boat—it's the ultimate embodiment of MasterCraft's dedication to innovation, performance, and luxury," said Greg Miller, Vice President of Global Sales at MasterCraft, in a press release. "As the flagship of our fleet, it stands as both a testament to our rich legacy and a bold vision for the future. Our team is unwavering in its commitment to crafting high-quality, high-performance boats that serve as the centerpiece of unforgettable moments with friends and family. This latest XStar iteration redefines the boating experience, taking it to unprecedented heights without compromise."

The XStar 23 and 25 will both debut the all-new MasterCraft Aft Audio Experience (MAAX) - a transom audio system with six subwoofers, 10 interior cockpit speakers, four tower speakers, and six transom speakers. With seven customizable audio zones, including dedicated zones for surfers, the XStar audio system redefines towboat audio performance.

New vessels review

New tug launched for McAllister

Washburn & Doughty Associates, Inc., East Boothbay, Maine, has launched a new tractor tug for New York-based McAllister Towing. The 93'x38' Isabel McAllister was launched and christened by the company's president, Buckley McAllister.

"This 6,770-hp, 80-metric ton tug will serve the maritime transportation system for decades," McAllister wrote. "Vessel sponsor Isabel Fitzsimons is the great-great-granddaughter of the legendary family matriarch Isabel 'Belmar' McAllister."

The newbuild will undergo sea trials before delivery to McAllister Towing in the coming weeks and as yet the vessel's port of service remains to-be-determined. Isabel McAllister features a pair of EPA Tier IV compliant Caterpillar 3516E engines that power Schottel SRP 490 FP z-drive units. Its expected bollard pull is 84 tons.



Isabel Fitzsimons, great-great-granddaughter Isabel "Belmar" McAllister, with new tug Isabel McAllister in the background.



Van Oord takes delivery of Boreas

Rotterdam-based offshore construction company, Van Oord, has taken delivery of the offshore installation vessel, Boreas, at Yantai CIMC Raffles Offshore in China. Named after the Greek God of the northern winds, the vessel has been designed to transport and install the latest foundation modules and turbines at offshore wind farms.

Following a voyage to the Netherlands and final outfitting work including installation of equipment for storing and handling wind turbine foundations, the vessel will be officially named. It is likely to become commercially available during the third quarter of the year.

The 175m-long unit has a 155m-high boom capable of lifting 3,000 tonnes. Four large legs, each measuring 126m, will enable the vessel to work in water depths of up to 70m. It will be capable of installing wind turbines of up to 20MW, making it the largest such vessel so far. Van Oord has opted to have the vessel ready to use methanol as fuel, reducing its carbon footprint by close to 80%, the company claims.

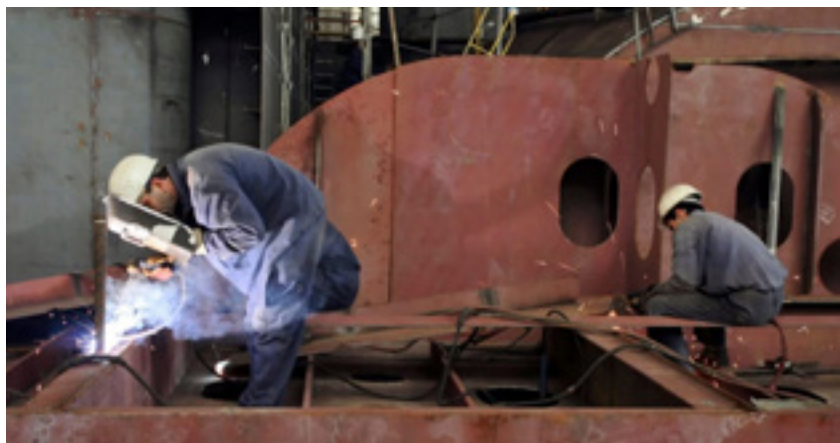
KingFisher extends into cruising sector

British Columbia, Canada-based heavy duty aluminium boat builder KingFisher Boats, has extended its product range into the weekend cruising sector with the announcement of two new 'pocket cruiser' models.

The all-new 23 XAC and 25 XAC models are said to be "designed for families, offering a hybrid solution for both fishing and cruising" according to the firm. The new models are positioned as suited to weekend getaways in coastal markets such as the Pacific Northwest and the Great Lakes – and to fall under the C\$250,000 threshold for Canada's luxury tax.

Both the 23ft 23 XAC and 25ft 25 XAC are built on a welded, heavy-duty aluminium hull with a 16 degree variable deadrise to handle ocean swells, with extra-large 322 L fuel tanks for extended operating range. Notable features include an extra-large cuddy cabin with a V-berth, USB charge points, direct bonded glass windows, tinted side cabin windows with integrated sliders and screens, and a roof hatch with a screen for ventilation.





New pollution fines in Turkish waters for 2025

Turkish law firm Esenyel & Partners has published of the new pollution fine tariffs that were applicable as of 1 January this year.

The new fine rates were published on 27 November 2024 in the Official Gazette and increased by 43.93%. Pollution fines are categorized into four groups: A, B, C, and D.

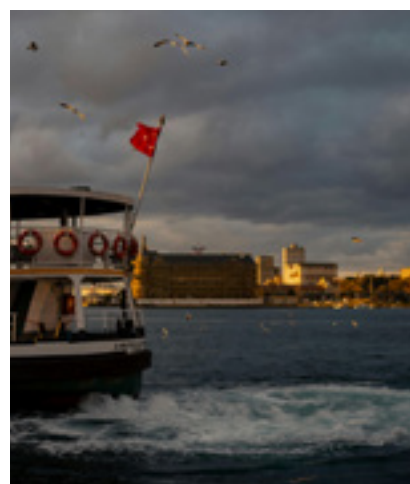
An objection can be raised against the fine before the respective courts within 30 days as of the date of the service of the fine.

If any dangerous substances or hazardous wastes are discharged into the sea, the fine will be 10 (ten) times the amount calculated using the category of petroleum and petroleum product fines as a basis.

Regarding to previous amendment which has been released on 2022, the pollution fine amount will be applied doubled if the pollution has occurred in the limits of the special protected area which includes the Marmara Sea and some several ports.

If it is decided to settle the fine, 25% discount will be applied if the fine is paid within 30 days as of the date of the service of the fine.

Find out more about the categories and fine amounts at <https://bit.ly/3VGJZ4G>.



CCS issues rule change notice for materials and welding

The China Classification Society (CCS) Rule Change Notice No. 1, effective from January 1, 2025, outlines updates to the CCS Rules for Materials and Welding. This notice addresses key changes in the rules related to metallic materials, welding, and non-destructive inspections.

Part One, which focuses on metallic materials, includes Chapter 6 on steel castings. The notice states that test material must be provided in sufficient quantities for required tests and potential retests, with test blocks representing the properties of the entire casting. The test sample thickness should be at least 30mm or equal to the ruling section of the casting, whichever is greater. For thin-walled steel castings, the thickness of the test sample must be at least 20mm. The test samples must be heat-treated along with the castings before detachment and must meet specific size and location requirements based on ISO standards. In the case of small batch testing, separately cast test samples may be used if they meet the minimum thickness specified by recognized standards like ISO 4990.

Chapter 9 addresses other non-ferrous materials, specifically copper alloy propellers. For these propellers, the standard practice is to cast separate keel block-type test samples. If the test bars are attached to the blades, they must be

located between 0.5R and 0.6R of the propeller's radius, with specific dimensions given for the keel block test samples.

Part Three, which covers welding, includes Chapter 8, focusing on welding important machinery components. Section 4 details non-destructive inspection and weld repairs of propellers. It explains how liquid penetrant testing is used to detect indications such as cracks or discontinuities in the material. These indications are classified as non-linear, linear, or aligned, based on their size and shape, and each category has specific limits regarding the size and number of indications allowed, depending on the severity zone (A, B, or C). For example, in Zone A, a maximum of 7 indications is allowed, with non-linear indications limited to 5.

In terms of repairs, weld repairs in critical areas (Zone A) are generally not allowed unless specially approved by CCS. If repairs are permitted, they must be stress-relieved through heat treatment, and the procedure must be approved by a CCS surveyor. The repairs must maintain the blade thickness as per the approved design, and defects deeper than the allowable limits may require special consideration. In some cases, propeller designers may submit detailed hydrodynamic load and stress analyses to propose modifications to Zone A, which would be subject to CCS approval.

Download the notice at <https://bit.ly/4fVr5iM>.

IACS adopts new UR M85 for synthetic materials in propeller shaft bearings

The International Association of Classification Societies (IACS) has published a new Unified Requirement UR M85, providing the maritime industry with its first comprehensive technical guidelines for type approval testing of synthetic materials used in aftmost propeller shaft bearings.

Recognized as a critical component of a vessel's propulsion system, these bearings are essential for long-term operational safety and efficiency. The new UR M85 establishes a robust framework for type approval testing, setting new benchmarks for safety, reliability, and performance, to address a vital gap in maritime standards.

Furthermore, it outlines essential criteria to be met during type approval testing, outlining key areas to ensure material performance and durability in real-world conditions.

Key points include:

Type Approval Testing Requirements: A structured and detailed testing program is mandatory, incorporating a comprehensive description of each product, precise selection of test samples, and specific test conditions. This framework ensures alignment with industry standards, providing consistency and clarity for manufacturers.

Material Properties Compliance: Non-elastomeric and elastomeric materials used in aftmost propeller shaft bearings must satisfy strict property benchmarks, including tensile strength, elongation, and metal adhesion. These properties, detailed in associated tables within the UR, are crucial for maintaining structural integrity and performance across various operating conditions.

Accredited Testing Facilities: Type approval tests must be conducted in ISO/IEC 17025-accredited laboratories. This standardization ensures that material property tests are reliable, accurate, and conducted to the highest quality, reinforcing IACS's commitment to robust rule compliance.

Wear Testing Procedures: To assess material durability, wear testing must adhere to ASTM G77-17 or equivalent standards, with strict parameters specified for shaft material, lubrication type, and testing duration. These guidelines ensure consistent and reliable wear data, reducing variability and supporting predictable product performance.

Environmental Conditions for Testing: Testing must be conducted under strictly controlled environmental conditions, including regulated temperature, humidity, and the use of substitute ocean water. By simulating operational conditions, the UR ensures that materials are thoroughly tested for real-world application and resilience, thereby enhancing overall safety.

Type Approval Certificate Issuance: Following the successful completion of testing and submission of technical documentation, the Classification Society will issue a Type Approval Certificate. This certificate signifies product quality and conformity with IACS standards, instilling confidence among shipowners and operators.

IACS invites designers, manufacturers, operators and owners to adopt these requirements into their products and vessels, contributing to a unified approach for safer and more reliable maritime operations.



Denmark bans scrubber discharge from ships to protect its territorial waters

Denmark is set to ban the discharge of scrubber water from ships in its territorial waters starting July 1, 2025.

The new law, introduced in the Danish Parliament, aims to address marine pollution caused by harmful substances released during ship exhaust cleaning. Scrubber water is a by-product of "open scrubbers," which use water to clean exhaust gasses before dumping them into the sea. This water contains heavy metals and tars like lead, cadmium, and anthracene, which may harm marine life and humans by gathering on the seafloor and entering the food chain.

The Danish government also plans to tighten regulations for "closed-loop scrubbers," which store the used water for disposal at port facilities. Ships will need to use low-sulphur fuel or manage scrubber waste more responsibly.

The ban will be implemented up to 14 nautical miles off Denmark's coast. While Denmark cannot enforce the law in international waters, the government is working for similar bans in the Baltic and North Seas through regional agreements and the International Maritime Organization (IMO).

New regulations for 2025

Here's a roundup of some of the new regulations set to hit the statute book in 2025. *(With thanks to NorthStandard P&I Club.)*

STCW – Electronic Certificates

In accordance with the industry support to global digitalisation and as outlined within IMO MSC.107 - see <https://bit.ly/4fUk0OR> - MSC adopted amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, regulation I/2. This allows seafarers to hold electronic certificates if they meet certain requirements.

The amendments enter into force on 1 January 2025. Electronic certificates must show a minimum amount of information, circular MSC.1/Circ.1665 informs of these details. See <https://bit.ly/3Zd39RR>.

IMSBC Code Amendments

Amendments 07-23 to the IMSBC Code, resolution MSC.539(107), which have been in place on a voluntary basis since 1 January 2024, become mandatory on 1 January 2025. For more information go to <https://bit.ly/4fR9WGq>.

MARPOL Annex I – Special Area Updates

The Red Sea and Gulf of Aden become special areas effective from 1st January 2025. Ships transiting these areas must comply with regulations 15.3, 15.5 and 34.2 to 34.5 in line with MEPC.381(80) and MEPC.382(80).

A reminder that this requires any discharge of oily waste to be via approved oil filtering equipment meeting regulation 14.7 of Annex 1, (fitted with an alarm and automatic stopping device when oil content exceeds 15 parts per million) as well as the other conditions listed in Annex 1.

Vessels transiting these areas will now also have to comply with Annex V, Regulation 6, for waste management in special areas. A useful overview from the IMO can be found at <https://bit.ly/4fB3le4>.

A complete list of all special areas can be found at <https://bit.ly/3UXK7N1>.

FuelEU Maritime

FuelEU Maritime is a new regulation that will be implemented from 1 January 2025. This is applicable for all commercial ships >5000GT sailing within EU waters, and to and from EU ports. It has been adopted by the EU as part of their "Fit for 55" package to reduce greenhouse gas emissions in the maritime sector, by promoting the use of renewables and low-carbon fuels on ships, on a well-to-wake basis as well as future requirements for the use of shore power. The target reduction for 2025 will be 2% compared with 2020 reference levels.

The EU-MRV will also come into effect from 1st January 2025 for general cargo ships and offshore vessels of 400GT and above.

Ballast Water Management Convention (BWM) – Ballast Water Record Book

Effective from 1st February 2025, ship operators will need to complete the new Ballast Water Record Book format in line with MEPC.369(80). In accordance with regulation B-2, the amendments to Annex II have been made to enhance and clarify the required formatting. Updated guidance from the IMO BWM.2/Circ.80 should be used when completing records – see <https://bit.ly/3UUJ9B5>.

Additionally, the use of electronic record books for BWM will be allowed as of 1st October 2025 in line with IMO resolution MEPC.383(81). Electronic record books must be approved by the vessels flag administration. Guidance issued by the IMO in MEPC.372(80) for electronic BWM record books should be used – see <https://bit.ly/4fv4PvK>.

MARPOL Annex VI – Energy Efficiency Design Index (EEDI) Phase 3

In line with the IMO decarbonisation targets, EEDI ensures new vessels are designed to a minimum energy efficiency level. Phase 3 requires a reduction of at least 30% compared with the initial baseline. Whilst some vessel types were required to meet EEDI Phase 3 from April 2022, all remaining vessels greater than 400GT are required to comply with Phase 3 EEDI effective from January 1st 2025.

This applies to all new ships meeting the following criteria:

- the building contract is placed on or after 1 January 2025; or
- in absence of a building contract, the keel of which is laid on or after 1 July 2025 the delivery of which is on or after 1 January 2029.

MARPOL Annex VI

Emissions Control Area (ECA)

Effective from 1st May 2025, the Mediterranean sea will become part of an emissions control area under the IMO, reference MEPC.261(79). Vessels transiting this area will now require adherence to ECA regulations on sulphur oxides and particulate matter, burning compliant fuels of 0.1% Sulphur or having an approved EGCS in place. Vessels will need to obtain clear bunker delivery notes stating the sulphur content as well as recording this accurately into the Oil Record Book Part I. Vessels will require a written procedure describing how the fuel changeover is to be carried out, taking into consideration the time taken to entirely change over to compliant fuel within the complete fuel system pipelines.

Further Amendments

Further amendments have been made to MARPOL Annex VI as per IMO resolution MEPC.385(81) which will come into force on 1st August 2025.

Regulations 2, 14 and Appendix I has been revised to bring clarity to the definition of gas fuels as well as stating that the onboard sampling points do not apply to gas/low flashpoint fuels.

Regulation 18 has been revised to include gas/low flashpoint fuels into the bunker delivery note (BDN) requirements. Vessels operating on gas/low flashpoint fuels should ensure the BDN received includes all required information as per Appendix V of MARPOL Annex VI.

Regulation 13.2.2 clarifies that replacing a steam engine with a diesel engine is considered a major conversion. Replacement engines must comply with Regulation 13 for Nitrogen Oxides. In the event that a Tier III engine is not possible, a Tier II engine can be used in line with resolution MEPC.396(81). The flag administration must report this to the IMO.

Regulation 27 – Amendments to this regulation allow the IMO to share ships fuel oil consumption data with analytical consultancies and research entities with the companies consent under strict confidentiality. Additionally, Appendix IX has been updated for the information to be submitted to the IMO. This allows

for further granularity regarding fuel consumption and voyage data. Vessels over 5000GT should ensure their SEEMP Part II, for data collection, is modified to meet the new updates.

Hong Kong Convention on Ship Recycling

The Hong Kong Convention is aimed at ensuring ships, at the end of their operational lifespan, are recycled in an environmentally friendly and safe way. The convention was adopted in 2009 and will come into force on 26th June 2025. This applies for all ships over 500GT, which fly the flag of a party to the convention or operate under the authority of a flag which is party to the convention.

Vessels are required to have an inventory of hazardous materials, guidance on this can be found in IMO MEPC.379(80) at <https://bit.ly/3CC2wZq>. Furthermore, surveys are to be carried out, initially and throughout the vessel's lifetime, to verify the inventory of the hazardous materials as per MEPC.222(64). Once a vessel is at the end of its lifetime, the ship recycling facility is to prepare a Ship Recycling Plan which must be specific for each vessel. For guidance see <https://bit.ly/3OhXQdy>.

Isle of Man: Key changes to marine casualty reporting

The Isle of Man Ship Registry has issued Manx Shipping Notice 003 (Rev. 2) on December 20, 2024, to provide guidance on the reporting and investigation of marine casualties, accidents, and incidents. This notice is crucial for operators to ensure compliance with both the IMO Casualty Investigation Code and the Isle of Man's Merchant Shipping (Accident Reporting and Investigation) Regulations 2001, which apply the Casualty Code within the Isle of Man. The regulations were created before the IMO Casualty Code and contain some differences that operators should be aware of. The new requirements became effective from 1 January 2025.



Read the Shipping Notice at <https://bit.ly/4h0IYx7>.



AMSA update on weathertight and watertight integrity standard

The Australian Maritime Safety Authority (AMSA) has extended the deadline for vessels to comply with National Standard for Commercial Vessels (NSCV) Part 2 standard for weathertight and watertight integrity.

From 1 September 2025, the NSCV C2 will become mandatory for all new domestic commercial vessels that have a requirement to comply with Marine Order 503.

This standard aims to enhance safety by setting out clear standards for maintaining weathertight and watertight integrity. The date has been extended to provide industry additional time to transition to the standard.

Read the standard: NSCV C2 – weathertight and watertight integrity at <https://bit.ly/414NF3w>.

Read the PDF at <https://bit.ly/3YS6F2U>.

MCA publishes MGN for pre-registration surveys for fishing vessels

The UK Maritime & Coastguard Agency (MCA) has released an MGN giving guidance on Pre-registration Survey process for fishing vessels.

The Code of Practice for the Safety of Small Fishing Vessels of less than 15m Length Overall and the accompanying MSN 1871 Amendment 2 allow vessels of less than 15m Length Overall (LOA) built before 16 July 2007 to be considered by the Maritime and Coastguard Agency (MCA) for Registration as fishing vessels.

MGN 630 Amendment 4 (F) Fishing vessels: Pre-registration surveys for fishing vessels sets out the process in place to ensure the MCA is satisfied vessels are safe and suitable for commercial fishing.

This note also states that existing vessels of 15m LOA to less than 24m Registered Length wishing to join the Register may also, on a case-by-case basis, undergo the Pre-Registration Survey and the Note sets out the processes in place for this.

This Amendment sets out a revision to the process by which Pre Registration Comparison Reports will now be submitted by the Fishing Vessel Certifying Authority (FVCA) to the MCA Statutory Services Delivery Team (SSDT).

Read the MGN: <https://bit.ly/4eyV7XZ>.

New MCA documents published during December 2024 and January 2025.

Published 31 December 2024

MGN 705 (M) Remotely operated unmanned vessels (ROUVs) of 2.5 metres to less than 4.5 metres in length overall

This Marine Guidance Notice (MGN) explains a General Exemption which has been issued for Remotely Operated Unmanned Vessels of 2.5 to <4.5 metres in length overall.

Go to <https://bit.ly/3ZYhvVu>.

Published 2 January 2025

MIN 538 Amendment 7 (M) Codes of Practice – Authorisation of Certifying Authorities

The purpose of this MIN is to provide contact details of MCA authorised Certifying Authorities.

Go to <https://bit.ly/40iAB8N>.

Published 2 January 2025

MIN 698 Amendment 1 (M) Workboat Code Edition 3 – standards and guidelines for best practice

This MIN provides a summary of the standards referenced and guidelines in The Workboat Code Edition 3. This M Notice is intended to supplement the Code.

Go to <https://bit.ly/4g4pHJD>.

Published 13 January 2025

MGN 319 (M+F) Amendment 2 - Acceptance of electronic chart systems for fishing vessels and small vessels in commercial use (code boats) up to 24 metres in load line length (SV-ECS)

Guidance on the use of SV-ECS on small commercial vessels up to 24 metres in load line length.

Go to <https://bit.ly/42gooo0>.



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SAFETY CAMPAIGN



2024

IMPA Beliefs

- The public interest is best served by a fully regulated and cohesive pilotage service free of commercial pressure.
- There is no substitute for the presence of a qualified pilot on the bridge.
- IMO is the prime authority in matters concerning safety of international shipping.
- All states should adopt a responsible approach based on proven safety strategies in establishing their own regulations, standards, and procedures with respect to pilotage.
- IMPA represents the international community of pilots. We use the resources of our membership to promote effective safety outcomes in pilotage as an essential public service.
- Existing and emerging information technologies are capable of enhancing on-board decision-making by the maritime pilot.

Download the Safety Campaign Report at <https://bit.ly/4fAUHln>.

Pilot ladders remain the leading source of non-compliant observations says IMPA

The latest International Maritime Pilots' Association (IMPA) Safety Campaign report on pilot ladders raises awareness of the need for pilot transfer arrangements to be procured, inspected, maintained and rigged in compliance with SOLAS regulation V/23, taking complete account of the ISO 799 standards. IMPA highlights that Pilot ladders remain the leading source of non-compliant observations.

The results of the 2024 IMPA Safety Campaign show that there's no significant change to historic non-compliance trends. The campaign took place from 1 to 15 October. In 2024, the survey was supported for the first time by a native application, which is anticipated to help more maritime pilots actively participate in the future.

Key findings of the 2024 IMPA Safety Campaign:

- Non-compliance rate: 13%
- Number of reports: 4,052
- Number of pilots participating >500
- Highest rates of non-compliance found in Europe (19%) and Australasia (23%)
- No significant change to historic non-compliance trends
- Pilot ladders remain the leading source of non-compliant observations
- 9% of non-compliant pilot ladders were not secured to a strongpoint
- Retrieval line rigging and pilot ladder serviceability remain weaknesses

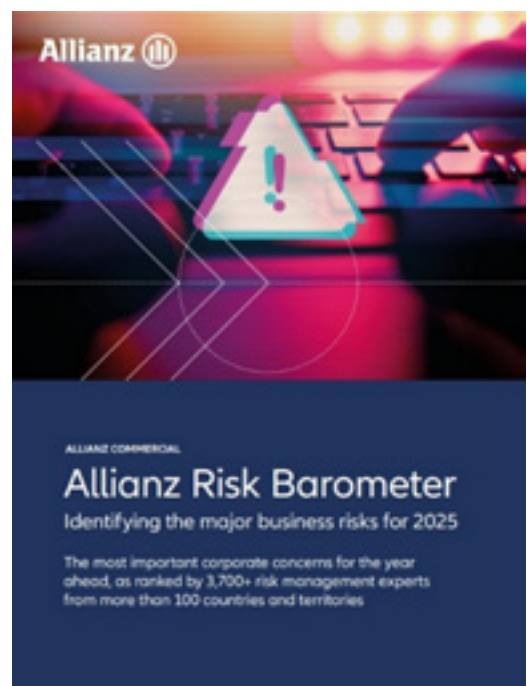
Allianz Risk Barometer 2025: Cyber risk climbs to the top by largest margin ever

Cyber incidents are the top global risk for 2025 and by a higher margin than ever before – making it the fourth year in a row that cyber is ranked as the number one risk across industries, according to the Allianz Risk Barometer 2025.

Top global risks overview

Cyber incidents consolidate their position as the most important risk – with 38% of responses, a record 7% points ahead. Notably, the risk impact of new technologies and developments in artificial intelligence (AI) is a new entrant in the top 10 global risks at #10. Closely interlinked to cyber, business interruption is ranked #2 (31%), just ahead of another related risk, natural catastrophes at #3 (29%).

Climate change is another standout result in 2025 making it the biggest mover in the top 10 risks globally, climbing two places to #5 (19%), achieving its highest-ever position in the 14 years of the survey.



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As climate- and nature-related risks continue to rise, the financial implications will become increasingly pronounced, whether it concerns managing climate change transition risk, mounting costs from regulatory compliance on disclosing physical climate risks, or operational disruptions caused by more extreme weather events and ecosystem degradation.

Reflecting regulatory developments for sustainability and emerging technologies, changes in legislation and regulation (25%) also drew a bigger response this year, retaining #4 globally.

"What stands out in this year's Allianz Risk Barometer is the interconnectivity of the top risks. A change in one – or indeed a mitigating action – might have a knock-on effect on another, and another," said Michael Bruch, Global Head of Risk Advisory Services, Allianz Commercial.

Download the report at <https://bit.ly/3QBYVOv>.

European Federation of Inland Ports Annual Report 2024

In his introduction to the European Federation of Inland Ports (EFIP) Annual Report 2024, President Antoine Berbain, writes:

It is with great pride that I present the 2024 Annual Report of the European Federation of Inland Ports (EFIP). This year has been one of both transformation and resilience, as we navigated evolving challenges while embracing new opportunities for inland ports across Europe.

Inland ports, as key nodes in Europe's transport and logistics network, have continued to play an indispensable role in driving sustainable growth and innovation.

The year 2024 saw EFIP members showcasing the sustainable and resilience projects they are implementing, reflecting the role of inland ports. In particular, we showed the urban logistics initiative of IKEA in the Port of Paris and the development of a hydrogen valley in the Port of Mantova.

Policy developments at the European level have underscored the critical importance of inland ports. The revision of the Trans-European Transport Network (TEN-T) Regulation has further recognised the value of inland waterways and ports as integral to achieving a seamless and sustainable transport system. Additionally, the adoption of the EU Green Deal 2.0 framework has intensified the focus on decarbonisation, urging our sector to innovate and lead in reducing emissions while maintaining operational excellence.

EFIP has been a proactive voice in these discussions, ensuring that the perspectives of inland ports are well represented. Throughout the year, we engaged with policymakers, stakeholders, and industry leaders to advocate for fair, forward-looking policies that support the diverse needs of our members. We also expanded collaborative efforts, such as advancing projects under the Horizon Europe framework, enhancing our contribution to the development of resilient and green supply chains.

Download the report at <https://bit.ly/4kyixp>.



INTERCARGO Annual Review 2024

Dry bulk ships are at the very heart of global trade, transporting iron ore, steel, coal, cement and grains. As the statistics of the INTERCARGO Bulk Carrier Casualty Report 2024 demonstrates, there is a clear trend of improved safety and declining ship losses at a time of fleet growth. Improved safety is largely thanks to constant learning, better crew training, improved ship design, new technology and stronger regulatory compliance. However, very sadly, major incidents involving loss of life have occurred and we must pay close attention to the causes explained in this report - there is no room for complacency.

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As the voice of the dry bulk sector, INTERCARGO is determined to help lead the response to these events. They are working with their members, including ship owners and industry stakeholders, to do all we can to learn and protect the lives of the brave men and women who crew bulk carriers. Dry bulk ships are at the very heart of global trade, transporting iron ore, steel, coal, cement and grains. It is important to learn how best to protect the safety of seafarers, and the vessels and their cargo, from damage and loss.

Every year, the INTERCARGO Bulk Carrier Casualty Report provides an analysis of casualty statistics covering the previous 10 years. During the 10-year period from 2014 to 2023, it was reported that 21 bulk carriers over 10,000 deadweight tonnage (dwt) were lost, resulting in the death of 89 seafarers. These losses were primarily due to cargo liquefaction and groundings as the major causes, highlighting critical areas for industry focus.

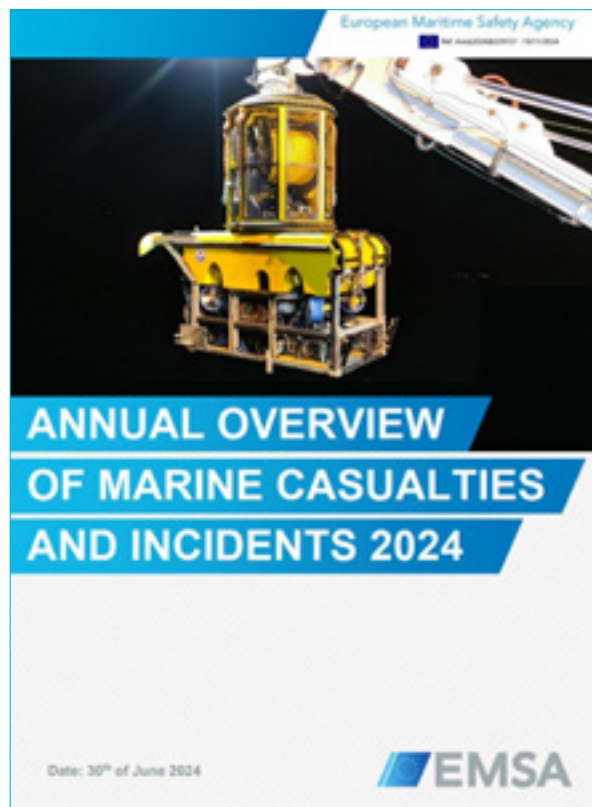
Ship loss statistics between 2014 and 2023 suggest a clear improvement in terms of the number of annual losses of bulk carriers versus the total number of bulk carriers in the global fleet. This positive trend demonstrates the industry's commitment to enhanced safety protocols and regulatory compliance.

The application of new technology to improve ship design and building and the introduction of new materials has also played its part. While these improvements are encouraging, any loss of life remains tragic. The shipping industry must maintain unwavering vigilance and continue to learn from every incident and the findings of this report.



Download the report at <https://bit.ly/40odQlp>.

EMSA Annual Overview of Marine Casualties and Incidents 2024



The European Maritime Safety Agency (EMSA) has published its Annual Overview of Marine Casualties and Incidents 2024, which presents statistics on marine casualties and incidents that cover the period from 1 of January 2014 to 31 of December 2023.

In 2023, most of the indicators, such as the number of occurrences, ships lost, fatalities or injuries, are near or below the average values for the entire period from 2014 to 2023.

In 2023, 2,676 marine casualties and incidents were reported, which represent an increase of 49 marine casualties and incidents compared to 2022 and a decrease of 66 marine casualties and incidents compared to 2021.

The total number of marine casualties and incidents reported in the period from 2014 to 2023 was 26,595 with an annual average of 2,660. The number of casualties and incidents in 2023 is 0.6% higher than the annual average and 0.7% higher than the pre-pandemic average of 2,658 occurrences.

After a peak of 106 very serious casualties reported in 2018 and a total of 77 in 2019, the number of very serious marine casualties was 52 in 2020, 61 in 2021, 57 in 2022 and 45 in 2023, indicating a downward trend.

Casualties and fatalities:

From 2014 to 2023, a total of 650 lives were lost in 444

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marine casualties, with a decreasing trend observed over the period. In 2023, 89.7% of the victims were crew members whereas the average of fatalities of crew members for the period 2014 to 2023 was 86.9%.

From 2014 to 2023, there were a total of 7,604 injuries resulting from 6,623 marine casualties and incidents. The average number of injuries per year during this period was 760, with a minimum of 606 injuries reported in 2020. In 2023, 85.2% of the injured were crew members while the proportion of injured crew members over the entire period from 2014 to 2023 was 84.5%.

Safety investigation reports:

From the analysis conducted in safety investigations, it was determined that, from 2014 to 2023, 58.4% of accident events were linked to human action and 49.8% of the contributing factors were related to human behaviour. When considering both human action events and human behaviour contributing factors together, human element relates to 80.1% of the investigated marine casualties and incidents. These trends are common for all ship types.

Safety recommendations:

Over the period from 2014 to 2023, the total number of safety recommendations issued, and actions taken reported was 2,691 and 44.8% of them were dealing with ship related procedures.

Download the 2024 annual review at
<https://bit.ly/4fnb5F7>.



Poseidon Principles: Annual Disclosure Report 2024

Continued growth of climate transparency from financial institutions show that the global finance portfolio for shipping has moved closer to alignment with ambitious decarbonisation trajectories set by the International Maritime Organization (IMO), aiming to remove emissions from international shipping by 2050.

The latest insights are revealed in The Poseidon Principles' fifth Annual Disclosure Report, which showcases the climate alignment of 35 major financial institutions across 14 countries, representing nearly 80%

of the global ship finance portfolio. The Poseidon Principles are a global framework for financial institutions to assess and disclose the climate alignment of their shipping portfolios, aiming to promote decarbonisation in the maritime industry.

The report, which also marks the fifth anniversary of the Poseidon Principles, highlights the progress achieved since its launch in 2019, when it became the world's first sector-specific framework for measuring and reporting climate alignment in shipping finance. What began as a conversation in 2017 and was introduced as a concept under development at the first Global Maritime Forum Annual Summit in Hong Kong in 2018 has since evolved into a model for industry-specific, transparent climate disclosure in shipping.

Key findings from the 2024 Annual Disclosure Report include:

- Transparency on the rise: An average of 93.3% of signatories' portfolio activity was reported, with all signatories reporting ship emissions data from at least 70% of their portfolio, 28 signatories achieving a reporting rate of 90% or above, and eight achieving 100%.
- Climate alignment performance: The average climate alignment scores showed a noticeable progression from last year, with portfolios' alignment to the IMO's "minimum" and "striving" decarbonisation trajectories improving.
- Increased collaboration: Collaboration and engagement are increasing between financial institutions and their shipping clients, demonstrating the initiative's pivotal role in guiding the industry toward achieving net zero emissions by 2050 in line with the 2023 IMO Greenhouse Gas Strategy.

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Furthermore, by integrating real emissions data into financial decision-making, the framework has also enabled signatories to use climate alignment scores to shape financing decisions, guide sustainability-linked lending, and support investment in green technologies such as biofuels and alternative propulsion systems. Increased transparency has also fostered closer collaboration between financial institutions and shipowners, reinforcing a shared commitment to decarbonisation.

"Alignment with 2050 net zero goals remains a challenge, in particular for certain vessel types that are facing operational complexities. Now, the Poseidon Principles' adoption of well-to-wake emissions reporting offers a robust foundation for addressing these challenges head on," said Paul Taylor, Vice Chair of the Poseidon Principles and Global Head of Maritime Industries, Societe Generale.

Download the report at <https://bit.ly/41uXIEQ>.

EMSA report: Potential use of nuclear power for shipping

The report notes that the EU has identified nuclear energy as a sustainable source of energy able to assist in meeting its zero-emission goal and therefore is eligible to obtain green sustainable financing. This report is the last one of a series of studies produced in 2022, 2023 and 2024 covering the Potential use of Biofuels, Potential of Ammonia as fuel and Potential of Hydrogen as fuel, Synthetic fuels, and Potential of Wind-Assisted propulsion for shipping.



Highlights from the EMSA-commissioned report on the potential use of nuclear power for shipping were presented during a recent workshop on alternative fuels and power solutions for shipping and ports by one of the authors from the American Bureau of Shipping (ABS). Moreover, Texas A&M University and Arcsilea also contributed to the comprehensive study.

Key findings:

- Nuclear Technology is key. 'Generation IV' reactors hold promise to deliver compact, intrinsically safe, reliable, long-term power on ships with some reactor technologies looking more suitable for marine use than others.
- Risk and Safety: The study assessed several potential designs for nuclear-powered vessels from the risk and safety perspectives and concluded that further detailed studies to better understand the risks and additional safeguards will be needed.
- Supply chain: Issues related to nuclear fuel availability and infrastructure for commercial use need to be solved, including waste disposal.
- Emissions: Nuclear propulsion presents a unique advantage with almost no well-to-wake GHG emissions and eliminates local air pollutants created by combustion engines.
- TCO: Total cost of ownership for nuclear-powered vessels is estimated to be similar to that of comparable vessels running on conventional fuel oils during the initial years of operations, but lower over time.
- Regulations: Facilitating the adoption of nuclear power on merchant ships may require modernisation of regulatory frameworks to promote safety, environmental protection, technology integration and a comprehensive liability regime. Creating and updating regulations would need to include an active 'partnership' of industry and national and international regulatory authorities as well as classification societies.

Nuclear propulsion has mainly been used on military ships and icebreakers in the Arctic so far but is now seen as a pathway that can contribute to decarbonising commercial shipping. It does, however, present "a series of challenges that will need first to be addressed in relation to production, safety, security, training and also liability and insurance regime," the report says.

Nuclear power for shipping seems to be a potential pathway for contributing to the decarbonization of the sector, but it presents a series of challenges that must first be addressed, including production, safety, security, training, and the liability and insurance regime.

Read the report at <https://bit.ly/4iAQslb>.

Environmental and regulatory compliance dominate the shipping horizon for 2025

By Global Co-head of Shipping, partner Philip Roche, and Client Knowledge Director Kelli Bodal Hansen at Norton Rose Fulbright.



Philip Roche



Kelli Bodal Hansen

ESG regulatory developments

The two main legislative developments in the EU which will have an impact for many in the industry in the year to come are: the expansion of the EU ETS and the introduction of the FUEM.

EU ETS

From January 2025, the scope of the EU ETS expanded further to include offshore vessels over 5,000 GT which call at EU ports. New challenges also remain for the vessels which have been subject to the EU ETS since 2024 in the next stage of compliance with the scheme: the emissions data for the 2024 year must be reported on and verified, by an accredited verifier, by 31 March 2025. Shipowners and operators then have nearly six months – until 30 September 2025 – to submit the number of EUAs required to cover their emissions for 2024. Failure to do so can result in financial penalties. Those responsible for ETS compliance will need to make sure that they are well prepared to meet these deadlines. 2025 will also see the percentage of emissions for which EUAs must be purchased rise to 70%.

FuelEU Maritime (FUEM)

From 1 January 2025, all ships – regardless of their flag state – over 5000 gross tonnes (GT) which call at a port within the EU will be subject to the FEUM.

Ship owners and operators will be required to calculate the yearly greenhouse gas intensity of the energy they use, and this should not exceed the limits set by the regulation. The FUEM then requires that greenhouse gas (GHG) emissions from eligible ships are reduced incrementally as against the baseline set out in the legislation.



Shipowners and operators should have already started thinking about this as vessels which will be subject to the FUEM should have submitted a monitoring plan by the end of August 2024 and the obligation to record data about emissions from these vessels started from 1 January 2025. The regulation introduces a number of mechanisms to allow different ways to comply with the legislation, which shipowners and operators will need to consider carefully. These options include 'pooling' the compliance balance for a number of ships so that, for example, new ships using low carbon fuels and therefore having a compliance balance surplus could be used to offset emissions from other vessels in the pool that cannot use such fuels. The commercial basis on which these pools operate will need to be carefully considered by participants as those contributing vessels with a compliance balance surplus will ask to be rewarded for reducing the penalties incurred by the rest of the pool.

There is also the ability for shipping companies to roll over surplus emissions compliance from one year into the next year for the same ship (known as "banking") and FUEM provides a limited ability to 'borrow' from future surpluses in the next year. These mechanisms will become particularly complicated when delivering and redelivering ships – parties will not wish to inherit liabilities for compliance balance deficits that were incurred when that party was not responsible for compliance.

Accordingly, shipowners and operators will need to give much thought to how they will meet the requirements of the FUEM regulation. Chartering arrangements will require particular consideration, and parties will need to ensure that they have properly documented the commercial agreement they reach on how the risks and costs of compliance with the FUEM regulation will be allocated. At the time of writing, it is clear that many companies have not worked out a strategy for dealing with this new challenge and we are seeing a lot of "agree to agree" clauses inserted in contracts as placeholders. BIMCO has produced a comprehensive but consequently quite long and involved clause which some are finding hard to digest –

largely caused by the issues arising on delivery and redelivery.

There will be a lot of discussion on this issue over the next few months, but what seems unarguable is that the purchaser of the fuel will have to take responsibility for any penalties if the ship ends up with a compliance balance deficit. Pooling will be an option for charterers and owners – but the benefits of this may be illusory if there are insufficient ships with a compliance balance surplus to offset the deficit caused by ships using conventional fuel. Until the supply of low – or lower – GHG emission fuel is available, it seems likely that the penalties will have to be added, like the cost of EUAs, to the cost of shipping goods.

Sustainable finance

Sustainability is likely to remain at the top of the agenda for financiers over the next year. Whilst the focus of these sorts of sustainable financings for the shipping industry is likely to continue to be set around environmental targets, it is likely that more social and governance elements might be included in some facilities, for example, looking at gender diversity in the industry and also the improvement of working conditions for crew.

With the increase in environmental regulatory measures being introduced to the industry, financiers and borrowers will need to consider how they can set environmental targets which are ambitious enough to go beyond what companies are required to do by law, but also commercially achievable.

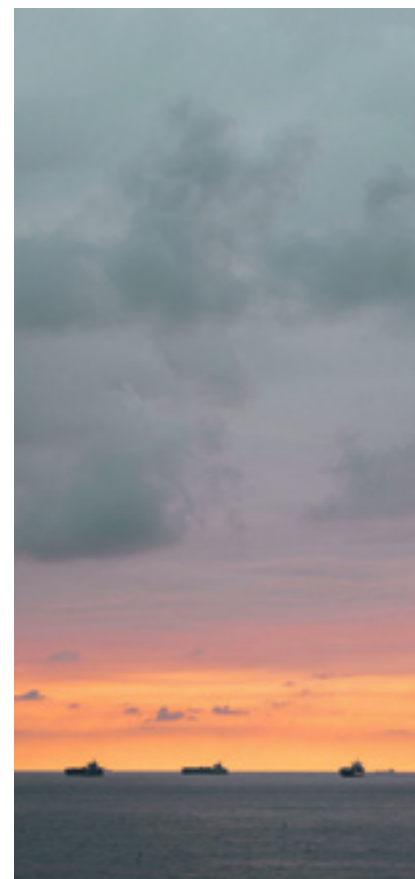
Transition finance is also likely to be relevant to the maritime industry. Aimed at helping to decarbonise hard to abate areas, there has been a great deal of focus on these sorts of financings, and we expect this to be an area of interest to shipping in 2025.

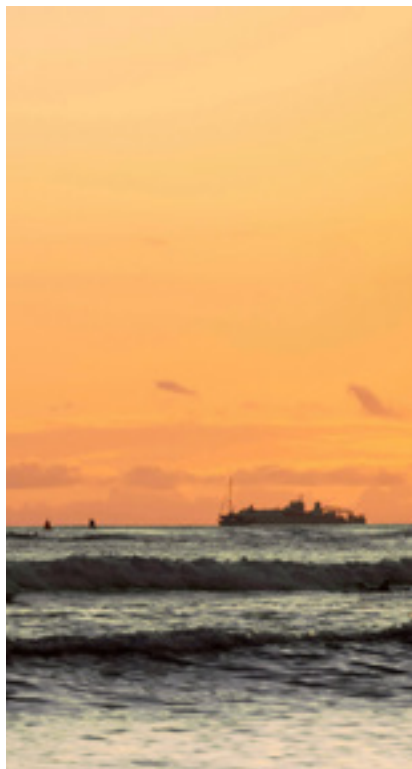
Carbon capture and storage (CCS) On-board CCS

There is still much discussion within the industry about which alternative fuel or fuels should be used to achieve decarbonisation aims. Until consensus is reached on this issue, one option to reduce emissions is to capture some or all of the carbon emitted from, or present in, traditional maritime fuels.

It should be noted that the use of onboard carbon capture is not accounted for in the FUEM regulation, though the EU says that it might assess the possibility to propose some changes, if appropriate in the event of future technological progress. In contrast, EU ETS regulations state that ship owners will not have to surrender allowances for fuel used where the CO₂ is captured and stored in accordance with the relevant CCS directive or where the CO₂ is permanently chemically bound in a product so that it doesn't enter the atmosphere.

The challenges of onboard CCS remain high – the equipment is expensive to install and to run; current units do not capture sufficient CO₂; there is limited provision for offtake of captured CO₂; many units use amines which escape to air and may cause potentially carcinogenic gases to form – and the current benefits are therefore marginal at best. There are reports that many units at sea are not used due to the cost of operation. Without doubt, if these issues can be solved, then it will be a huge step forward in helping shipping to decarbonise, but the technology must catch up with the hopes and expectations before becoming a proven route to decarbonisation.





Onshore CCS

Carbon capture, utilization and storage is seen by many as an important technology to help mitigate greenhouse gas emissions from the use of fossil fuels in many land-based industries such as steel and cement making, power generation and other heavy users of power.

There has been much work on, and investment into, carbon capture technologies and CCS projects, with Norway, the UK and other northern European countries working hard to exploit the storage potential of geological storage in the North Sea. These projects involve the permanent sequestering of captured CO₂, with many looking to transport the captured carbon to depleted oil and gas fields. Whilst there are different options for transporting the captured CO₂ to the store, pipeline seems to be the best option for many industrial hubs. However, for more isolated industrial centres, for instance SW England and South Wales, the transport of captured CO₂ by ship is an attractive and perhaps the only commercially viable option. Due to cost, it seems that government support in one form or another, as well as a regulatory framework, is going to be necessary to develop and fully integrate shipping into these projects. However, the interest that projects such as Northern Lights and the

recent final investment decision in the UK Teeside CCS project is generating, means there is no shortage of ship owners who see this as a real opportunity and orders have been made for a new type of vessel to carry captured carbon.

Artificial Intelligence (AI)

AI technology is expected to have a big impact on ship management and trade, and it remains an area to watch in the year ahead.

With the increased regulatory focus on AI, those shipping companies looking to use AI applications in their business should carefully consider their compliance obligations in this respect. Shipping companies will need to consider, for example, the effect of the EU Artificial Intelligence Act and what steps they will need to take to comply with the complex regulatory requirements in the different jurisdictions in which they operate.

Notwithstanding this, this astonishing new technology offers tremendous opportunities for shipping companies to solve problems such as routing, congestion avoidance, slow steaming and find other possible solutions to increase efficiency, increase profits, cut costs and reduce emissions.

Ship Recycling

There is much change on the horizon on the issue of ship recycling, with The Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships (HK Convention) entering into force on 26 June 2025. Once it is in force, the HK Convention will be applicable to any ship that is flagged in and any recycling yard which is located in a state which has ratified the HK Convention.

The HK Convention will require authorised ship recycling facilities to prepare a ship recycling facility plan covering issues such as safety and training and protecting human and environmental health. Each ship must also have a tailored ship recycling plan for each vessel before it is recycled, setting how it can be recycled safely. Shipowners will need to ensure that their recycling plans for the year ahead comply with the HK Convention.

The reaction of the EU to the coming into force of the HK Convention will be interesting. The EU Ship Recycling Regulation (EU SRR)

largely mirrors the requirements of the HK Convention, but the HK Convention does not have the oversight mechanism of the EU SRR. Consequently, the EU Commission does not see a need for the EU SRR to be aligned with the HK Convention, but rather they can continue as complimentary to each other.

However, the restricted list of ship recycling centres permitted under the EU SRR, which does not include the main SE Asian centres in India, Bangladesh and Pakistan, is a major challenge for EU shipowners. It remains to be seen whether the EU will be able to square its obligations under the Basel Convention and EU waste management regulations, which forbid EU waste being exported to developing countries, with expanding the EU SRR list to include SE Asian yards.

Failure to prevent fraud offence

The UK's new failure to prevent fraud offence (FTPF Offence) under the Economic Crime and Corporate Transparency Act 2023 (ECCTA) will come into force on 1 November 2025. Under the legislation, an organisation will be liable if it fails to prevent a specified fraud offence from being committed where: (i) an employee or agent commits the fraud; and (ii) the fraud is intended to benefit the organisation or a person to whom services are provided on behalf of the organisation.

There are, however, defences available to the offence if an organisation has "reasonable procedures" in place to prevent fraud. The practical effect of this is that organisations will need to carefully review and where necessary, update their anti-fraud systems and controls to cover fraud committed for their benefit by employees, subsidiaries or third-party agents.

The scope of the new FTPF Offence means that non-UK companies may be more likely to be caught by it than by the UK Bribery Act. As a result, both UK and non-UK shipping companies (and multinationals) with a UK nexus will need to consider how the new offence applies to them and to put appropriate anti-fraud procedures in order to manage the risks.

Sanctions

The level of new sanctions regulations released during 2024

and at the start of 2025 showed no sign of let up and continues to be a challenge for all those involved in international shipping. As the Russia-Ukraine war extends into its third year, politicians and regulators have remained alive to Russia's efforts to avoid sanctions. From a maritime perspective, efforts are being increasingly directed against the so-called "dark" or "shadow" fleet transporting Russian oil. This 'dark' fleet reportedly numbers some 180 vessels which have caused concern due to their age, quality of maintenance and lack of recognised insurance, particularly for pollution. The US, UK and Europe have recently introduced sanctions against this fleet, but this is, in effect, just a further step in increasing pressure from regulators to prevent owners inadvertently selling ships into the shadow fleet.

The introduction of UK OTSI (the Office of Trade Sanctions Implementation) and the Trade Aircraft and Shipping Sanctions (Civil Enforcement) Regulations 2024 demonstrate an increased appetite to find and prosecute those who breach or evade sanctions. Although headlines are dominated by Russian-targeted sanctions, it must be remembered that strong sanctions against states, individuals and entities exist relating to Iran, North Korea, Syria, Libya, Myanmar and many more.

All participants in the shipping industry must ensure they have robust policies and procedures in place to ensure that effective due diligence checks are made on counterparts, trades, cargoes, ship to ship transfers and vessel acquisition and disposal, and that strong compliance programmes are in place and are effective to guard against inadvertent breach. Parties attempting to evade sanctions have become increasingly sophisticated in their approach. All companies must be on their guard against this.

Key Takeaways

2025 will be a further period of huge change and challenge for all participants in the shipping industry. Shipping will become more expensive for users as EU regulations increasingly affect ship owners and operators. However, with this change comes opportunities. Increased co-operation between ship owners and operators is going to be key in the year ahead as the industry gets to grips with new regulatory, technological and emissions-based issues which need to be factored into day to day commercial and administrative operations.

Whilst marginal increases in efficiency and reduction of consumption will help ship operators to comply with a number of new obligations in the short to medium term, the aims of industry regulators

will only be achieved through technological developments in new fuels, energy storage, carbon capture and radical new designs of ships. Vision, finance and a certain amount of courage are going to be required if the challenge is to be met. And, in the meantime, the industry needs to ensure that it complies with the ever-increasing regulation and the increased appetite of regulators to take enforcement action.

On top of all this, there are the increasing geo-political risks due to wars in Europe, and the increasing hostility of some state and non-state actors to international shipping – these issues must remain close to the top of concerns for the industry. With these ongoing threats, there is a constant worry about getting good people to sea to crew the increasingly sophisticated ships. And human rights at sea campaigns are throwing light onto a dark and often deeply unpleasant aspect of the industry, with modern slavery being a concern.

And yet, despite all this, 2024 was a good year for shipping which economically is in rude health. Posidonia 2024 and other events were happy and optimistic. Shipping has survived all sorts of crises over the many centuries it has operated and seems in good shape to weather the many challenges that 2025 and beyond will present.



Managing cyber risk with USCG's new Maritime Security Directive

By Michael DeVold

In this article

Michael DeVold, Maritime Transportation System (MTS) Cybersecurity Lead at ABS Consulting, looks at the potential of the new directive, the importance of acting now to prepare for the implementation of the regulations and some of the key steps that should be taken.

In February 2024, the United States Coast Guard (USCG) published a Notice of Proposed Rulemaking (NPRM) in the Federal Register, updating maritime security regulations and introducing new regulations establishing minimum cybersecurity requirements for US-flagged vessels, facilities on the Outer Continental Shelf and US facilities subject to regulations under the Maritime Transportation Security Act of 2002.

The USCG's proposed rule followed an Executive Order from the Biden-Harris Administration that directed it: "to respond to malicious cyber activity in the nation's Maritime Transportation System (MTS) by requiring vessels and waterfront facilities to mitigate cyber conditions that may endanger the safety of a vessel, facility, or harbor." The new proposal also mandated the reporting of cyber incidents – or active cyber threats – endangering any vessel, harbor, port or waterfront facility.

In addition, USCG also issued a Maritime Security Directive on cyber risk management actions for the owners and operators of ship-to-shore cranes manufactured by the People's Republic of China that are located at US Commercial Strategic Seaports. Under it, owners and operators will be required to take a series of actions on these cranes and associated Information Technology (IT) and Operational Technology (OT) systems, to safeguard against cyber risk.

In publishing the Executive Order, the White House highlighted that:

"America's prosperity is directly linked to maritime trade and the integrated network of ports, terminals, vessels, waterways and land-side connections that constitute the Nation's Marine Transportation System (MTS). This complex system supports \$5.4 trillion worth of economic activity each year, contributes to the employment of more

than 31 million Americans, and supports nearly 95% of cargo entering the US."

With the maritime industry increasingly reliant on digital systems - revolutionizing how it operates - increased digital interconnectedness comes with increased risk of external cyber threats.

Rising Maritime Cyber Threats

In its 2023 Cyber Trends and Insights in the Marine Environment (CTIME) report the United States Coast Guard noted:

- Ransomware attacks increased 80% in 2023. These attacks encrypt systems with the goal of locking users out, then extorting the victim and demanding ransom for a decryption key. Perpetrators are becoming more sophisticated and requested ransoms have tripled.

- Maritime shipping companies, logistics and technology service providers; liquid natural gas processors (LNGP) and distributors; and petrochemical companies are common targets.
- Very basic cyber deficiencies persist. Patching and updating software, limiting network access and implementing multi-factor authentication are foundational cybersecurity measures and would go a long way towards safeguarding systems.
- Network-connected operational technology (OT) in port facilities and shore-side are being targeted. These systems are particularly vulnerable to attack as they often rely on outdated software and network protocols, and insufficient access controls.

An example of the impact a cyberattack can have, was the July 4th, 2023 attack at the Port of Nagoya, the largest and busiest port in Japan, which was targeted in a ransomware attack that impacted the operation of its container terminals.

The attack affected the "Nagoya Port Unified Terminal System" (NUTS) causing all container loading and unloading operations at the terminals using trailers to be cancelled, which resulted in massive financial losses to the port and severe disruption to the circulation of goods to and from Japan.

And while the new Regulations are designed to ultimately help safeguard the US' Maritime infrastructure and supply chain, they come with significant challenges to the industry at large, requiring large-scale, transformational change in the approach to cyber security; covering key areas including account and device security, data security, governance, training, risk management, supply chain management, cyber resilience, secure network architecture, reporting and cyber-physical security.

Who is Included in the Proposed New Regulations?

The new regulations apply to all US flagged vessels over 500 gross tonnes and carrying more than 12 passengers.

On the facility side, any Maritime Transportation Security Act (MTSA) facility – container ports, oil and gas port facilities and cruise and ferry terminals, covering both inland and deep-water operations.

Challenges Adapting to Change

From a maritime perspective, cyber is challenging to regulate. A lot of the existing maritime regulations are black and white and rely on judgement calls from extremely experienced marine engineers and operators. Complex tasks, such as validating a vessel stability test or verifying that an electrical installation meets applicable standards for a vessel's route and service, are vastly different to validating cyber risk management and controls considering the integration of heterogeneous and legacy systems, diversity of data sources, and the cybersecurity risks associated with increased digital connectivity, onboarding of digital technologies, and the push for autonomous vessel and facility operations.

Adapting to the new rule may be tricky and potentially expensive for the maritime industry if it is not approached properly. And while some of the larger operators are further along the cybersecurity-maturity curve - for example the Port of Los Angeles in 2021 was the first seaport in the world to establish a Cyber Resilience Center (CRC) - the new regulations will impact much of the industry on a fundamental level.

Physical and Financial Impact

From an executive management perspective – any organization with an immature cyber security posture may not only be challenged with understanding the practicalities of implementation but may also struggle to find skilled workers with the necessary combination of cyber and maritime expertise on which to assess and create an effective internal cyber infrastructure.

Added to this will be the cost implications that will have to be factored in. From small port facilities and vessel operators to larger operations, a myriad of new costs will be associated with the regulations. And as the complexities grow (depending on the size of the organization) the costs could grow exponentially.

The Importance of Managing the IT/OT Convergence of the new Regulations

While in recent years IT security has been a focal point of any organization using digital systems, the OT risk is a real and present danger that organizations in the maritime industry will also need to mitigate against under the new rule.

The MTS is one of the largest of the 16 critical infrastructure sectors in the United States. With over 900 ports and countless terminals and facilities, it includes vessels within the commercial, civilian, government and military sectors. As a result, it contains many thousands of OT systems that control anything from port cranes to a ship's engine or navigation system.

Additionally, each port will have different OT systems due to its particular purpose - a cargo port for example will have more OT systems supporting the movement of shipping containers, whereas a cruise terminal will be focused on supporting the movement of people and will be mainly IT based.

As new technologies are developed, they are often added as enhanced 'bolt-on' functionality to legacy OT systems built in the late 1990s or early 2000s; the beginning stages of automation.

In more recent years, these legacy OT systems have been connected to the internet to provide stakeholders with remote access to control and monitor the systems. And while the increasing digitalization and automation of systems and processes may deliver the prospect of greater efficiency and competitiveness within organizations, it can also create the opportunity for greater cyber risk exposure through increased potential 'attack surfaces' - the ways in which cyber-attackers can penetrate systems.

Organizations impacted by the new rule will need to demonstrate their 'Cyber Resilience' by being prepared, ready and able to defend and recover from any cyber incident that could threaten safety, security and productivity.

The IT/OT convergence can however cause boundaries to blur between IT network functions and OT critical control functions, making it more challenging for operators to fully understand how their systems interact with one another.

In a worst-case scenario, this misunderstanding could prevent the quick restoration of operations in the event of a cyber incident within a ship or facility network.

Key Steps to Improved Cyber Resilience

So how do you develop a more resilient Cybersecurity Program? There are four key areas an organization should consider - asset management, configuration management, vulnerability management and detection and response management. It can achieve this through:

- Securing what you know
- Assessing criticality
- Committing to continuous improvement
- Evaluating manual versus automated options

A key success factor is the collaboration between OT and IT operations to identify and bridge any gaps. All too often, OT and IT have worked in silo and have competing priorities in terms of availability and security. To create a robust cybersecurity program, these areas must work in harmony and be viewed holistically.

Equally important is the engagement of Original Equipment Manufacturers (OEMs) and vendors in the cybersecurity program. Developing key relationships with these stakeholders is essential to ensure that cybersecurity measures are comprehensive and effective. By collaborating with OEMs and vendors, organizations can gain valuable insights and support in securing maritime operations.

Contracts with OEMs and vendors should be revisited and modified to include specific cybersecurity requirements. This involves defining roles and responsibilities, setting security standards, and establishing protocols for incident response and information sharing. By embedding these considerations into contractual agreements, organizations can facilitate each step required to enhance their cybersecurity posture.

In summary, a resilient cybersecurity program is built on the foundation of collaboration—both internally between OT and IT, and externally with OEMs and vendors. This integrated approach ensures a unified and proactive defense against cyber threats.

Step 1 – Visibility and control - securing known assets

Securing assets begins with comprehensive documentation. Conduct an audit of your IT and OT networks to identify all hardware and software, gaining a deeper understanding of potential vulnerabilities and attack vectors. Consider how assets interact across the network, such as those that routinely leverage USBs for data transfer or those accessed during third-party vendor maintenance.

Step 2 – Assessing Criticality

Criticality looks at which assets within an organization are most critical to mission priorities and operations. This will be unique to every organization and will take the collective effort of engineers, operators and business operations to truly define. Understanding the crown jewels of your network infrastructure and business applications can allow organizations to focus their effort and funding toward securing the most critical assets first.

Step 3 – Committing to the Process

The process should be dynamic, with criticality at its core. Implement a Management of Change (MOC) process to evaluate, identify and manage risks before making significant changes. This helps to ensure that updates are documented, tested and implemented with minimal disruption to operations. Emphasize traceability, accountability and risk mitigation.

Cultural openness to change is essential for integration. OT risk management should be considered as important as IT risk management. This approach can help bridge the gap between IT and OT silos, helping to improve safety, security and compliance with new regulations.



Consider whether your processes are documented and followed. Are you training your workforce and involving vendors, operators and technicians? Vendors control much of the equipment on ships and some facilities, and thus should be part of any cybersecurity plan.

Step 4 - Manual vs Automated Approaches

Choose the best methods for your organization, helping to ensure that OT and IT are working together for more effective cyber resilience. Data-driven decision-making should be part of the organizational culture. This step is ongoing and includes:

- Network monitoring and alert management
- Asset management
- Vulnerability scanning and patch management
- Configuration management

Governance is crucial, as cybersecurity is ultimately a business decision. Each organisation will have a different risk appetite and establishing a clear and repeatable process is vital for an effective cybersecurity plan.

Things To Consider in Your Cyber Security Plan

Critical considerations in developing an effective cyber security plan should include:

- *Cybersecurity Organization and Identity:* Formalize your cybersecurity management

structure and clearly document leadership (for accountability) and the responsible teams.

- *Training:* Include role-based training for engineering IT security processes, awareness and preparedness and cyber resilience. Conduct drills and exercises with port partners or ship-to-shore operations to simulate events across critical business and operational areas.
- *Records and Documentation:* Document training, drills, exercises, incidents, audits and risk assessments. Have a risk register that clearly defines threats and vulnerabilities and defines a timeline for mitigation and the responsible business/engineering departments for execution.
- *Communication Plan:* Have a plan for communication during outages, including out-of-band methods to communicate in case of an active breach of security.
- *Physical Security Controls:* Identify gaps in your vessel or facility security plan for restricting access to sensitive network equipment and have a plan to remediate them.
- *Cybersecurity Measures:* Implement cost effective measures to better identify risks, detect threats and vulnerabilities, protect critical systems and recover from cyber incidents.
- *Audits and Amendments:* Conduct annual audits with evidence-based inspections. Hold security teams and system owners accountable to remediate findings and strive for continuous improvement.

- *Cyber Incident Reporting Procedures:* Develop a methodology for self-assessment and ensure compliance with current and emerging requirements. Consider joining information sharing networks to help others in the maritime transportation system from suffering similar consequences. We are all in this together.

In Conclusion

The proposed maritime security regulations present significant challenges to the U.S. maritime industry. Given the increased threat landscape, these regulations are necessary and should be welcomed. However, adapting and implementing them can be challenging and potentially very costly. The industry will require a substantial transition and, in some cases, a complete transformation from a cyber risk management perspective.

The key message is: start now. The cybersecurity plan is essential, and its core tenets will not likely change much with the Final Rule. Initiating the process early helps avoid costly last-minute activities and potentially ineffective applications of people, processes and technology, helping to ensure that the organization meets new requirements and remains secure.

The opinions expressed in this article are the author's and not necessarily those of IIMS.

New guidance on achieving stable lifting operations

Guidance on Stability of Lifts has been developed by a sub-working group of the Heavy Lift Exchange Forum, a DNV-initiated round table for heavy-lift shipping companies. Members of the working group are from the companies BBC Chartering, BigLift Shipping, DNV, Heerema, Jumbo Maritime, SAL Engineering and United Heavy Lift.

What is best practice when it comes to cranes lifting loads onto, off and between ships in port or at sea? New guidance from an industry forum initiated by DNV dives into the key considerations and calculations to help ensure these hazardous operations are performed safely to reduce the risk of loss to life, property and the environment.

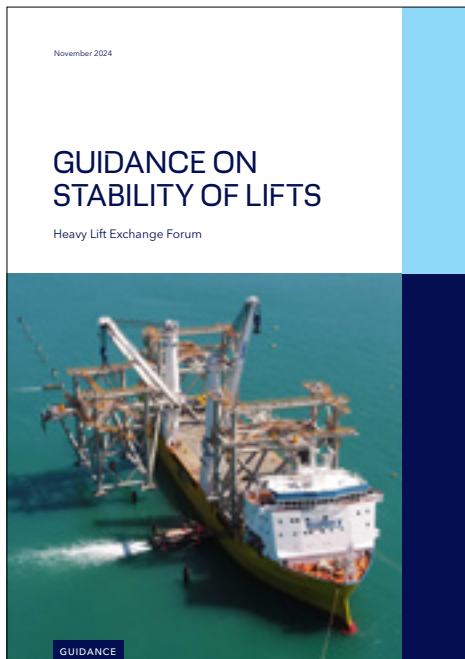
"The paper *Guidance on Stability of Lifts* plugs a gap among the many guidance documents available for operations in the maritime sphere," says Karsten Behrens, Managing Director of SAL Engineering GmbH. "It enables readers to assess the stability of particular lifting arrangements by using the provided methods and data. This puts them in the position to achieve a 'stable lift', which is one that remains in a balanced condition, within a safe margin, when subjected to predefined disturbing factors."

What is in *Guidance on Stability of Lifts*?

The paper explains currently available calculation methods, along with relevant explanations, guidance for assumptions on loads and factors, and background information.

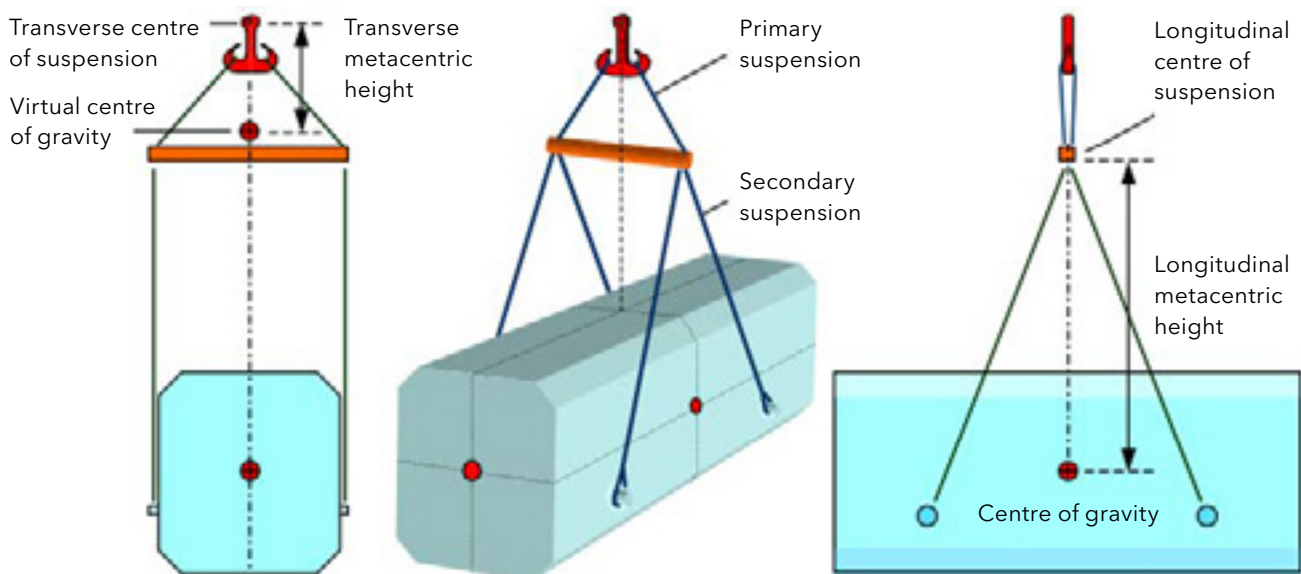


Ensuring the stability of lifting arrangements is of critical importance to mitigate the risk of damage.



The core of the paper is a flow chart for assessing the lifting stability of a rigging arrangement, which also reflects the common workflows of the participating project partners.

Potentially unstable primary/secondary suspension arrangement



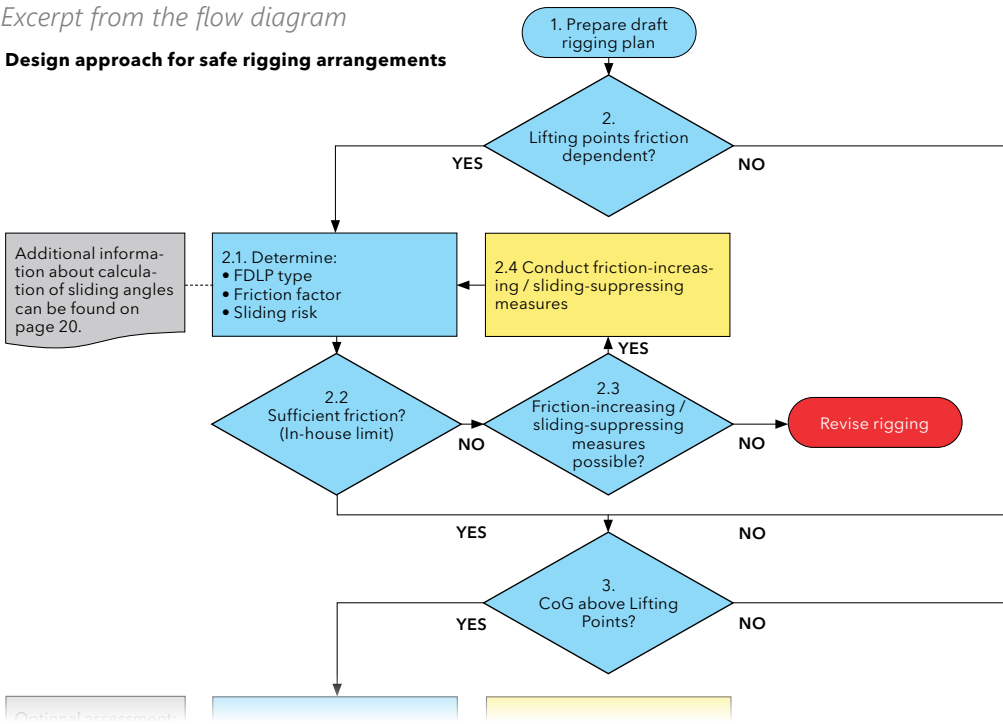
Source: *Guidance on Stability of Lifts* Guidance, Heavy Lift Exchange Forum, 2024

"The paper also helps the user to identify important factors for assessing the lifting stability and potentially dangerous combinations of them," Behrens states.

Following step-by-step guidance

In an easy-to-follow systematic approach, the guidance then works through details clarifying steps from the flow chart...

Design approach for safe rigging arrangements



Source: Guidance on Stability of Lifts Guidance, Heavy Lift Exchange Forum, 2024

Guidance is grouped into five steps. Step one involves preparing a draft rigging plan. Step two is to assess whether the rigging points are friction-dependent. Step three is working out if the centre of gravity (CoG) of the rigging arrangement is above the lifting points. Step four, if applicable, is determining and documenting operational limits.

“Step five is to create a final rigging plan complying with the selected criteria, which can then be added to the operational procedure,” Behrens adds.

Comparing methods for stability assessments of lifts

To assist the process, the guidance makes a comprehensive comparison of different methods to assess the stability of lifts.

Comparison of methods to assess stability in lifts (extract of table)

	Virtual CoG concept	Kaps method	Nikitin method	Numerical computer simulation - Standard	Numerical computer simulation - Extended
Approach	Graphical	Analytical Excel-based solution available	Analytical Can be automated	Numerical Simulation software needed	Numerical Simulation software needed
Complexity	Low	Medium	Medium	High	High
Time effort	Low	Low	Low	Medium	High
Accuracy	Low (but for most cases sufficient)	Medium	High	High (for specific cases and conditions)	High
Range	Initial stability only	Initial stability only*	Gives initial stability and range of static stability	Stability for defined conditions	Stability for all angles
External forces	Cannot be considered	Cannot be considered*	Cannot be considered	Can be considered	Can be considered
Lifting points	‘fixed’ only	‘fixed’ only	‘fixed’ only	Characteristics can be considered	Characteristics can be considered

*analytical assessment based on Kaps method theoretically possible but not developed yet (June 2024).

These methods are the Virtual CoG concept; the Kaps method, which is widely used in the maritime industry; the Nikitin method; and standard and extensive versions of numerical computer simulation methods. The applicability of these methods for various purposes is discussed. For example, Virtual CoG and Kaps allow users to evaluate the initial stability of the lift, Nikitin

provides insight on the stability against the overturning of two-chain suspensions, while numerical computer simulations allow a much more detailed analysis. “The numerical simulations are useful to understand the behaviour of a lift at certain phases of a lifting operation,” explains Sebastian Becker, Team Lead CAD Design, SAL Engineering GmbH.

Source: Guidance on Stability of Lifts Guidance, Heavy Lift Exchange Forum, 2024

What should be considered in the stability assessment?

A stable lift is one that remains in a balanced condition, within a safe margin, when subjected to predefined disturbing factors. Disturbing factors may include wind force, rigging length tolerance, steering line forces, crane movement, CoG shift, vessel motions and friction at the lifting points.

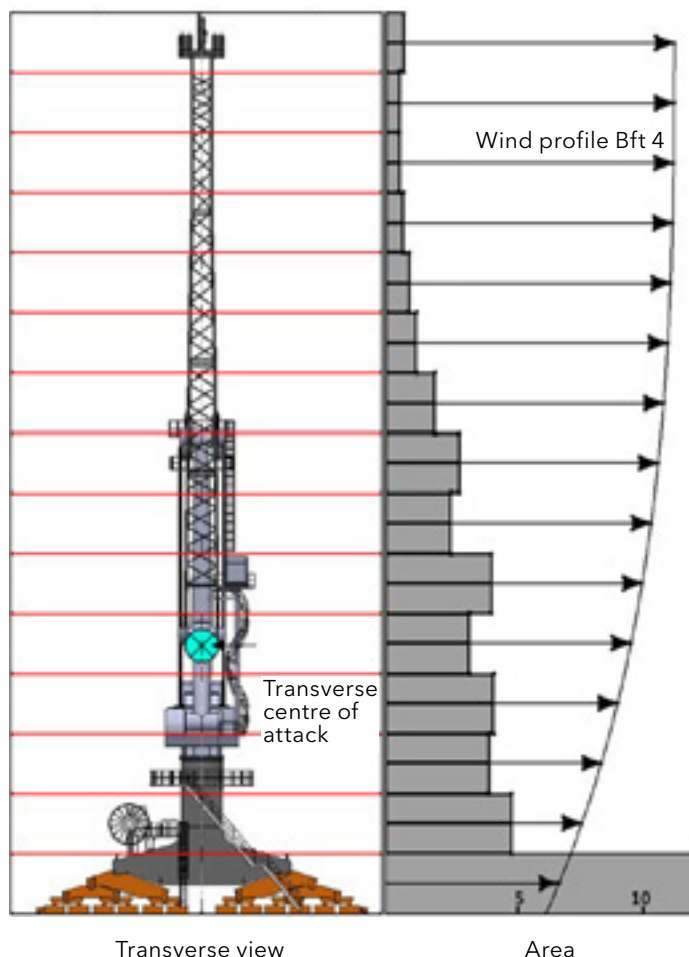
The guidance paper explains several disturbing factors, together with relevant mathematical equations for calculating their impacts. It presents this material in a way that allows these factors to be incorporated into the calculations for rigging stability assessment.

Calculating sliding and effective inclination angles

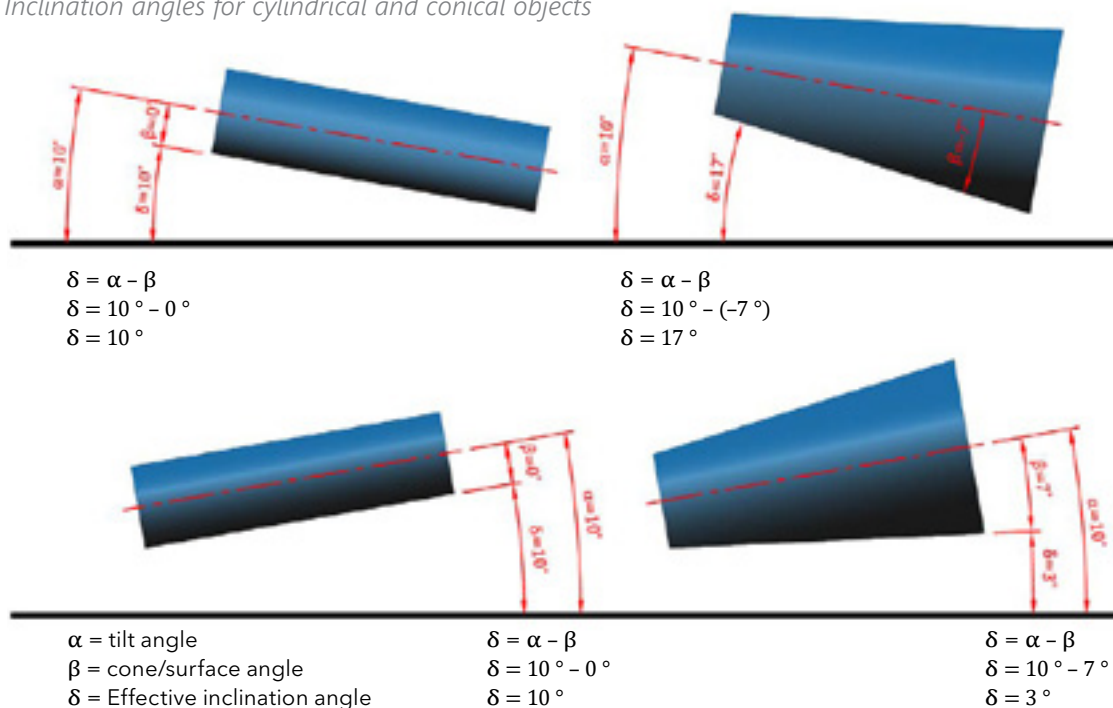
The sliding angle is the inclination angle at which a lifted cargo starts to slide, and it should never be reached during lifting. The angle depends on the friction between the materials in use, and on the shape of the contact surface. For instance, the effective inclination angle of a belly-slung cylindrical object is significantly different to a conical section.

Calculating sliding and effective inclination angles is useful when assessing lifting arrangements that involve friction-dependent lifting points, which exploit the fact that frictional force resists relative motion between surfaces in contact.

Example of compilation of wind force and centre of attack



Inclination angles for cylindrical and conical objects



Source: Guidance on Stability of Lifts Guidance, Heavy Lift Exchange Forum, 2024

GUIDANCE ON STABILITY OF LIFTS

November 2024

Heavy Lift Exchange Forum

"The guidance includes extensive discussion and formulas to calculate theoretical sliding angles for standard cases. Of course, coefficients indicating degrees of friction can vary significantly, and assumptions should be made conservatively," Becker comments.

The full document is freely available at <https://bit.ly/4f2gBNh>.

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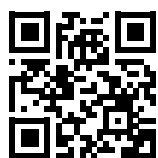


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National Historic Ships UK Award Winners 2024



The winners of the 2024 National Historic Ships UK (NHS-UK) Awards were announced late last year in a special film recorded in Windermere and premiered on YouTube. The awards, celebrating the UK's maritime heritage, showcased excellence in photography, volunteering, conservation, and vessel operations.

This year's awards ceremony took place in the scenic Lake District, hosted by Windermere Jetty Museum and Windermere Lake Cruises. Both organizations, dating back to the Victorian era, own a combined fleet of 18 historic vessels on the National Registers.

Photography Competition

The NHS-UK Photography Competition, an annual highlight, received nearly 500 entries from across the UK and beyond, under the theme True Colours. The competition awards prizes in four categories:

Photographer of the Year:

Peter Collins (Portsmouth)
for Painting Trafalgar.

Classic Boat Award:

Chrissie Westgate
(West Mersea, Essex)
for A Sinking Feeling.

Newcomer of the Year:

Amy Lawson (Perth, Australia)
for A White World.

People's Choice Award:

Julie Fletcher
(Llandeilo, Carmarthenshire)
for True LMS Locomotive
Colours, featuring a historic narrow-
boat meeting a steam train.



Additional commendations included Old and New – Waverley at Canary Wharf
by Mark Dillen and Pudge by Shaun Mills.

Marsh Volunteer Awards

The Marsh Volunteer Awards celebrate outstanding contributions to the preservation and operation of historic vessels. Volunteers are essential to the maritime heritage sector, ensuring the survival of many historic vessels. This year's winners included:

Group Award:
The Wick Society Boat Club
(Wick, Caithness).

Individual Award:
Christopher Barlow, West Wales
Maritime Heritage Society
(Pembroke, Pembrokeshire).

Shipshape Award:
The Pythoneers
(Chesterfield, Derbyshire).

Lifetime Achievement Award:
Pam Bathurst, Medway Queen
Preservation Society (Gillingham,
Kent).

Excellence in Maritime Conservation Award

The Excellence in Maritime Conservation Award, launched in memory of NHS-UK's late director Martyn Heighton, highlights best practices in vessel conservation.

The 2024 winner, Bernard Condon (Coleraine, Northern Ireland), was recognized for his exceptional work restoring the 1964 lifeboat Grace Paterson Ritchie, preserving 95% of its original hull and fittings.

A special commendation went to Boathouse 4 at Portsmouth Historic Quarter for constructing CMB 4R, a full-scale operational replica of a First World War torpedo boat, advancing knowledge while safeguarding the original vessel.

Flagships of the Year

The Flagship of the Year Awards honour historic vessels that promote maritime heritage through public engagement and events. This year's winners were:

National Flagship of the Year:
PS Waverley (Glasgow),
a 1946 paddle steamer.

Operational Flagships of the Year:
ST Challenge (Medway, Kent) and
Provident (Oban, Argyll & Bute).

Static Flagship of the Year:
Lady Daphne
(Charlestown Harbour, Cornwall).

These vessels embody the role of ambassadors for the UK's maritime heritage, showcasing their historical and cultural significance to the public.

About National Historic Ships UK

NHS-UK serves as the official voice for historic vessels in the UK. It advises the Department for Culture, Media & Sport (DCMS) and other organizations on ship conservation priorities. NHS-UK also maintains the National Register of Historic Vessels, which lists over 1,000 significant craft alongside other registers of historic and replica vessels. The annual awards inspire public engagement and ensure the continued appreciation and preservation of the UK's rich maritime heritage.





One third of ballast water treatment systems fail PSC inspections

Over 30% of all installed ballast water treatment systems fail Port State Control D-2 compliance inspections despite 95% of systems having successfully passed commissioning tests.

Information submitted by Global TestNet to the International Maritime Organization's Marine Environment Protection Committee MEPC82, which took place last year, revealed that 29% to 44% of operational systems are failing to remove invasive species in the $>50\mu\text{m}$ range, with more than 100 organisms of this size routinely found in every 1m^3 of treated water.

The D-2 standard of the BWM Convention, which entered fully into force on 8 September, requires ships to discharge ballast water with fewer than 10 viable organisms per 1m^3 that are at least $50\mu\text{m}$ in size.

Over 30% of all installed ballast water treatment systems fail Port State Control D-2 compliance inspections despite 95% of systems having successfully passed commissioning tests.

According to the findings, the most common reasons for non-compliance were contamination of the ballast water tank from mixing treated and untreated waters or improperly opening/closing valves; organism regrowth due to insufficient and infrequent cleaning of the ballast water tanks; and human error due to insufficient system knowledge, maintenance, and training.

Top ranked sources of failure:

- Contamination inherent to presence of organisms in tanks (no cleaning of tanks at commissioning and regrowth)
- Contamination from mixing treated water with untreated water
- BWMS not used in accordance with manufacturer instructions (including a lack of sufficient crew training)

"These results show that even if a vessel with a type-approved ballast water treatment system passes initial commissioning tests, the BWM system alone cannot assure against non-compliance," said Charlène Ceresola, BIO-UV Group's BWT Project Manager, who is currently participating in the BWM Convention Review as a Member of the French Delegation to the IMO Ballast Water Review Group.

She continued by stating that when a BWMS is properly installed, a high efficacy in removing organisms is achieved (99,9%) but IMO MEPC reports have acknowledged that this efficacy may not be sufficient to constantly meet the D-2 discharge standard.

"Compliance tests often fail due to the presence of organisms in the tank or water contamination. If operators do not fully understand the impacts of Ballast Water Management on board, and if bypassing cleaning procedures for ballast tanks occurs frequently, non-compliance will be unavoidable," said Charlène Ceresola.

The most frequent deficiencies reported by the Paris Memorandum of Understanding on Port State control also related to poor ballast water record book-keeping, inadequate crew training, system unfamiliarity, and invalid or missing certificates.

"We are encouraging BIO-SEA system operators to refer to the new guidance on ballast water record-keeping and reporting (due to enter into force on 1 February 2025), published in BWM.2/Circ. 80 to safeguard against port delays and detentions," said Ceresola. "While there remains a two-year grace period for treatment performance issues, ships can still be delayed for poor administration.

Maintenance and crew training are also areas where ships can be detained. "There is certainly a need for strengthening maintenance and system knowledge, and this will be part of the package of amendments IMO is preparing. Shipowners want their systems to be in good working order but how do you ensure this once the manufacturer has installed the system and left the ship, or is no longer in the market?

33 ship detentions

Moreover, of the 907 ballast water non-compliance deficiencies reported by the Paris MoU in 2023, 760 related to record-keeping and administration (58%), BWTS system and system knowledge (16%), and certification (16.9%), resulting in 33 ship detention. This year to date, 505 ballast water management deficiencies have been reported, resulting in 17 ship detentions.

Regarding the record-keeping and reporting to administrations, BIO-UV Group is now advising ship operators that IMO has updated Appendix II of the BWB Convention (form of BWRB) to clarify entries to be recorded.

13 priority issues

"There is agreement amongst ship operators and regulators that routine compliance checks are required. It is essential to assess whether systems efficiently prevent harmful aquatic organisms and pathogens from being discharged into the oceans," stated Charlène Ceresola.

The IMO's Convention Review Plan for the BWMS experience-building phase aims to address the 13 priority issues identified at MEPC80. The amendments package is expected to be completed by the end of 2026, with implementation taking place 12 to 18 months afterward. The primary focus areas include BTWS maintenance, crew training, and addressing challenging water conditions.



How to identify false readings of exhaust monitoring equipment?

An increasing number of vessels have encountered unexpected port state issues related to sulphur emissions limit exceedance caused by inaccurate readings. These false measurement readings are often the result of poorly maintained exhaust gas analyzers. This technical news emphasizes the importance of calibration and maintenance routines, and of monitoring equipment performance.

Introduction

Malfunctions of SOx scrubbers or exhaust gas cleaning systems (EGCSs) that last more than one hour should be reported to the flag administration and the relevant port state administration. However, sometimes a malfunction may go undetected because the monitoring equipment does not register any increase in SO₂ concentration. Often, the cause of false measurement readings is poor maintenance.

Since crew members are not experts in SO₂/CO₂ emissions monitoring systems, they may struggle to correctly interpret measurement signals and analyzer readings. The following guidance aims to enhance understanding and build confidence in making the right decisions when faced with suspicious measurement results.



Zero and negative SO₂ measurement readings

Zero and negative SO₂ readings do not necessarily indicate a failure of the analyzer. Given the allowable calibration accuracy tolerance of +/-2% of the lowest measurement range used, negative readings may still be considered within the acceptable range of the analyzer's zero setting. Thus, also very low concentrations at in-service measurements may be displayed as zero or even negative.

The following operating conditions typically support high scrubber cleaning efficiencies, resulting in low SO₂ levels in the cleaned exhaust gas:

- Low sulphur content of the fuel used
- Low engine load
- High wash water flow rates in the scrubber

Identifying false readings

Despite the above, zero or negative readings are not always plausible measurement results. It is highly recommended to stay alert whenever this is observed. The most effective fault finder is the observer's experience, which enables a quick assessment of whether the monitored scenario is realistic.

In addition, any of the below observations is a strong indicator for inaccurate zero readings:

- Irritating odour in the exhaust plume, sometimes with eye irritation.
- No or very little fluctuations in the measurement readings even after adjusting the wash water flow; measurement readings may drop even further into the negative range after increasing the wash water flow.
- CO₂ readings below 5%.

The use of fuel with a high sulphur content should also result in noticeable SO₂ concentrations in the cleaned gas. Usually, the gas analyzers perform regular self-checks which identify system malfunctions or irregularities. However, it is important to frequently check the device's error messages.

Fault finding

If the analyzer is suspected of showing false readings, follow the manufacturer's recommended corrective actions to identify any malfunctions.

When performing a leakage check, ensure it covers the entire measuring system, including the sampling probe and sampling line. Ingress air could significantly dilute the sample and reduce SO₂ concentrations to very low levels.

Other systematic mistakes could occur during the calibration process. Potential pitfalls range from deviations from the described procedure to the use of calibration gases with component concentrations that differ from pre-settings in the analyzer's calibration routine. Also, repeated forced zero adjustment during the zero-point setting with low SO₂ readings can shift the zero reference over time, reducing measurement sensitivity in the low concentration ranges.

Recorded values may also differ from local display readings if the sensor signal is not aligned with the specified measurement range setting in the control and monitoring system.

The removal of SO₂ in the emissions monitoring system may be caused by the cooler. If measures to prevent SO₂ losses are not correctly applied, this can result in false lower readings.

Recommendations

- Always be alerted if zero or negative values occur over a longer period, and perform quick plausibility checks.
- Perform a simple validation test: increase the engine load and decrease the wash water flow. If the SO₂ measurement signal does not increase, the analyzer likely needs servicing.
- Minimize analyzer malfunctions by strictly following the service, maintenance and calibration intervals and procedures.

We thank DNV for permitting us to share this information with our readers.



SO₂
CO₂

An expert's guide to lithium-ion battery fire prevention

By Mark Halverson,
Executive Manager
State Fire Safety
Section, Queensland
Fire Department.

Mark Halverson
(pictured). Image
credit - ABC News:
Marton Dobras



Mark shares some essential lithium-ion battery safety advice and guidance to give a better understanding of the risks associated with this technology.

- Lithium-ion battery powered devices don't pose an increased risk if devices are maintained in good working condition and people follow some basic rules. From a fire service perspective, the vast majority of lithium-ion battery fires we've seen have been caused by human error.
- Many of these simple rules that should be followed are almost all related to battery charging. Ensure that the charger you use to charge your particular device is the specific charger that's recommended by the manufacturer. If you buy a quality product from a reputable retailer, you can be confident that the correct charger will be supplied with that product. However, if you buy a discount replacement charger online you need to be very aware where that product is coming from.
- The above also applies to borrowing chargers from friends or family. Just because a charger can physically connect into the charging port of a device or the lithium-ion battery pack, doesn't mean that it is the correct charger for that device. So always check the manufacturer's recommendations.
- Damaged batteries also present a fire risk. If there are any signs that a battery has damage to it absolutely do not charge it – have it checked by a battery professional instead.
- Never charge a lithium-ion battery when a device is hot. Always give the battery time to cool after use rather than connecting it to a charger immediately. Similarly, never charge a lithium-ion battery powered tool or device in direct sunlight, such as on the deck of your boat.
- Another key factor is water ingress. Never charge a battery anywhere where water could potentially penetrate. Salt water in particular is an important risk to be aware of for any lithium-ion-powered tool or device that is taken onboard a boat.
- Don't put a lithium-ion powered tool on charge and leave it unattended on your boat. Certainly never charge a lithium-ion battery onboard overnight while people are sleeping in their cabins.
- Under no circumstances attempt to do 'home modifications' to increase the power capacity of lithium-ion battery packs. We have seen many examples of this in recent times where people's attempts at home modifications to their lithium-ion batteries have caused fires.



seen cases where people thought they had effectively extinguished a small fire themselves but were unaware of the heat that remained within. All lithium-ion batteries can be prone to re-ignition minutes or hours later, or even the following day. Be aware that re-ignition is a real risk and always call your local fire service so they can take appropriate action.

- Skippers should ask their passengers about any lithium-ion powered devices they may be bringing onboard. Can they assure you there's been no home modifications made to the batteries and that the products were purchased from a reputable retailer?
- The nature of lithium-ion technology and chemistry means fires can escalate very rapidly. What might appear in the first instance to be overheating, a crackling noise, usual odour or changes to the shape of the battery, could quickly escalate into a serious fire or in extreme circumstances even an explosion.
- Always maintain oversight while charging lithium-ion batteries so you can spot any of these warning signs within the early stages. If you do see any of these warning signs immediately disconnect the charger from the power if it is safe to do so. If there's any sign of smoke, evacuate and call the emergency services.
- Personal safety is absolutely paramount with any type of fire. It is strongly recommended that people don't attempt to fight lithium-ion battery fires themselves.
- Put simply: the fire extinguishers onboard the boat or within a home are typically not effective in fighting lithium-ion battery fires. In the future, extinguishers for lithium-ion battery fires may be developed, but current extinguishers are typically not effective.
- Within larger lithium-ion battery powered devices and tools, there are a large number of battery cells contained within the battery pack, which is also sealed. So, putting water or any other extinguishing medium on the outside of the battery pack itself is unlikely to be effective when the heat is being generated from within.
- It's also important to be aware of the potential for re-ignition of lithium-ion battery fires. We've
- Toxic fumes also present a significant safety risk with lithium-ion battery fires, and these fumes are likely to be present even if there's a minimal amount of smoke or no other smoke present. Toxic fumes are clearly highly dangerous to humans, especially anybody who is onboard in a confined area. So, we strongly recommend people evacuate themselves and anyone else in the vicinity immediately to fresh air and then call the emergency services.
- The number one takeaway tip is don't attempt to extinguish lithium-ion battery fire yourself. If you see those warning signs in the early stages of the charging process, whether that is a sign of overheating, swelling or a crackling noise, disconnect the power if possible to do so safely, but still call the fire service because that's what we are there for.

Lithium batteries don't commit suicide. They're murdered.

By Marcus Jones, DipMarSur(IND), AMIMAREST

LiBs batteries are increasingly used in the marine industry. Their advantages are many: compact and cheap, with higher energy density, they can help to cut down sharply on fossil fuel use. Problems are rare, but when things go wrong the results have a high impact and take up emergency resources for a considerable time.



What is a lithium battery

A LiB is what is sometimes referred to as a rocking chair battery and was invented in the 1970s. Types are named by their Cathode material chemistry, LFP (Lithium Iron Phosphate), and NMC are the most common. The current collectors are metal foils (Cu) Copper for the Anode and, (Al) Aluminium for the Cathode. Spread with a thin paste layer of Carbon nano particles on the (Cu) Anode and the Lithium chemical compound paste on the (Al) Cathode. Between them is a layer of organic solvent with a microns-thick Polyethylene Ion porous separator in the middle. This completed sandwich is then, rolled or folded into form factor called a cell and packed into casing.

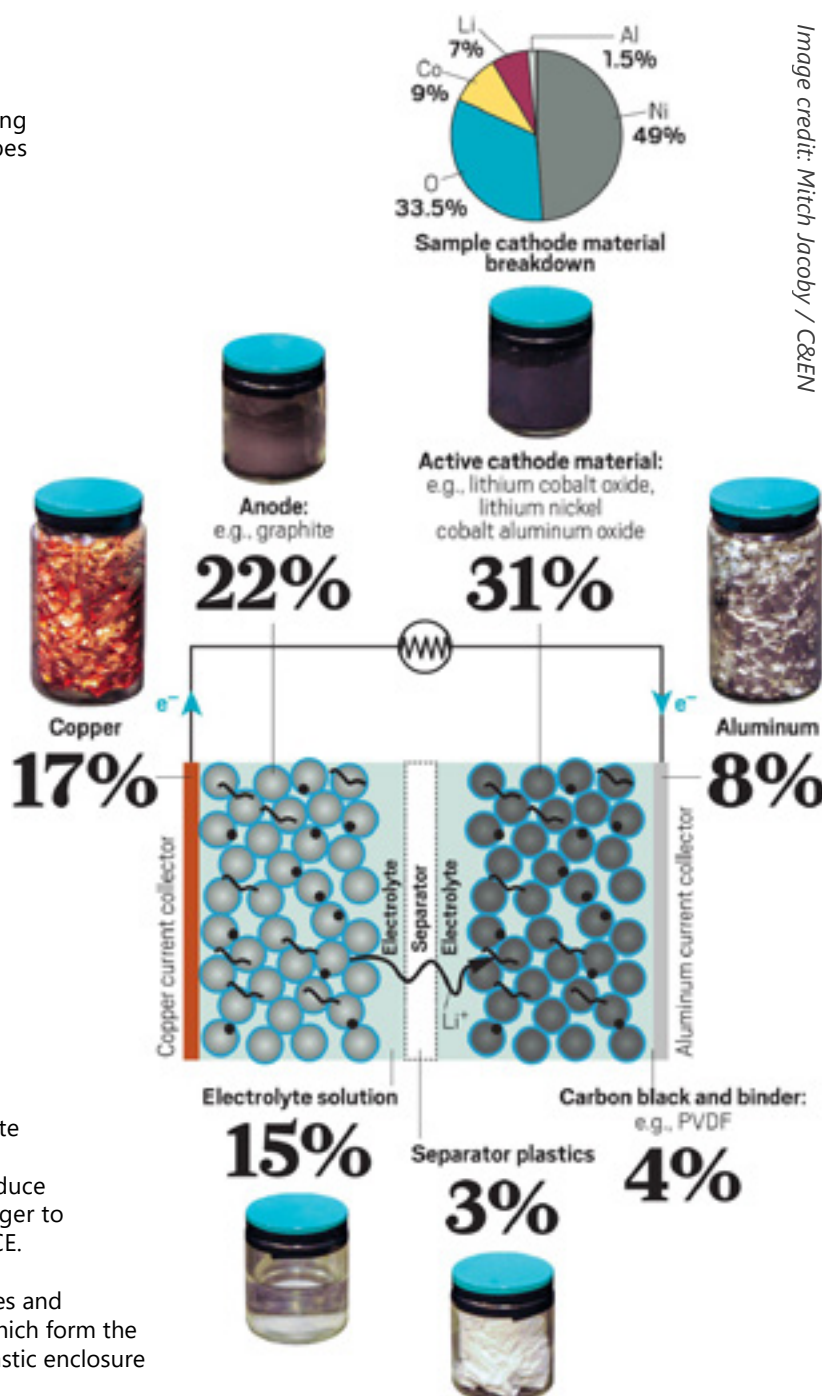
Lithium cells come in three types or form factors:

A. The cylindrical cell, such as the lithium 18/6/50. This is shaped like an AA battery and can be used alone or linked in series. It is usually used for smaller devices such as power tools but can be linked up to power larger things like Tesla cars.

B. The soft flexible Pouch cell often the size of an A4 sheet of paper but can be smaller: it can be shaped to fit within a housing and was originally developed for Electric Vehicles (EVs).

C. The Prismatic cell with a plastic case. This is about the shape and size of a 6 cigarette pack stacked in pairs side by side. Victron LFP marine batteries use this cell type. LFP cells produce higher volumes of hydrogen gases and take longer to ignite the vapour cloud increasing the risk of VCE.

The cells are made into strings connected in series and then made into modules connected in parallel which form the battery pack. This is packaged into a metal or plastic enclosure suitable for the intended use.



When LiBs fail

LiBs can store a large amount of energy in very small space and can be cycled many times over their lifetime with very little loss of capacity. However, if the stored energy is released all at once it can be very destructive.

In normal operation charged lithium ions enter the carbon particle matrix on the anode by leaving the lithium paste at the cathode and pass through the solvent and separator. When discharging, or in use, this ion flow is reversed. When LiBs are made the first charge is very slow and the batteries are left for 10 or more days to form an SEI (Solid Electrolyte Interface): a passive layer of solids around the carbon particles. Without this SEI layer, the charged lithium ions chemically attack the carbon particles. This creates an exothermic reaction that releases a huge amount of heat and gas and the cell explodes. This reaction can also be triggered if the SEI layer or polymer separator is damaged, leading to TR (thermal runaway) in a cell and then TP (Thermal Propagation) from cell to cell. This is the big baddie!

Image from BSLBATT Lithium



Cylindrical cell



Pouch cell



Prismatic cell

It's not smoke... and apply common sense

When LiBs go into TR a number of things can happen. The first is the battery may simply explode. Throwing hot shrapnel around. This has happened with light electric vehicles (LEVs), scooters, bikes, water hover boards, jet skis, etc.

If it doesn't explode, you may hear pressure caps popping and hissing of gas escaping with a chemical smell. You might briefly see a black cloud as the carbon particles are blasted out. The flammable gas escapes at high pressure and can ignite producing jet or rocket like flames at 1,000 C. If ignition is delayed the gases vent off creating an explosive atmosphere with an LEL of 11% to 16% with a risk of VCE (Vapour Cloud Explosion). This vapour contains hydrogen, hydrogen cyanide, hydrogen fluoride, hydrogen sulphide, carbon monoxide, CO₂ and visible droplets of the solvent mistaken for smoke or steam. Hydrogen fluoride turns into hydrofluoric acid on contact with water or sweat on skin. The DTLH (Danger to Life and Health) level is well below the LEL.

The volume of gas boiled off is huge. In the region of 300 to 5000 litres per kWh of battery capacity. There are also two vapour clouds. One is lighter than air, and the other denser than air. At the moment it's not known how to predict which will dominate.

It's the VCE risk that is the real problem, especially for the marine industry. And current fire suppression systems cut out active fire burning time. But flip the risk to VCE. Because TR continues and cells continue to boil off vapour. As the cells are watertight **"It's like pouring water on the roof of your house when your kitchen is on fire."**

TR (Thermal Runaway)

Thermal runaway is just heat, not a fire. It occurs when the limited chemical reactions within the cell become self-sustaining. Once this state is reached it can't be stopped. Degradation of the separator can start at as low as 60 C. Heat is produced in the volume of the object but only dissipated by its surface area. Thermal propagation heats up adjacent cells which then go into TR.

Lithium batteries don't commit suicide. They can be murdered by abuse. Physical damage, overcharging, over discharge, short circuit, overheating, or manufacturing defect.



Marine Safety Regulations

The current European guidelines, published by P&I clubs, IACS and state authorities for the use of builders and vessel operators are a good starting point. But this is a fast-moving technology though. And the guidelines reveal large gaps in the industry's understanding of TR and its behaviour beyond the theoretical cell or module testing level and how that practically translates into failures in a large installation in a propulsion system battery room, UPS, super yacht water toys or power tools. The focus is on fire because it's familiar and easy to understand but, but TR is not a fire, its heat, although fire can be a result. And suppression of active fire is good and buys useful time to remove people or other fire hazards from the area, but in the case of LiBs it flips the risk from fire to VCE. With old-style battery technology, fire suppressants such as water or powder would safely resolve a dangerous situation. LiBs are different. The TR and TP continue as we currently can't stop it directly as explained above, and it can lead to VCE with all its risks to life and property.

Moving forward

The Underwriters Laboratories (UL) in the USA has freely shared its understanding of full-scale LiB failures in Battery Energy Storage systems (BESS). It has created a clear set of full-scale testing goals in UL9540A, based on full scale test results, and observations from real world accidents. ULs work has led to safety improvements in BESS designs, and clear development of domestic BESS installation regulation via Building Fire Codes like the (National Fire Protection Association's) NFPA 855 in the USA. This testing, observation, and feedback approach is now being adopted in Canada. This is a practical approach to potential challenges that the marine industry has and could be adopted to fill the gaps in industry understanding and address the real risks posed by LiBs in marine applications. Full scale safety testing of marine installations using LiBs which nobody seems to be considering would be needed. Freely sharing available information and the feedback from real world marine incidents, via a central or international database, would be an ideal to aim for. This is an ongoing process of review and improvement as technology develops, and would lead to an internationally agreed, practical set of up to the minute minimum safe installation standards to guide marine surveyors, insurance companies, vessel builders, vessel crews, and designers and port state authority safety enforcement. Plus, the bloke who just wants to upgrade his electrical system on his yacht or narrowboat who is dire need for proper information rather than looking for guidance on the internet via YouTube videos.

The developing chemistry of sodium batteries can also undergo thermal runaway but seems to produce more gas, than being an ignition source. There are also batteries like the Goliath P1 battery chemistry and the LG battery design that claim to have solved the TR problem. Further testing is required but early statements from the developers look interesting at least.

We need to work together as an international industry to fill the gaps in our knowledge and that of the wider public about the advantages and the safety risks of this new technology. The IIMS and others within the connected maritime industries are welcome to join in on this ongoing process.

I would like to thank Professor Paul Christensen for the information he has shared on the safety risks of LiBs.

Useful links

www.fsri.org Fire training and resources for US fire fighters, free to join. Videos or conferences and presentations.

www.bsigroup.com A PDF copy of new PAS 63100:2024 guidelines for domestic BESS installations.



Tritex NDT Multiple Echo Ultrasonic Thickness Gauges



The Drone Thickness Gauge
Multigauss 6000



The Underwater Thickness Gauge
Multigauss 3000



The ROV Thickness Gauge
Multigauss 4000



The Surveyors Thickness Gauge
Multigauss 5650

Tritex NDT specialize in the manufacture and supply of Multiple Echo Ultrasonic Metal Thickness Gauges, used for verifying corrosion levels and measuring metal thickness from one side only, without removing any protective coatings. The Multigauss 5650 Surveyor Gauge can measure both metal and GRP, in one gauge, and also switch from Multiple Echo to Echo - Echo with the simple press of a button, using the same probe.

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Lithium-ion batteries: a growing risk for yacht fires?

By Philippa Langton (partner) and Jessica Slater (solicitor), Lester Aldridge



Jessica Slater

Philippa Langton



In an exclusive interview with Marine Industry News (MIN) recently, Philippa Langton and Jessica Slater from the marine team at UK law firm Lester Aldridge, discussed who is responsible for fire damage onboard yachts, and ways yacht owners can mitigate against risk.

Photos courtesy of marinspompiers via Instagram



Increased usage of lithium-ion batteries aboard yachts and superyachts presents significant risk for the maritime industry and it is compounded by the rapid evolution of technology with which regulatory oversight struggles to keep pace.

On 9 January 2025, a fire broke out on board the m/y Naisca IV while moored near Marseille. Initial indications are that the fire, which ultimately destroyed the Naisca IV and caused damage to two neighbouring yachts, originated from a lithium-ion battery. While efforts were made to mitigate environmental harm, the extent of the loss remains uncertain.

In this case, the extent to which fire safety protocols were followed remains unclear. However, this incident underscores the importance of (i) strict adherence to fire safety standards; (ii) insurance coverage; and (iii) ongoing training for captains and crew to understand the risks involved with lithium chemistries and cell balancing issues.

As the yachting industry grapples with the challenges posed by lithium-ion batteries, the need for enhanced regulation and proactive risk management has never been more evident.

Who is responsible for fire damage onboard yachts?

If the fire is established to have originated aboard the Naisca IV, her owners and insurers would typically be the first parties held liable for claims, subject to the facts and available evidence. These claims would encompass a wide range of losses, including:

- Damage to nearby yachts
- Wreck removal
- Marina property damage
- Environmental harm
- Personal injury claims
- Other related expenses.

Where evidence points to a defect in a lithium-ion battery, which was possibly used aboard a tender or luxury superyacht equipment (personal watercraft, e-bikes and other toys), the owners of the Naisca IV might have grounds to pursue recourse claims against manufacturers or suppliers or against surveyors or crew who failed to detect issues during inspections or maintenance. As the use of this sophisticated equipment increases, so too does the expectation of reasonable diligence in its maintenance and operation.

Will yacht owners be covered by insurance?

Yacht owners generally rely on hull insurance (to cover damage to their own yacht) and protection and indemnity insurance (to cover third-party claims).

Marine policies typically respond to fire damage claims however coverage is subject to critical conditions including:

- Seaworthiness: the yacht must be maintained in a seaworthy condition and owners are advised to maintain paperwork in order to prove this.
- Policy terms: the owners must adhere to policy terms, including any warranties, such as requiring the yacht to be 'manned at all times'.
- Other exclusions: most marine insurance policies do not respond to claims arising from negligence or deliberate acts (including that of the captain and crew).

If the Naisca IV was seaworthy and compliant with her hull insurance policy (if applicable), in the first instance her owners may recover the full insured value of the yacht, subject to any applicable deductible.



The hull insurers, who will want to have been involved in investigating the incident from the outset, might then pursue subrogated claims against any third party (such as manufacturers or surveyors) who might seem to hold ultimate responsibility.

Similarly third-party liability insurance may cover damage to the nearby yachts provided no policy terms have been breached. In the absence of such coverage, the owners could face significant personal liability, particularly if their ownership structure does not afford corporate protection.

The recent increase of fires appears to be pushing up premiums for yacht owners.

Inadequate guidance and lack of legislation in place for battery systems on yachts makes it harder for insurers to manage their risk exposure.

In response, insurers have had to re-evaluate their underwriting practices and many are starting to offer loss control surveys which involve an audit of the relevant yacht by a technical expert, thereby introducing coverage subjectivities. Any related claims can result in complex and costly disputes.

Preventative measures and protection for yacht owners
Yacht owners can mitigate the risks of fire-related claims through a combination of measures.

Crew Training

Yacht owners should ensure that all crew members have received comprehensive training on the risks associated with lithium-ion batteries including the management of charging protocols and cell-balancing procedures. The risk

develops over time, and it is understood that the more this type of equipment is used or ages, the more it degrades and carries a higher risk of igniting.

Regulatory compliance

Over the past few years Class and Flag states have started to produce guidance notes on the use of lithium-ion batteries aboard yachts but most still appear to take a non-prescriptive approach. That's expected to change over the next few years, resulting in a more streamlined approach. There is already an increase in guidelines on the early detection of battery degradation, with entities such as the MCA recommending battery management systems which supervise cell temperatures as well as the state of charge and health (MGN 681). Yacht owners are advised to consult with their Flag state or classification society administrators on the necessary measures if anything is unclear.

Insurance

Owners should maintain robust hull and liability insurance coverage to safeguard against potential losses and to ensure that routine checks are undertaken to confirm coverage. Additionally, the law offers some further protection to yacht owners by permitting them to establish a limitation fund, to limit their liability based on the certified gross tonnage of the yacht, where the damage was not caused by their actual fault or privity. Similarly, the Convention on Civil Liability for Oil Pollution Damage (CLC) and other contractual agreements, may provide further opportunities to cap liability and limit their financial exposure.

Lester Aldridge website:
<https://www.lesteraldridge.com>

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<https://marineindustrynews.co.uk>



Celebrating The Gussies Electric Boat Awards



The Gussies 2024 ELECTRIC BOAT AWARDS

presented by

AQUA
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OCEANVOLT

BLU NAV

The electric boating revolution is truly underway! As the electric boat market continues to ramp up in the move towards ever increasing decarbonisation, so do the awards that recognise innovation and excellence in this market segment, culminating in late 2024 with the 5th edition of 'The Gussies'.

After voting by more than 6,000 members of the public and an International Judging Panel of 32 electric boat experts, the boats that took first place in their respective categories as best representatives of 'excellence in electric boats and boating' are highlighted below.

Voting was weighted 75% Panel to 25% Public. In many categories, this was an incredibly tight competition – so much so that in one category when all of the votes were added up and weighted only a few points separated the first to fourth place finishers.

The awards are named after Gustave Trouvé, the French inventor who decided the best way to work on the electric motor propelling his prototype boat 'Le Téléphone' along the Seine in 1874 was to devise a detachable unit so that he could tinker with the motor in his shop at home. It was the birth of the outboard motor.

At last year's awards more than 150 boats from 25 countries and every continent entered 'The Gussies' and carry on Gustave Trouvé's legacy. Congratulations goes not just to the winners but also to all the designers, builders, technicians and everyone involved in bringing these boats to life and for helping to grow electric propulsion everywhere. The future indeed looks very bright.



Category: Concept/In Development
Electric Boats: Up to 8m / 26ft
ENVGO NV1 | ENVGO - Canada

The ENVGO NV1 is a 25-foot electric hydrofoiling cruiser that blends luxury with high performance. With a range of up to 80 miles and speeds reaching 50 mph, the NV1 effortlessly glides above water, leaving no wake, emitting zero emissions, and operating in near silence. The aesthetically sleek design and lightweight carbon fibre hull are matched only by its advanced flight control technology, offering a refined and intuitive boating experience. The ENVGO NV1 is a revolutionary clean-energy boat that sets a new standard where sustainability and innovation intersect, redefining what's possible in high-performance electric boating.



Category:
Concept/In Development
Electric Boats: Over 8m / 26ft
Optima e14
Optima Electric Yachts - UK

The Optima e14 is an ultra-efficient, light-weight 100% electric boat. The innovative design uses significantly less energy, the ultra-efficient design gives the boat a range of up to 150NM on one charge, allowing for long distance cruising in an electric boat and eliminating the problem of "range anxiety". The low-energy hull reduces the need for very large battery banks, reducing weight and environmental impacts. Designed for leisure and commercial markets with a large sociable cockpit for up to 10 people and extensive galley facilities, open or enclosed cockpit – several variants are available to allow for bespoke customization.



Category: Production Electric
Boats: Over 8m / 26ft
Sialia 45 Sport | Sialia Yachts - Poland

The Sialia 45 Sport combines the technical pinnacle of boat design and electric powertrains delivering a unique experience of electric boating without compromises. Combining a top speed of 45 knots, cruising at 25 knots and a Miami – Bahamas range of 75nm with 10% to spare! With up to 700kWh semi-solid battery, 2x300kW continuous motors and a user-centric Ship Management system to ensure simple, safe and comfortable use the Sialia 45 Sport opens up for sustainable boating with all its perks but without compromising on performance, style and experience, at a price point matching its combustion peers!



Category: Production Electric Boats:
Up to 8m / 26ft
Sun Concept EVO 7.0 Cruise | Sun Concept - Portugal

The SunConcept EVO 7.0 is a solar powered boat designed for use in calm and sheltered waters, suitable for protected coastal areas and lagoon and riverside areas where noise, pollution and stress caused by agitation are factors that destabilize and devalue the landscape and well-being. On the EVO 7.0, enjoy a meal inside, enjoy a sunset, dive into refreshing waters or simply sail. Capacity for 12 people. Energy-independent, capable of operating at 4 knots. Maximum speed: 7 knots. Standard version with 2 x 6 kW engines, 31.4 kWh lithium batteries and 1.54 kWhp solar power generation.



Category: Electric Sailboats
Fountaine Pajot Aura 51
Fountaine Pajot - France

The largest non-flybridge sailing catamaran in the FP range, the Aura 51 is designed for sailors who aspire to experience cruising with a capital C for comfort. It has cutting-edge electric propulsion technology developed exclusively by Fountaine Pajot and ODSeaLab with 2 x 25 kW motors, 2x32 kWh batteries, hydrogeneration and up to 2,000 w generated by integrated solar panels. All on-board production and energy expenditure flows are managed from a single console with a simple, designer user experience. The system gives priority to the use of renewable energies at all times.



Category: Retrofitted / Customized / DIY Electric Boats

Vital Spark – Paul Sparrow V3
Paul Sparrow – Scotland, UK

PlusZero is a company unlocking the full promise of renewable energy, using surplus electricity produced by local renewable wind power to split water into hydrogen and oxygen through electrolysis. Vital Spark is a unique front steer 3 point hydrofoil. Designed for sharp fast turns the foil system offers incredible efficiency through the water. Powered by a 6kw electric motor linked to a small battery and a 5Kw I.E. fuel cell stack with the hydrogen stored at low pressure in a compact and energy dense solid state metal hydride canister (Ab5). The hull is designed for speeds up to 50 knots.



Category: Electric Workboats EF-12 Workboat Artemis Technologies - UK

The world's first 100% electric foiling commercial workboat, this multipurpose workboat provides a solution for ports and harbours to help decarbonise their operations. Carrying 6 passengers with a top speed of 31 kt, cruising speed of 25 kt and foiling range of 55 nM, it produces zero emissions in operation, requires minimal servicing in contrast to conventional diesel engines and provides a more sustainable way to operate efficiently without contributing to air pollution in busy waterways. With ultra-fast charging capability, a full charge can be achieved in less than 60 minutes, allowing for seamless and uninterrupted journeys.



Category: Electric Commercial Passenger Vessels: In Operation hyke Shuttle 0001 hyke (Hydrolift Smart-City Ferries) - Norway

Hyke has launched a new passenger shuttle service in the city of Fredrikstad in Østfold county in eastern Norway. The 10 tonne 15-metre-long and 5.7-metre-wide vessel has a power output of between 60 kW and 150 kW, depending on the version. The batteries have gross capacities of between 95 kWh and 285 kWh. It is equipped with solar panels on the roof and can be automatically charged wirelessly. Maximum speed is 15 knots (28 km/h), and energy consumption is ten to twelve kWh per hour at a speed of six knots.



Category: Electric Commercial Passenger Vessels: In Development Wada Hoppah 58 | Wada Hoppah - USA

Inland, clean marine transportation at its finest. Wakeless, shallow draft (17"), all electric with solar panels, hold forty+ passengers. Made for rivers, shallow harbours and inland water ways, this gorgeous, wakeless, electric water shuttle was made to remake those waterways with limited dredging, variable shallow depths, low bridges, and lots of pleasure boating marine activity that can't be waked, like rowers, kayakers, or paddleboarders. Perfect for coastal cities with major river waterways that want electric commuting. Also, for those with worsening flooding issues as Wada Hoppah can double as a large passenger rescue vessel with its ability to get 10 miles with forty occupants in water as low as 17".

Metstrade 2024

Electric boating overview: higher power and new outboards

By Jeff Butler, plugboats.com

The three-day METSTRADE show, the world's largest B2B exhibition for the leisure marine industry, wrapped up last November at Amsterdam's RAI Convention Centre after recording its highest ever attendance: nearly 1,600 exhibitors and 20,000 attendees representing 134 nationalities.

What is also growing is the presence of electric boating exhibitors at the show, reflected not only in the sheer numbers, but also in the prominence of some stands which are not only significant in size but also in key locations throughout the show. Another indication is the addition of 'sustainability' as a major factor in deciding the winners of the show's prestigious DAME Design Awards.

Dutch Electric Breakfast

Perhaps the best indication, though, is the 'Dutch Electric Breakfast' which was first organized in 2023 by Jamie Marley of Marine Electrification as "a gathering of like-minded industry friends involved in the electric and hybrid propulsion revolution".

Jamie worked as Torqeedo's Senior Field Service Engineer from 2014 to 2018, then started Marine Electrification to provide independent advice and custom electric propulsion installs. Aside from being one of the most knowledgeable people on the topic, he is also one of its most enthusiastic cheerleaders.

In 2023, maybe 20 people gathered at a small café across the street from the massive RAI Centre for a coffee, a bite and to talk electric propulsion. This year the staff of the De Uitsmijter was kept hopping for a good hour and a half as more than 50 showed up.

The crowd included Adria Jover, President of IEMA (International Electric Marine Association), Christoph Ballin (founder of both Torqeedo and TYDE boats), Clive Johnson of Vita Power, Dan Hook of RAD Propulsion, Nathan Steele of Seabird Technologies, Neil Mans and Mark Robotham of

New Zealand's ZeroJet and many more representatives from major electric propulsion companies.

UK's Helix motors stepped up to pay for the event and Senior Principle Designer, James Edwards, had placed a small item on one of the tables, a motor literally the size of a postcard: 102 mm in height/diameter and 165 mm in length (4" x 6.5"). Good things do indeed come in small packages, as that little unit is capable of producing 120 kiloWatts of power.

It was a sign of the kinds of things that would be at the show across the street. High power electric motors would be one of the big themes of the electric METS, along with the introduction of some impressive outboards and other motor types like pods and saildrives.

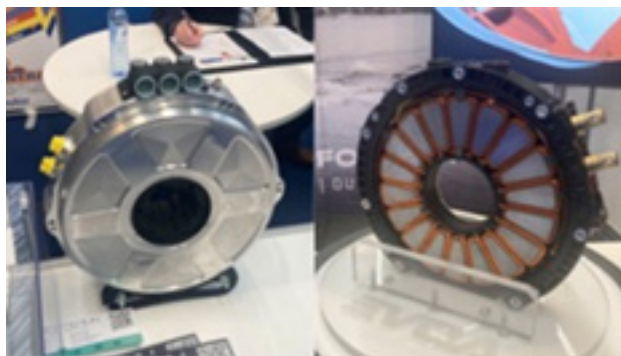
There were other notable products and services, of course, but I would say 'high power and outboards' were my two biggest general takeaways from three days of exploring dozens of booths. The most common question traded by everyone in the electric boat industry at METS is 'What have you seen that is interesting?' So, this article is an attempt to answer that. There are short paragraphs below about each of the products.



Image credit:
EVOY public media
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Big power in small packages

EVOA and ARUSK pancake motors



'pancake' motors (I think you can see why from the photograph) which is the user-friendly name for an axial flux motor.

Among the hundreds of displays in the dozens of stands of electric boat exhibitors, there were two that struck me because they were so small and seemingly insignificant, but both vividly showed the incredible opportunity and potential for electric propulsion.

One was in the stand of EVOA, the US motor company that is providing high power electric propulsion for iconic brands like ChrisCraft, Mastercraft and Williams Jet Tenders. The other was from a Slovenian company, ARUSK. I spotted it sitting on a table in a shared stand dominated by the other exhibitor, a company that distributes marine gearboxes and engine mounts.

The EVOA display was the interior of the motor, the ARUSK was a complete motor, that generates 170kW from a unit 270 mm in diameter and 73 mm wide (10" x 3"). They are both

Electric Outboards

Seabird Technologies 400X



If I did have to choose the most overall impressive electric boats item at METS, I would have to go with the new ultra high power outboard from Seabird Technologies.

Seabird is the company that designed the Racebird for the E1 Series of international electric boat racing, and now they have taken what they learned and applied it to the Seabird 400X, with the 400 standing for 400 kilowatts of power – that's 530 horsepower.

That's the peak power, the continuous power is 300 kW / 400 hp. That is pretty remarkable in and of itself, but what's even more impressive is that a 400 hp fossil fuel outboard weighs 315 kilograms / 695 lbs, while the 400X is less than 200 kg / 440 lbs.

The other striking thing about the 400X is how small it is, especially the visible section. Those 400 kiloWatts come from a pod motor under the water, so the section attached to the boat's transom is a sleek, elegant brushed metal column only about .4 metres / 16 inches wide and maybe twice that deep.

EPTechnologies FALCON Outboard



Another high-power outboard introduced at METS was the FALCON, by EPTechnologies of Denmark. EPT is celebrating their 10th anniversary in business and has spent that time doing custom installations as well as offering a range of plug-and-play electric inboard options, including a drop-in Z/stern drive and drop-in jet drive. They were also one of the first marine companies to offer a solid-state battery.

The FALCON is the first outboard in their lineup, designed and built from the bottom up to maximize the advantages of electric motors and propulsion. The axial flux motor packs 130 kw of continuous power (175 hp) into a small space, and, as with the 400X, is about 100 kg (220 lb) lighter than similarly powered fossil fuel burning motors.

That small motor block is stationary, with steering accomplished by the ability of the lower leg/lower unit of the motor to revolve 180°. That not only provides outstanding handling in tight space, but also helps protect the motor components.

Existing high power electric outboards

While the Seabird 400X and FALCON were launched at this year's METS, there were also other high-power outboards to be seen. As recently as two years ago there were really only two players who had electric outboards with output of more than 75 kW (100 hp): Norway's Evoy and Canada's Vision Marine Technology.

Vision Marine did not attend this year's METS, but Evoy was there showing off their BREEZE 300+ HP model, with continuous power of 225 kW and peak power of 450 kW (300 and 600 hp). This is the motor that powers the Axopar AX/E 25, winner in the 2023 Gussies Electric Boat Awards.

Evoy was joined in the high power outboard arena by Explomar, who had a shared display at last year's show, and ACEL Power, who were attending their first METS. Explomar displayed their WAVE 150+ (peak power of 150 kW / 200 hp) and a bit lower on the output scale, ACEL had their 75 hp (55 kW) unit on hand. We also need to mention Molabo's 50 kW motor that uses safe-to-touch 48 volts to generate that power, as well as a teaser in the RAD Propulsion booth – a pink foam cutout with the words 'RAD 120' above it. Coming soon!



As I said, for me the two themes for the show were 'high power' and 'new outboards' Here are some other OBs that made their debut at METSTRADE 2024.

ZeroJet Electric Outboard (40 kw)



The new 15 kW (25 hp) electric outboard from New Zealand's ZeroJet is quite impressive. As their name suggests, ZeroJet's flagship product is an electric motor for jet drives, which is available on boats from a number of manufacturers, including OC Tenders, Spark, Agilis and the Highfield EJET 330.

That motor technology has now been configured as an outboard which the company says delivers the highest power-to-weight electric outboard in existence, weighing only 38 kilograms (83 lbs). It also operates on safe-to-touch 48 volt architecture. One of the challenges of obtaining high power output from a small motor is how to dissipate the heat of the rapidly spinning rotor. ZeroJet has done this with a closed loop cooling path that includes a special heat dissipating construction of the cavitation plate above the propeller.

Rim Drive Technologies Entry Level and Steerable Outboard



A rim drive motor is one in which the propeller blades are not attached to a central axle, but instead are fixed to the outer rim of a cylinder. Rim Drive Technology is the leader in these types of motors and, until now, has only had them available as pod drives and bow thrusters. At METS they launched their first outboard setups, the Entry Level Outboard and Steerable Outboard.

The Entry Level is an adaptation of their standard pod, adding a shaft, encompassing column, tiller and trim/tilt bracket with five positions to achieve the most efficient propulsion. The Entry Level comes in five power ratings: kiloWatts: 3, 4.2, 5, 11 (hp equivalents: 4, 6, 7, 15).

The Steerable Outboard is an adaptation of their steerable pod, essentially with all of the electric steering technology encompassed in a cowling that fixes to the transom of the boat instead of the middle of the hull. As with the FALCON, the lower unit revolves to steer the boat – a full 360° in this case. There are two power options: 11 and 15 kW *15 and 20 hp).

Yamaha Harmo 2.0



Another rim drive motor at METS was the Yamaha Harmo 2.0. The 1.0 Harmo was actually first displayed at METS 2016 and then launched for European boatbuilders in 2020 as a “next-generation control system platform” consisting of a propulsion unit powered by an electric motor, a remote-control box, and a joystick that enables more intuitive operation.

The Harmo 2.0 is largely the same system, but with improvement and upgrades in all aspects resulting from tests and customer feedback. There is an expanded control system, and the Harmo 2.0 fully integrates with Yamaha’s Helm Master EX® system, giving users access to advanced features such as Autopilot and SetPoint positioning.

Mitek REVOLVE



A very clever outboard idea was exhibited at METS from Mitek, an Italian electric propulsion company with a full range of products including inboards, outboards, pods and saildrives. Their new motor, REVOLVE, was nominated for a DAME Design Award at METS and is impressive to see.

It basically takes the rotatable lower leg to another level. The 100kW (135 hp) motor sits in a bracket that looks like a C-Clamp and is attached at the bottom to the lower unit. To steer the boat, the lower unit and bracket turn together. The real innovation, though, occurs when the motor is turned off. The bracket turns to be flush with the transom, then the entire unit revolves out of the water to tuck away against the transom above the water line.

Monument M10



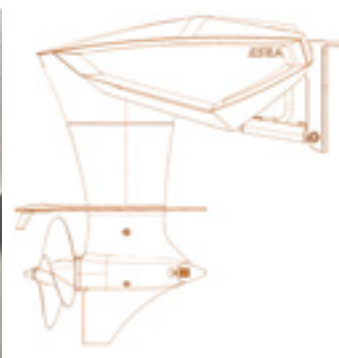
Another brand new outboard nominated for the DAME Awards comes from Monument, an offshoot of electric surfboard manufacturer The Kinetic Option. The METS show was the worldwide launch for the 10 kW (1.5 hp) motor, which also shows off the weight advantage of electric over fossil fuel burning motors, weighing in at only 24 kg (53 lbs). For a comparison, that’s less than half the weight of a Yamaha 15 tilting the scale at 50 kg (111 lbs).

“But what about the battery”, you say. The company’s MB-6 battery weighs 37 kg and is basically the same size as a 3 gallon/10 L gas/petrol tank. For a full weight comparison then, the M10 and MB-6 add up to 61 kg while the Yamaha 15 and full tank add up to 60.29 kg. The battery stores 6.4 kWh of energy, and the M10 has an integrated trip computer and digital display with foldable tiller and quick release transom mount compatible with a wide range of common remote steering setups

New outboards from the Startup Pavilion

There was a start-up section at METS in 2023, which was elevated to full Start-Up Pavilion status. Organized and overseen by Yachting Ventures, the growth platform for startups in leisure marine, the companies are not limited to electric boating but inevitably, there are some interesting and exciting entries in that field. At METS 2024 there was one start-up completely new to the scene – E SEA – and another – ZPARQ – that graduated from the previous showcase with a fully realized outboard ready for manufacture.

The ESEA prototype has used the rotating lower leg concept to create an outboard with an extremely low profile and a power rating of 75 kW (100 hp). ZPARQ (pronounced ‘spark’) has created a much rudder type outboard using a 10 kW/15 hp motor that has enormous power to weight ratio because it literally has a hole in the middle. This patented Hyperflow Cooling™ concept means water is flowing all around the motor as it goes through the water, enabling much higher RPMs.



Inboards, Pods and Saildrives

While I do say the overall themes (for me) of METS were 'high power' and 'outboards', that is not to say that there wasn't lots of news and new products in other motor configurations, like inboards, pods and saildrives.

Molabo



A few weeks before the show Molabo announced their new inboard, the Aries i25, a 25kW model that runs off the same 48 volt architecture as their 50 kW motors. The uniqueness of the Molabo products is that they use a motor structure that has received multiple patents. Instead of the electricity flowing through windings, as it does in both axial flux and radial flux motors, their ISCAD motor (Intelligent Stator Cage Drive) has the juice flowing through rods that form the stator 'cage'. What that does is allow individual control of the current in every bar of the motor, giving multiple ways to optimize motor operation under different conditions.

The other compelling benefit is that 48 volt motors can be installed without the special training and equipment required to safely handle voltages over 60V. For boat owners looking to switch to electric propulsion the Aries i25 offers a compact, easy solution at an accessible price point and for naval architects, designers, manufacturers, and boatyards it's a cost-effective, high-performance option that makes it easier to adopt electric propulsion.

ePropulsion Pod Drive 20 eSSA



ePropulsion introduced their new Pod Drive 20 eSSA. Two years ago, at the Southampton Boat Show, ePropulsion launched their OEM Pod Drive 10kW and the 20 eSSA is a natural extension with 20 kW of power. (They also have 1, 2, 6 and 12kW pods.) The eSSA designation refers to the ePropulsion Smart System Architecture that integrates, monitors and allows control of all aspects of the

boat's energy inputs and outputs the Advanced Driver Assistance System (ADAS).

The Pod Drive eSSA has been designed for maximum flexibility for either a refit or new build. It easily fits onto any Volvo or Yanmar sail drive mounting and its NMEA 2000 interface allows integration with most multifunction displays (MFDs).

Yanmar e-Saildrive



Yanmar, which has the largest install base of fossil fuel saildrives in the world, announced in Düsseldorf back in January that they would be coming out with an electric saildrive. They launched that saildrive in September at the Cannes Yachting Festival and took home two awards at the DAME Design Awards in Amsterdam.

The E-Saildrive SDe 48v series received DAMEs in both the 'Propulsion & Dynamics' and 'Environmental' categories. There are three models in the range - the SDe7 kW, SDe10 kW, and SDe15 kW - which deliver power output of up to 15kW for sailboats up to 40 feet (depending on application and displacement). The system uses a 48V electrical system and was designed to make it easy for boaters and boat builders to switch to electric with an electric option that fits directly into existing Yanmar engine compartments.

TEMO expands its lineup to electric pods

French manufacturer TEMO first made a name for itself with the TEMO 450, an electric motor at the end of a telescoping wand with trigger control that is perfect for navigating a small dinghy



on its own journey or to and from a larger boat in the harbour. The next iteration, the TEMO 1000, has a full kiloWatt of power in a rudder design, and at METS they debuted their newest motors, the 'Seaside' pods, now available for shipyards with a launch for the general public during the next sailing season.

The Seaside pods are "Plug & Play" and available in three power levels - 450, 1000 and 3,000 watts. They integrate "hairpin" type stator motors, allowing an energy efficiency of 88%, all with an optimized acoustic signature for a silent navigation experience. One of the innovations of the SEASIDE range is its removable battery system that allows users to manage their autonomy by selecting the number of cassettes they need according to their uses.

This article first appeared on the PlugBoats website and is published here with our thanks. <https://plugboats.com>

SubChapter M Towboat Rules: Six Years On



By Pat Folan



Image credit: Pat Folan

Pat Folan is a partner in Tug & Barge Solutions and has operated towing vessels from Maine to Corpus Christi, Texas, including the Alabama Rivers, Lower Mississippi, Great Lakes and Erie Canal.

What is Subchapter M?

Subchapter M regulations in the United States established towing vessel safety regulations overseeing inspections, standards and options for safety management systems. Operators are required to have a Certificate of Inspection from the United States Coast Guard (USCG) to maintain fleet operations.

The more than half a decade that has passed since the inception of the subchapter M towboat rule affords an up-close-and-personal look at how it is going. The scorecard is a mixed bag.

More than six years ago, the U.S. Coast Guard (USCG) began inspecting towing vessels for compliance with the new towboat rules; specifically, 46 CFR Subchapter M. It has been a long road to compliance with many starts and stops, and much learning on both sides of the law.

Has it been a success? If success is measured by Certificates of Inspection, then yes. Roughly four-fifths of the towing vessels that were afloat in July 2018 have their COIs. But the remaining 20% do not. In some cases, the boats weren't physically able to pass the test and that is a huge measure of success. We don't have to worry about the crew members on those boats and the danger to the environment that many of them posed.

On the other hand, some didn't make it because the owners simply had enough of government regulation and sold the boats to those better positioned to comply. Or, they just scrapped the boats. By and large, these boats weren't the pride of anyone's fleet, but they worked. It has been sad to watch companies fold because of the one-size fits all approach to compliance of the USCG. We worked with the owner of a three-boat company in the northeast that one day just threw the towel in. The boats were good, had even gotten their COIs, the crews were exceptional, but the owner didn't want (or need) the USCG in his face.

Measuring Success: A Moving Target

Success is also hard to measure when you have two tracks to compliance. I believe that the companies that went the TSMS route initially – and really embraced it – are safer. But employee retention makes a fully developed safety culture a challenge for even the best companies.

The second track, the USCG option, should not exist if the safety of mariners and the environment is what we are trying to achieve. For example, the vessels are required to have a Health & Safety Plan on board. This is a subset of policies and procedures that make up a TSMS. My company attends roughly 265 USCG Option inspections per year. Since 2018, I have only witnessed one marine inspector looking into the Health & Safety Plan. He asked the crew general questions about the plan and then moved on to recordkeeping. Otherwise, the inspectors are blissfully unaware of the Health & Safety Plan. It is a fair question to ask: If the inspectors don't care, why should the crew?

The crews and shoreside personnel at a TSMS Option company are trained on the TSMS and audited annually. There are consequences for failing to understand the TSMS. It can mean the boat will be tied to the dock by the TPO that has oversight. Even the USCG gets in on the act and can remove a company's TSMS Certificate if they find systemic issues. The loss of a TSMS certificate at a five-boat company can mean the loss of employment for about 60 people until the boats can be re-inspected as USCG Option boats.

That inspection is a deep dive into the boat's systems and a quick look at recordkeeping. But that's it. The USCG inspectors are not trained or qualified to audit a Health & Safety Plan, so it never gets done.

The USCG created two classes of vessel companies. One that only has to survive selective scrutiny by USCG inspectors and one that must undergo audits and surveys with third party auditors and the USCG inspectors. And if you doubt the selective scrutiny part, just watch an inspection where a USCG BM has to inspect the machinery space, or an MK has to inspect the wheelhouse and navigational equipment.

The USCG has no way to provide consistency within its inspections. It can't do it well within a single unit and, arguably, it fails across most sectors.

After six years, everyone with a vessel knows where to go with the boat for an easy inspection. This is reminiscent of the 'venue shopping' done by mariners in the years prior to the consolidation of some responsibilities at Coast Guard regional exam centers into a central office in West Virginia. Driving up and down the east coast, mariners could hit four or five REC's until they got the answer that they wanted on a license examination or renewal.

By easy; I mean fair and fast. There is nothing worse for the owner and crew than to have the government van pull up and four or five blue suiters pile out with the CFR books. At that point you know that the boat won't be making any money that day. Most crews know that they must split up and follow the inspectors around the boat. And the good crews know to argue with some of the findings. Not all deficiencies are from the correct Subchapter.

Decoding the Language of Inspections

Acronym	Full meaning:
COI	Certificate of Inspection
TSMS	Towing Safety Management System
TPO	Third Party Organization
USCG BM	U.S. Coast Guard Bosun's Mate
USCG MK	U.S. Coast Guard Machinery Technician
CFR 835	Code of Federal Regulations CG-835 -Form used by USCG Marine Inspectors to document deficiencies.
DD/ISE	Drydock / Internal Structural Exam
TVNCOE	U.S. Coast Guard Towing Vessel National Center of Expertise
OCMI	Officer in Charge, Marine Inspection
NMC	U.S. Coast Guard National Maritime Center
MMC	U.S. Coast Guard Merchant Mariner Credential

Source: Pat Folan

To be fair, the USCG is struggling mightily with recruitment. Young people are not attracted to serving. The good news is that for the first time since 2017, the USCG has met its recruiting goals, but they are still working with a deficit.

How long will it take the USCG to train the new recruits that manage to survive Cape May? When can the industry expect to see better customer service? Like it or not, the Coast Guard is in the customer service business.

Data Collection: For the Greater Good?

And while we are talking about measuring, why is it that every little thing that happens on a towing vessel (or any certificated vessel) must be reported to the USCG? Technically, it's not supposed to be every little thing, but most USCG units err on the side of caution and request reports for everything and then they say they'll weed them out. But why? What is the point? Nothing useful ever comes of it. The USCG is sitting on a mountain of data from all sectors of the marine industry, but they don't provide useful insights to the industry that they regulate. The FAA and OSHA also collect data, and their databases are searchable and useful. If I wanted to see trends across a certain industry in a specific geographic area, I could get the data from OSHA. But, if I was looking for the number of times a particular diesel propulsion or generator engine fails on towing vessels, I am out of luck. We as taxpayers spend a lot of money on the USCG, but it doesn't seem to go to upgrade the systems that the industry could use.

Why isn't every 835 that is issued by the USCG online in a searchable database? It would be a great learning tool to be able to see what deficiencies exist. At my company we track 835s and the inspectors that wrote them. That's because it's nice to know the inspector's pet peeves and even better to be able to share that information with customers in the areas that the inspectors transfer into.

The same issues apply when it comes to appeals. They live and die at the unit level. Because we work across many sectors and districts,



we learn about appeals and file them away in case we ever need them. But most people are unaware that an appeal has been filed and what the disposition is. A win for industry should be shouted from the mountaintops. Making the appeals public helps mariners and the Coast guard, alike. They'll spend less time writing 835's if they know there are successful appeals to the deficiency they are pondering, and industry will also not waste anyone's time appealing something that has been shot down a few times.

The appeals process should be rewritten. I can commit a crime and be out on appeal on personal recognizance, but the boat can't

work until the appeals process is completed. And it's hard to believe that it is a fair system because one officer is highly unlikely to overturn another officer's decision. Their mutual progress up their career ladders arguably depends on helping each other. We are repeatedly told by inspectors around the country that they do not have enough inspectors to do their job in a timely manner. The backlog is bad enough that we had a company come back to the TPO Option from the USCG Option because it lost 30 days waiting on the USCG in the previous year. And only the US Government would double the cost of the inspection and provide less for the owner's money.



Image credit: Pat Folan

Easy Fix

The inspections are one area where it is not too hard to find a good workaround. That's because the USCG should work with the TPO's. Most companies can deal with the annual inspection. It's not easy, but it can be done because generally after the USCG leaves you go back to work. But Drydock and Internal Structural Exams are a big problem. Getting shipyard availability in some areas is hard. If the boat or barge ahead of you needs extra work, then you must wait. At the same time, the USCG wants a minimum of 14 days' notice. Hence, if you were supposed to come out on December 1st and the yard holds you off until the 6th, but doesn't tell you until the 4th, then you will have missed your exam on the 1st, and may have to wait until the 18th for the inspectors to arrive. Throw a holiday or two in there and you are not going to work anytime soon.

If you are unfortunate enough to be hauled out in at least one certain Coast Guard district, then you can only wait on the stands until the inspectors arrive and then they will tell you what to do. Under any circumstances, do not start any work. This "my-way-or-the-highway" attitude in this sector is strangling the shipyards. If you have a choice, you do not haul out at any of those yards if you are a USCG option boat. Fortunately, most other Sectors will let you begin work if you document it well and are in a reputable yard. With the TPO Option, if you come out next Saturday, then you will have a drydock exam completed, and holidays don't matter. This fix is easy. Add a hybrid option for USCG Option companies to use a TPO Drydock/Internal Structural Exam program. It would immediately free up inspectors and soothe over vessel owners and yard owners ruffled feathers.

This isn't to say that the DD/ISEs would be any easier than with a USCG inspector. Far from it. As someone that performs these exams, I don't cut corners. Lives are on the line. If it is bad, it's bad. Crop it out and renew it. Unlike the USCG inspector, I know it costs money to go through the exams and repairs, and I do care. But I care more about the guys sleeping and living on the boat. And I'll tell you what to expect to do at the next drydock, so that you can budget for it.

It also fair to ask why the USCG decided that loadline vessels that were subject to a DD/ISE every five years now must have a DD/ISE every 2 to 3 years? ABS was doing a good job managing that system and then the USCG came along and added a significant financial and time burden to the owners.

Partnerships Require Care and Mutual Understanding – and Possibly, Real Change

As a first step to improving the inspection process and, for that matter, the outcomes, it would be enormously useful to teach the inspectors as to what the industry entails, and what the vessels do, and how they do it. We are constantly told that the industry and the USCG have a partnership, but it seems like a very one-sided relationship. One sector has decided that all towing vessels with grating over the steering gear on the aft deck must have rails around the bulwarks area with the grating. It's a nuisance for the towboat operators but it is nonsensical for the vessels that tow astern. The wire comes off the winch and goes across the aft deck to a barge. The rails would last a few seconds at best. This lack of understanding of how an ocean-going towing vessel operates is dangerous and costly for the owners.

The maritime industry needs personnel. A useful on-the-job educational effort could involve

assigning young ensigns and lieutenants to work – or at least ride and observe – on the boats, even for a short period of time.

We speak frequently with the U.S. Coast Guard Towing Vessel Center of Expertise, and they provide us with valuable information and guidance. Unfortunately, though, they can only do that. The OCMI's have the final say and in some sectors that we work in, the inspectors tell us that they do not pay any attention to the TVNCOE. For some reason, we are all expected to believe that the OCMI's are subject matter experts in their given geographic areas even though they have never sailed in the waters or in most cases never lived in the area for more than a few years. Becoming a subject matter expert takes time and experience. If they truly partnered with the people in their areas that had the time and experience, we would all be better off. Why not trust the department with Expertise in its name?

It might be time to reimagine the USCG. It wouldn't be that hard to do. The nation's fifth uniformed service has, for generations, been tasked with a multi-mission portfolio with tepid funding support that has forced them, in many instances, to "do more

with less." The United States Coast Guard excels at many things; among them lifesaving, maritime interdiction, servicing aids to navigation and the list goes on. Let them continue to be world class in those areas and look for ways to hand off the other functions where they are not.

Inspection Costs – Not an Apples-to- Apples Discussion

The Coast Guard option is cheaper on paper, but some customers have found that the added cost of the TPO option is still a better deal when lost time is factored in. Some coastal customers get \$16,000 per day for the boat, so a week spent waiting on the USCG is prohibitively expensive. One NOLA-based towboat company has been TPO option since the start. They report competitors using the USCG option, waiting for inspections. They typically earn approximately \$6,000 per day, per boat, but lose weeks annually across the fleet waiting on inspectors. See below to understand the cost comparisons, but this is not an apples-to-apples situation, especially when time lost on the clock with a charterer is factored in:

OPTION	ANNUAL COST	FIVE-YEAR COST
USCG	\$2,184.00	\$10,920.00
TPO	\$4773.00(*)	\$23,865.00

(*) TPO cost from TVIB.

Courtesy Pat Folan

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www.tbssafety.com

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TPO EXTERNAL MANAGEMENT & VESSEL AUDITS & DD/ISE			
TYPE	FREQUENCY	COST PER YEAR	FIVE YEAR COST
USCG Fee	Annual	\$973.00	\$4,865.00
External Management Audit	Twice in 5 years	\$3,200.00	\$6,400.00
External Mgmt Audit Travel	Twice in 5 years	\$1,500.00	\$3,000.00
External Vessel Audit	Once in 5 years	\$1,200.00	\$1,200.00
External Vessel Audit Travel	Once in 5 years	\$1,500.00	\$1,500.00
TVIB Fee	Annual	\$1,000.00	\$5,000.00
DD/ISE	Once in 5 years	\$1,200.00	\$1,200.00
DD/ISE Surveyor Travel	Once in 5 years	\$700.00	\$700.00
Total 5-Year Cost			\$23,865.00

*Management and vessel audit costs are average costs based on TVIB audits that we have been a part of. The audit rates are fairly consistent across the auditors, but the travel costs vary greatly.

OPTION	ANNUAL COST	FIVE YEAR COST
USCG (Existing Fee)	\$1,080.00	\$5,400.00

Proper stowage of mixed cargoes on bulk carriers



The American P&I Club has raised concerns that have arisen regarding the loading of finished and unfinished steel products alongside break-bulk, containerized, and project cargoes in the same cargo hold of bulk carriers.



Examples of break-bulk, containerized, and project cargoes include large, heavy, oversized items, machinery parts, crates, and heavy-duty wheeled items such as trucks, cranes, or pay loaders. Unlike vessels dedicated to carrying break-bulk, containerized, or project cargoes, bulk carriers are not fitted with suitable lashing and securing arrangements.

The irregular sizes, shapes, and weights of such non-pure-bulk cargoes are challenging to safely lash and secure, and typically require makeshift arrangements. Furthermore, such arrangements are challenging for the crew to supervise for safety when a vessel is at sea.

Wheeled cargoes pose a particular risk due to their higher propensity to shift. The stowage and securing of wheeled cargoes are addressed specifically in Annex 4 of the Cargo Stowage and Securing (CSS) Code.

Similarly, break-bulk or project cargoes are often stowed atop steel cargoes. While specified finished and semi-finished steel cargoes are subject to a pre-load survey, as stipulated in the August 19, 2024, Club Circular No. 16/24, Steel Cargo Pre-Load Surveys, operators should also consider employing experienced surveyors familiar with the stowage and securing of break-bulk, containerized,

and project cargoes intermixed with or over stowed on top of other cargoes, given the related risk of damage caused by excessive weight or improper securing of such non-pure-bulk cargoes.

The cost of utilizing an experienced surveyor outweighs the potential losses to the cargo, vessel, or injuries to the crew that may arise from a lack of expert assistance during loading.

The essential steps that should be in hand and approved prior to loading cargo are as follows:

- The vessel's stowage plan should be made available well in advance of loading.
- Upon receipt of the stowage plan, the Master should input the relevant data into the loadicator to ensure the vessel's shear force bending moment (SFBM) and stability are within the applicable limits.
- It should be clear how the cargo is to be secured as per the Cargo Securing Manual (CSM), and that relevant stowage and lashing materials and equipment are available aboard the vessel in compliance with the CSS Code.

Some important points regarding stowing, improper stowage, and improper securing of heavy cargoes, containers, and project cargoes include:

- Vehicles and heavy project/break-bulk cargo stowed on top of other cargo may not provide a firm surface for the over-stowed cargo.
- Cargo stowed atop other cargoes may damage or deform the cargoes below due to their weight.
- Vehicles or heavy cargo should be provided with securing/lashing points to assist in securing these cargoes. These securing points are usually marked by the manufacturer.
- Vehicles should not be secured to each other but should be secured independently to strong lashing points on the vessel's structure.
- Dunnage should be placed under break-bulk/project cargo to provide even surfaces and distribute weight so that the maximum load on tank tops is not exceeded.
- Lashings should be able to be tightened by the crew during the voyage as cargo settles. The use of turnbuckles is recommended.
- An understanding that bulk carriers are not specifically designed to carry cellularized cargoes. In considering the carriage of containers in any number or for any duration, it is important to consider the many factors associated with such carriage, as specified in the October 4, 2021, Club Alert, The Carriage of Containers on Noncellular Vessels.
- Attention should be given to the September 30, 2024, Club Circular No. 20/24, Project Cargoes, which recommends that marine warranty surveyors be employed for large, heavy-duty, and high-value project cargoes.

Shipowners have the responsibility to ensure that the vessel is suitable and fit for purpose to carry break-bulk cargo, containers, and project cargoes with due regard to statutory regulations and classification society standards. The flag State-approved CSM should be on board the vessel as it provides the approved lashing and securing arrangements, in addition to detailing the lashing devices available on board. However, the lashing material for break-bulk cargo, containers, and project cargoes is usually provided by the charterers.

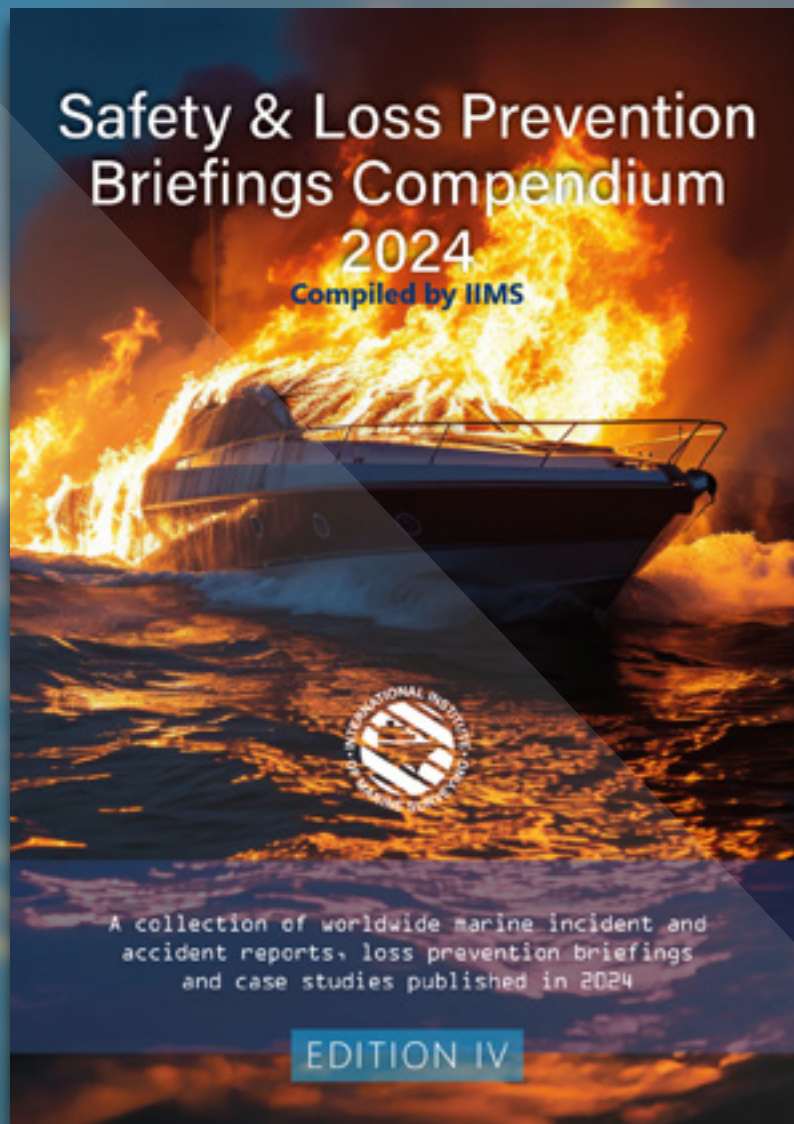
If specified cargoes are not allowed to be loaded as per the vessel's CSM, the owners should notify the charterers and consult their classification society and/or flag State for further guidance. The Master ultimately has the responsibility to ensure that the cargo is safely handled, stowed, and secured as per applicable regulations. Therefore, the Master is obliged to:

- Decline to load specific cargo that does not comply with regulations. For example, loading vehicles with fuel in fuel tanks if the vessel is not equipped with a fire extinguishing system for cargo holds is not acceptable practice.
- Ensure that the cargo stowage will not result in damage to the vessel during the voyage if there is evidence of improper securing (e.g., wires passing through sharp objects liable to part due to the rigors of sea passage), that the vessel maintains the SFBM and stability within prescribed limits, or that the load density of the cargo tank top has been exceeded.
- Take advantage of any charter party provisions or clauses that may be to the master's and/or owner's advantage.



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Safe carriage of charcoal in containers

The Cargo Incident Notification System (CINS) Charcoal Work Group has updated its “**Guidelines for the Safe Carriage of Charcoal in Containers**”, reflecting the updated IMDG Code requirements, Britannia P&I Club has highlighted.

The 2024 edition of the International Maritime Dangerous Goods (IMDG) Code included changes in the requirements applying to charcoal. This edition, incorporating Amendment 42-24, became voluntary from 1 January 2025 and will become mandatory from 1 January 2026. According to Britannia Club, charcoal as a cargo presents unique stowage and handling requirements and requires strict safety protocols. In addition to the fire hazard, misdeclaration is known to result in the carrier being unaware of the risk.

Understanding the risk of charcoal transport

The primary hazard associated with charcoal is self-heating. If the heat cannot be dissipated quickly enough due to the thermal insulating properties of carbon, then the cargo temperature may rise further, possibly leading to self-ignition and spontaneous combustion.

The likelihood of spontaneous combustion in charcoal may be further affected by:

- Wetting of the cargo, generating additional heat in an exothermic process
- Presence of additives such as ignition accelerants or flammable solids – typical in certain charcoal products, for example charcoal in tablet form used for water pipes (Nargila, Shisha, Hookah). This may result in lower ignition temperature, contributing to a fire incident
- Chemically unstable condition caused by the presence of organic material which did not undergo complete pyrolysis.

Charcoal may also pose other hazards:

- Explosion: charcoal dust is combustible and can form a flammable or explosive atmosphere
- Toxicity: charcoal can release carbon monoxide (CO), particularly dangerous in enclosed spaces.

Charcoal and classification of carbon cargo

As a substance liable to spontaneous combustion, charcoal is designated as Class 4.2 in the IMDG Code. The forthcoming edition of the IMDG Code requires that charcoal should always be declared and carried as dangerous goods. In the Dangerous Goods List of the IMDG Code, charcoal is listed under the proper shipping name (PSN) of CARBON. The correct declaration for charcoal is: UN 1361: CARBON, animal or vegetable origin. The IMDG Code classifies carbon cargoes in three categories, which may result in confusion and lead to misdeclaration of the cargo.

UN No.	IMDG CLASS	PROPER SHIPPING NAME (PSN)	PACKING GROUP	PPROPERTIES AND OBSERVATIONS
UN 1361	Class 4.2	CARBON, animal, or vegetable origin	II	Black material originating from organic sources. Particularly includes carbon blacks of animal and vegetable origin, other nonactivated carbon materials and charcoal produced from materials such as bone, bamboo, coconut shell, Jute and wood. Liable to heat slowly and ignite spontaneously in air.
UN 1361	Class 4.2	CARBON, animal, or vegetable origin	III	See entry above.
UN 1362	Class 4.2	CARBON, ACTIVATED	III	Activated porous black carbon materials not including charcoal (see UN 1361). May be in the form of powder, granules, pellets, fibres or felts. If chemically activated, may self-heat, and may ignite spontaneously in air.

Table credit: Britannia P&I Club

Changes in the requirements of the IMDG code applicable to charcoal

The 2024 edition of the IMDG Code has removed two Special Provisions (SP), previously applicable to charcoal cargoes, and introduced a new SP 978. The removed SP's enabled exemptions from the requirements for charcoal:

- SP 925 stipulated that the provisions of the IMDG Code did not apply to a consignment of carbon if it passed certain tests for self-heating substances
- SP 223 exempts shipments which, when tested, do not meet the "established defining criteria for the class or division listed in column 3, or any other class or division", except in the case of a marine pollutant.

SP 978 introduces the following, specific requirements

For the purpose of this Code, carbon of animal or vegetable origin means carbon, generated in a production or manufacturing process, not formed in a geological process and not obtained from mining. Carbon covered by this entry is produced by pyrolysis of an organic material such as bone, bamboo, coconut shell, jute or wood.

The UN N.4 test according to section 33.4.6 of the UN Manual of Tests and Criteria shall not be used to exempt carbon of animal or vegetable origin (UN 1361) from the provisions of this Code.

Without testing, the material shall be assigned to at least packing group III.

- Unless otherwise approved by the competent authority, the following provisions apply:
- After production, the unpacked material shall be subject to weathering (stored under cover, but in the open air) for a minimum period of 14 days before being packaged for transport;
- or after pyrolysis, steam and cooling shall be applied to the unpacked material and the material shall be packed under an inert gas atmosphere (e.g. nitrogen); packages shall then be stored under loose cover or in the open air for a minimum of 24 hours before transport.

The material shall be packed into packaging only when the temperature of the material does not exceed 40°C on the day of packing. When stowed in a cargo transport unit, minimum headspace in the CTU of 30 cm shall be maintained, and the stowage height of the package(s) in the unit should not exceed 1.5 m; or the maximum block size of the packages should be 16 m³ and a minimum of 15 cm of space between blocks should be maintained.



CINS recommended practices

Cargo practices recommended by CINS Guidelines include selected requirements of the IMDG Code, combined with additional precautions to ensure the safe carriage of charcoal.

CINS Guidelines recommend that all charcoal shipments should be classified as dangerous goods, even prior to the applicability of the IMDG Code Edition 2024 (Amendment 42-24).

Further recommendations set out by CINS address the following areas:

- Container selection
- Cargo weathering and packaging
- Container packing and vanning survey
- Ship loading, container stowage and segregation
- Documentation requirements.

Preventative measures against charcoal fire incidents

When considering preventative measures, regulatory requirements and industry guidance should be supplemented by a comprehensive risk assessment. This is necessary

to ensure that the measures are applicable to the circumstances of the ship, operational situation, provisions of the Safety Management System (SMS) and the business environment including terminals and customers. If needed, a gap analysis should be carried out and cargo management procedures revised as appropriate.

The following objectives should be considered:

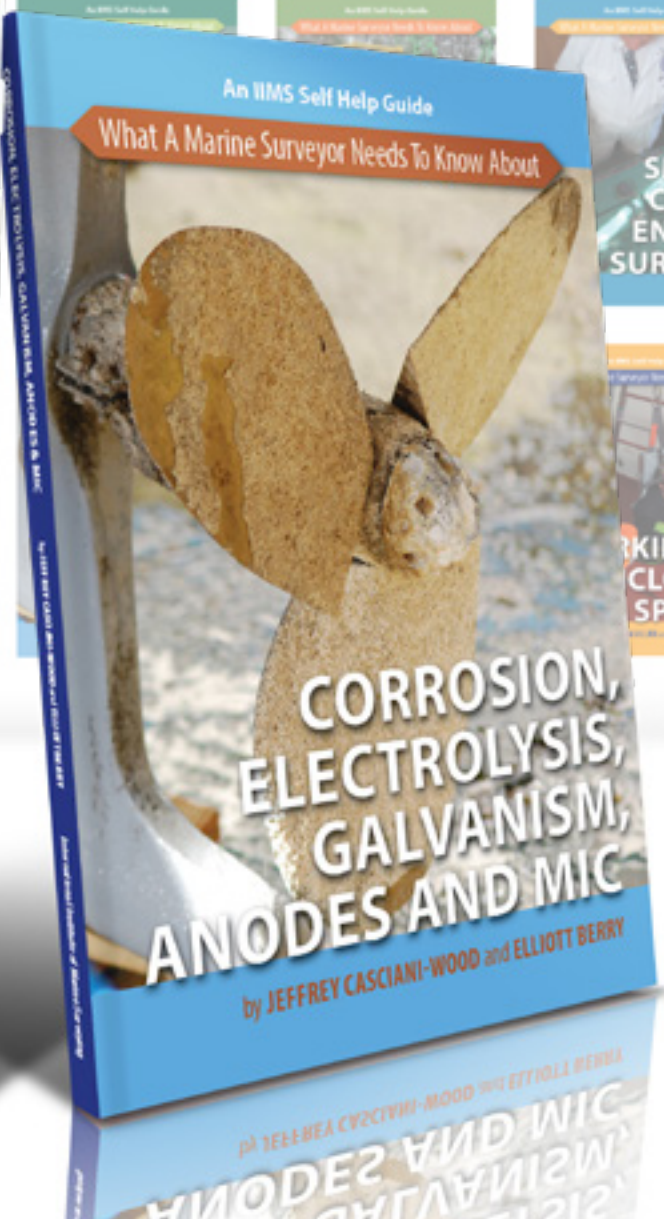
- Cargo management and booking process should ensure that cargo containing charcoal is correctly identified and declared.
- Charcoal should be pro-actively treated as dangerous goods even before the 2024 edition of the IMDG Code is in force. In particular, the cargo management process should not enable the two existing Special Provisions (SP 925 and SP 223) and ensure that all charcoal cargo intended as fuel for burning is correctly classified and declared as dangerous goods. It is recommended to align cargo management process with the forthcoming SP 978 (including the requirements for container selection, packaging, stuffing, inspection, stowage and segregation set out in SP 978).

- Where charcoal is traded under names which may conceal its dangerous nature, carriers should implement effective cargo screening, together with the appropriate "Know Your Customer" (KYC) due diligence to ensure the cargo is correctly classified and properly declared.
- Carbonised material intended for manufacturing of UN 1362: CARBON, ACTIVATED has been known to be misdeclared – the cargo management process should take it into account
- The weathering report, the vanning survey, as well as other surveys in place, should effectively identify additional risk factors, such as insufficient weathering of charcoal cargo, wetting of the cargo, or the effect of chemical additives present in the cargo on its stability and propensity to self-heat
- The KYC approach may be effective in reducing the risk by proactively assessing the cargo management prior to container packing and shipping
- Accessible stowage on deck (accessible from a fixed platform, deck or a lashing bridge), exceeding IMDG requirements is recommended. Accessibility is required to enable prompt extinguishing action.



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Inland Waterways Craft and the vagaries of the conflicting regulations

By Geoff Waddington, Past President and HonFIIMS

IIMS Past President, Geoff Waddington, is a successful yacht and small craft marine surveyor. Over the years he has written a number of articles, including some about the UK inland waterways sector. In this article, he sets out to explain and make sense of some of the confusion and inconsistencies that exist between the various current rules and regulations.

First of all, let's consider the issue of conformity.

UK Government Legislation

- The Recreational Craft Regulations (RCR) 2017 (UK Legislation excluding originating from the EU).
- UK Statutory Instruments 2017 No. 737 Part 2 Manufacturer Regulation 16.

Duty to take action in respect of product placed on the market which is considered not to be in conformity.

16. (1) A manufacturer who considers, or has reason to believe that a product that it has placed on the market is not in conformity Part 2, must immediately take the corrective measures necessary to:
- (a) bring the product into conformity;
 - (b) withdraw the product from the market; or
 - (c) recall it.
- (2) Where the product presents a risk, the manufacturer must immediately inform the market surveillance authority and the competent national authorities in any Member State in which the manufacturer has made the product available on the market of the risk, giving details of:
- (a) the reason why the product is not considered to be in conformity; and
 - (b) any corrective measures taken.

Stability and Freeboard

MGN 280 is a set of rules for vessels which proceed to sea, so this does not apply. However for comparison it is (200mm for 7m vessels 400mm for 18m vessels).

MCA (Maritime & Coastguard Agency) / AINA (Association of Inland Navigation Authorities) Inland Waters Small Passenger Boat Code is a Code of Practice for small commercial vessels operating in A,B,C & D waters which do not carry more than 12 passengers, do not carry cargo and do not go to sea.

All vessels should comply with the freeboard requirements given in Annex 9.

2.1 IN CATEGORY A and B WATERS, all vessels operating in category A waters, or decked vessels operating in category B waters, should have a minimum freeboard to deck edge or gunwale of 250mm around the periphery of the vessel in the most onerous loading condition. For open vessels operating in Category B waters, this requirement should be increased to 400mm if they are unable to pass the swamp test as detailed in Annex 8 Section 1.3.

IN CATEGORY C and D WATERS: Minimum freeboard to downflooding for vessels whose stability has not been assessed in conjunction with ISO 12217.

1. In the case of a vessel with a continuous watertight weather deck in accordance with:

6.1 Decked vessels

(See definitions in annex 2).

6.1.1 In a decked vessel, which complies with the freeboard provisions of Section 12 and Annex 9 of this Code, efficient provision is to be made to clear the deck of water which may be taken onboard. Where water may get trapped, the vessel should have a minimum of two efficient freeing ports – one fitted port and one starboard.

6.1.2 These ports should each have a clear area of: CATEGORY A & B CATEGORY C CATEGORY D 65sq cm, 135sq cm, 225sq cm.

These figures are based on maximum expected wave heights. Smaller ports may be suitable in a vessel having only small side deck areas, in which water can be trapped, the reduced area being based on the volume of water that is likely to become so trapped.

In the case of a vessel with a continuous watertight weather deck which is neither stepped nor recessed or raised, not in compliance with 6.1.2 above should have a freeboard to downflooding of not less than:

- Category C 360 mm for vessels of 7 metres in length or under and not less than 630 mm for vessels of 18 metres in length or over.
- Category D 600 mm for vessels of 7 metres in length or under and not less than 1050 mm for vessels of 18 metres in length or over.

2. In the case of a vessel with a continuous watertight weather deck, it must have a freeboard to deck measured down from the lowest point of the deck of not less than:

- Category C 120 mm for vessels of 7 metres in length or under, and not less than 240 mm for vessels of 18 metres in length or over.
- Category D 200 mm for vessels of 7 metres in length or under, and not less than 400 mm for vessels of 18 metres in length or over.

3. in the case of an open boat, it should have a clear height of side, eg. the distance between the waterline and the lowest point of the gunwale* of not less than:

- Category C 240mm for vessels 7 metres in length or under, and not less than 480mm for vessels 18 metres in length or over.
- Category D 400mm for vessels 7 metres in length or under, and not less than 800mm for vessels 18 metres in length or over.

For a vessel of intermediate length, the freeboard should be determined by linear interpolation.

4. For vessels complying with points 1 and 2 above, the freeboard to deck edge should, in general, be not less than 50% of the required freeboard to downflooding.

Freeboard Measurement

1.2 The boat should be tested with the maximum number of persons (passengers and crew) onboard, in the fully loaded condition i.e. with full tanks, full stores etc. The persons and equipment should be positioned as to represent the “in service” condition of the boat. The boat should be at its normal working trim and have no angle of heel. If so required, each person may be represented by a weight of 75kg. Arrangements should be made in order to allow a person outside of the vessel to take all measurements.

British Marine Inland Waterways Small Passenger Boat Code Stability & Freeboard Standards

1. The angle of heel does not exceed 7 degrees, and

2. In the case of a vessel with a watertight weather deck extending from stem to stern, the freeboard to downflooding is not less than 100 mm for MCA Category A waters or 175mm for MCA Category B waters. (Note: MCA Categories A & B are generally equivalent to RCR Category D) and additionally, the freeboard to deck is not less than 75mm at any point.

3. The angle of heel may exceed 7 degrees, but should not exceed 10 degrees, if the least freeboard to downflooding in the heeled condition is in accordance with Section 3 of this Code for the upright condition.



British Marine Code of Practice for the construction of Inland waterways craft

3. FREEBOARD. All vessels should have a minimum freeboard to deck edge or gunwale of 250mm around the periphery of the vessel in the most onerous loading condition. For open vessels this requirement should be increased to 400mm if they are unable to pass the swamp test as detailed in Section 1.3.

Simplified MCA MGN 280 Stability and freeboard test:

A vessel should be tested in the fully loaded conditions. For the purposes of this code a person is taken to weigh 82.5 Kg. As in Workboat 3 code.

The vessel will be judged to have an acceptable standard of stability if the test shows that:

- a. The angle of heel does not exceed 7 degrees; and
- b. In the case of a vessel with a watertight weather deck extending from stem to stern, the freeboard to deck is not less than 75mm at any point; or
- c. If unable to meet the criteria in b. The angle of heel may exceed 7 degrees, but should not exceed 10 degrees, if the freeboard in the heeled condition is in accordance with that required by Section 5 in the upright condition.

a. In the case of a vessel with a continuous watertight weather deck which is neither stepped or recessed or raised, it should have a freeboard measured down from the lowest point of the weather deck of not less than 300 mm for vessels of 7 metres in length or under and not less than 750 mm for vessels of 18 metres in length or over. For a vessel of intermediate length, the freeboard should be determined by linear interpolation.

b. In the case of a vessel with a continuous watertight weather deck which may be stepped, recessed, or raised, it should have a freeboard measured down from the lowest point of the weather deck, of not less than 200mm for vessels of 7 metres in length or under and not less than 400mm for vessels of 18 metres in length or over. For a vessel of intermediate length, the freeboard should be determined by linear

interpolation. The raised portion(s) of the watertight weather deck should extend across the full breadth of the vessel and the average freeboard over the length of the vessel should comply with section 5 above for a vessel with a continuous watertight weather deck.

c. In the case of an open boat, it should have a clear height of side (i.e. the distance between the waterline and the lowest point of the gunwale¹) of not less than 400mm for vessels of 7 metres in length or under and not less than 800mm for vessels of 18 metres in length or over. For a vessel of intermediate length, the clear height should be determined by linear interpolation.

The Boat Safety Scheme (BSS)

Examples of inland waterway guidance where freeboard requirements are stated are given below.

- All hull openings need to be watertight above the normal laden waterline to at least 10" (250 mm).
- Self-draining cockpits do not need to meet the 250 mm requirement, provided a bulkhead (or sill) of 150 mm (6") is fitted or the deck drains include non-return valves.
- For such as sinks, as long as the waste pipework is secure (not push-fit), then it is the top of the sink that is the watertight level.
- Weedhatches need to be watertight to at least 6" (150 mm) above the normal laden waterline.
- Hull intakes need to be a seacock directly fitted to the hull fitting with the seacock readily accessible.

Therefore, we now have some measurements to work with:

The lowest category waters are A which require 250mm.

The next lowest category waters are B which require 400mm.

A vessel with a continuous watertight weather deck:

In Category C waters the requirement for 7m -18m length is between 360mm - 630 mm.

In Category D waters the requirement for 7m -18m length is between 600mm - 1050mm.

Or without freeing ports:

Category C for waters the requirement for 7m -18m length is between 7-18 m length 120 mm-240 mm.

Category D for waters the requirement for 7m -18m length is between 200mm-400mm.

In the case of an open boat, it should have a clear height of side.

Category C for waters the requirement for 7m -18m length is between 240mm-400mm.

Category D for waters the requirement for 7m -18m length is between 400mm-800mm.

The freeboard to deck edge should, in general, be not less than 50% of the required freeboard to downflooding.

During assessment above for MCA / AINA Inland Waters Small Passenger Boat Code each person may be represented by a weight of 75kg, or for the purposes of the British Marine Inland Waterways Small Passenger Boat Code below a person is taken to weigh 82.5 Kg.

When testing:

In the case of a vessel with a watertight weather deck extending from stem to stern, the freeboard to downflooding is not less than:

MCA Category A waters - 100 mm.

MCA Category B waters - 175mm.

MCA Category C waters - 75mm.

The angle of heel may exceed 7 degrees but should not exceed 10 degrees. The vessel will be judged to have an acceptable standard of stability if the test shows that:

- a. The angle of heel does not exceed 7 degrees; and
- b. In the case of a vessel with a watertight weather deck extending from stem to stern, the freeboard to deck is not less than 75mm at any point.

British Marine Code of Practice for the construction of Inland waterways craft

All vessels should have a minimum freeboard to deck edge or gunwale of 250mm.

For open vessels this requirement should be increased to 400mm.

- a. In the case of a vessel with a continuous watertight weather deck which is neither stepped or recessed or raised:

- b. The requirement for 7m – 18m is between 300mm – 750mm. In the case of a vessel with a continuous watertight weather deck which may be stepped, recessed, or raised:
The requirement for 7m – 18m is between 200mm – 400mm.
- c. In the case of an open boat, have a clear height of side:
The requirement for 7m – 18m is between 400mm – 800mm.

The Boat Safety Scheme (BSS)

Examples of inland waterway guidance where freeboard requirements are:

All hull openings need to be watertight above the normal laden waterline to at least 10" (250 mm).

Self-draining cockpits do not need to meet the 250 mm if they have a sill of 150mm.

Weedhatches need to be watertight to at least 6" (150 mm).

There are a lot of variables in freeboard measurement and most of them are dependent on the design category. Unfortunately, the majority of Inland Waterways Craft have not been allocated a design category.

By way of a slight diversion, this next section is an extract from a much longer article written for the 98th edition of The Report magazine, December 2021. It brings to light some of the issues with the Categorisation of UK Vessels both Recreational Craft and Small Commercial Vessel - (up to 24m).

11. 'Inland Waters'. Waters listed in MCA notice MSN 1776(M) or its Amendment 1872 as falling within the categories A to D, or waters not so listed but falling within the definitions given in MSN 1776(M), or controlled waters as defined in the Water Resources Act 1991.

'Inland waters' includes any area of water not categorised as 'sea' - e.g. canals, tidal and non-tidal rivers, lakes, and some estuarial waters (an arm of sea that extends inland to meet the mouth of a river). Inland waters are classified as one of four categories:

- Category A - narrow rivers and canals where the depth of water is generally less than 1.5 metres.
- Category B - wider rivers and canals where the depth of water is generally 1.5 metres or more and where the significant wave height could not be expected to exceed 0.6 metres at any time.
- Category C - tidal rivers, estuaries and large, deep lakes and lochs where the significant wave height could not be expected to exceed 1.2 metres at any time.
- Category D - tidal rivers and estuaries where the significant wave height could not be expected to exceed 2 metres at any time.

Some Inland Waterways Vessels do proceed "To Sea". Therefore, we must also consider this.

MGN 200 definition "To Sea" Means Beyond Category D waters, or Category C waters if there are no category D waters.

Cat D Waters: 'Sheltered waters' - significant wave height up to and including 0.5 meters.

Cat C Waters: 'Inshore' significant wave height up to and including 2 meters.

(Interpretation: Cat C Inland = in excess of Cat D Sea and Cat D Inland = the same as Cat C Sea, if you don't go beyond Cat D waters or Cat C water if there are no Cat D waters you are not going to sea).

Inland waterways and categorisation of waters – the UK government documentation can be found at <https://bit.ly/4h8BmZ1>.

To view and browse a detailed list of UK categorised waters by location go to <https://bit.ly/4ai9waz>.

The RCD (Recreational Craft Directive) under ISO 12217 (Stability) designates Private Recreational Craft as suitable to operate in the following Categories:

"Design Category" means a description of the wind and sea conditions for which a vessel is considered suitable under the EU Recreational Craft Directive 94/25/EC of 16th June 1994 and is used for the application of relevant ISO and CEN standards.

See table on following page. Design category wind force significant wave height (Beaufort scale) (H 1/3, metres).

- A** - 'Ocean'. Exceeding 8 Significant Wave Height Exceeding 4.
- B** - 'Offshore'. Up to, and including, 8, Significant Wave Height Up and including 4 metres.
- C** - 'Inshore'. Up to, and including, 6 Significant Wave Height Up and including, 2 metres. (This would be MCA CAT D).
- D** - 'Sheltered waters'. Up to, and including, 4 Significant Wave Height Up and including, 0.5 metres (This would be MCA CAT C).

The MCA currently accept these categories as evidence of suitability when considering their own SCV (Small Commercial Vessel Code) categories.

3.2.1 A vessel may be considered for the issue of a Small Commercial Vessel certificate allowing it to operate in one of the following areas:

Area Category 6:
To Sea, within 3 miles (beyond CAT D or CAT C waters where there are no CAT D) from a nominated departure point(s) named in the certificate and never more than 3 miles from land, in favourable weather and daylight;

Area Category 5:
To Sea, within 20 miles (beyond CAT D or CAT C waters where there are no CAT D) from a nominated departure point named in the certificate in favourable weather and daylight.

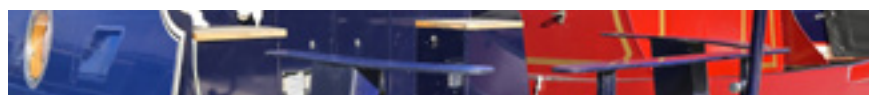
Area Category 4:
Up to 20 miles from a safe haven, in favourable weather and in daylight;

Area Category 3:
Up to 20 miles from a safe haven;

Area Category 2:
Up to 60 miles from a safe haven;

Area Category 1:
Up to 150 miles from a safe haven;

Area Category 0:
Unrestricted service.





SEA GOING PLEASURE VESSELS

INLAND WATERWAYS

SEA GOING COMMERCIAL VESSELS

RCD/ RCR CAT A		MCA CAT 1 CAT 0
OCEAN		MCA CAT 0 UNRESTRICTED SERVICE
WINDS EXCEEDING FORCE 8 SEAS EXCEEDING 4 METERS		MCA CAT 1 UP TO 150 MILES FROM A SAFE HAVEN
RCD CAT B OFFSHORE		MCA CAT 2 UP TO 60 MILES FROM A SAFE HAVEN
WINDS UP TO AND INCLUDING FORCE 8 SEAS UP TO AND INCLUDING 4 METERS		
RCD CAT C INSHORE		MCA CAT 3 UP TO 20 MILES FROM A SAFE HAVEN
WINDS UP TO AND INCLUDING FORCE 6	MCA Navigation Safety Branch (NSB)	MCA CAT 4 UP TO 20 MILES FROM A SAFE HAVEN IN FAVOURABLE WEATHER AND DAYLIGHT
SEAS UP TO AND INCLUDING 2 METERS	UK MCA MSN 1837 / MSN 1776 defines UK inland water Categories as follows: These categorisations apply specifically to the operation of Class IV, V and VI Passenger Ships and also determine which waters are not regarded as "sea" for the purposes of regulations made, or treated as made, under Section 85 of the Merchant Shipping Act.	MCA CAT 5 TO SEA WITHIN 20MILES FROM A NOMINATED DEPARTURE POINT IN FAVOURABLE WEATHER AND DAYLIGHT
RCD CAT D SHELTERED WATERS	CAT D TIDAL RIVERS AND ESTUARIES	MCA CAT 6 TO SEA WITHIN 3 MILES FROM A NOMINATED DEPARTURE POINT AND NEVER MORE THAN 3 MILES FROM LAND
WINDS UP TO AND INCLUDING FORCE 4 SEAS UP TO AND INCLUDING 0.5M	WHERE THE SIGNIFICANT WAVE HEIGHT COULD NOT BE EXPECTED TO EXCEED 2.0 METERS AT ANY TIME.	IN FAVOURABLE WEATHER AND DAYLIGHT
	CAT C TIDAL RIVERS AND ESTUARIES AND LARGE DEEP LAKES AND LOCHS	
	WHERE THE SIGNIFICANT WAVE HEIGHT COULD NOT BE EXPECTED TO EXCEED 1.2 METERS AT ANY TIME.	
	CAT B WIDER RIVERS AND CANALS WHERE THE DEPTH OF WATER IS GENERALLY 1.5 METERS OR MORE	
	CAT A NARROW RIVERS AND CANALS	
	WHERE THE DEPTH OF WATER IS GENERALLY LESS THAN 1.5 METERS	

My question in regard to categorisation of waters is...

The cross-over between RCD Cat D waters and MCA Cat D waters is inconsistent. There is a significant difference between 0.5 metre waves and 2.0 metre waves. There is consistency between Sea Going Pleasure Vessels and Sea Going Commercial Vessels So, why do Inland Waterways Pleasure Vessels not have the same restrictions of areas of use as Inland Waterways Commercial Vessels?

The MCA continues to be setting the standards for construction and maintenance of inland waterways craft. As mentioned earlier a Code of Practice for Inland Waters Small Passenger Boats in cooperation with The Association of Inland Navigation Authorities and British Marine has been produced for inland boatbuilding.

Unfortunately, all this means is that there are a number of rules and standards and also a number of associations involved - in fact over 60 different inland waterways authorities at my last count.

MGN 469 (M) Amendment 1 (November 24, 2023) Inland Waterways non-passenger vessels:

applicable safety standards for vessels operating solely on inland waterways in the United Kingdom states:

1.1 - "Inland waterways" means: "Categorised Waters", as defined and listed in MSN 1837 (as amended); or other Inland Waters that have not been formally categorised but have the same characteristics of Category A, B, C or D waters as defined in MSN 1837 (as amended).

1.2 - "Inland Waterway non-passenger vessel" means a vessel that does not go to sea and does not carry more than 12 passengers as part of its normal operations. This includes, but is not restricted to:

- dry freight vessels;
- tanker vessels;
- container vessels;
- workboats, including specialist vessels such as crane barges or dredgers;
- and tugs and pushers.

It would appear that there is a difference of opinion in the average weight of a person which in inland waterways can either be 75kg or 82.5 kg. (There was also an issue raised in part of my research on Inland Waterways vessels which referred to a sill of more than 50mm being considered a trip hazard, but I think we should ignore that).

Prior to Brexit and even during the years of transition we had the RCD and EU rules and regulations, most of which have been incorporated into the UK RCR because they are borne out of the ISO's which form their basis.

Pre Brexit, one Inland Waterways vessel manufacturer stated: The RCD is a grey area for quite a few people, and a complete mystery to the rest of us. It is effectively a CE mark for a boat. It is poorly policed in the UK and many boats sold on the market, both new and used, fail to comply with the regulations, particularly as in the case of boats classed as Category D (which includes all narrow boats) the builder self-declares without any requirement for an independent inspection.

This is why the majority of Inland Waterways vessels were never certified to the required standards of conformity.

All these variables and a lack of conformity and compliance lead to the reasons why we find ourselves so confused in regard to Inland Waterways craft.



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Summary:

Having gathered the information and read it all, it is my opinion that unless a vessel is designated a particular design category you cannot assess its stability and/or freeboard requirements. That is why design categories were created in the first place. Because the majority of Inland Waterways craft were constructed and placed on the market without a Certificate of Compliance and therefore never certificated to be in compliance with any rules regarding stability, floatation, freeboard or downflooding, no plates allocating and stating the maximum passenger capacity and load or even Design Category were fitted and these limitations were never included in the boats operating manuals because they were never supplied with one.

No doubt this is why there has been a wider discussion recently that all Inland Waterways Craft must now become compliant with the Recreational Craft Regulations. This is a monumental undertaking when you consider the amount of vessels concerned, an estimate of up to 80,000 vessels has been suggested.

As a result of this confusion in the sector, is it any wonder that surveyors, insurers, owners and operators are at a loss to know what rules to apply when assessing the risk. How can an insurer, for example, assess the risk and quote a level of cover if they have no idea what they are actually insuring?

The answer is that they can't. In some instances, they may rely on an owner's declaration regarding the details of his/her craft and its intended use, which places the onus on the owner.

In other instances, insurers will depend on the details contained within a marine surveyor's Survey Report which places the onus on the surveyor. However, without any information regarding the suitability (i.e. conformity) of a vessel and its compliance with the relative standards how can a surveyor accurately assess the suitability of a vessel without knowing what the vessel has been designed to do?

To avoid the full RCR Post Constructive Compliance process perhaps one solution may be to simplify the assessment of Inland Waterways Craft by conducting a simple stability assessment, such as a Heel Test. IIMS has a procedure and certification process which is used by Commercial Certification Authorities to satisfy the requirements of stability of vessels which do not have Certificates of Conformity in regard to ISO 12217 or a full Stability Information Book.

Another issue is that vessel sinkings have brought about conflicting and confusing statements from some insurers regarding steel hull thickness limits - one being a requirement for a 4mm limit and another a 3mm limit.

In reality setting these limits is largely pointless. A vessel built of 6mm thick

plate may have pitting or diminution which has reduced the thickness of the hull to 1mm making it likely to sink, whereas a vessel built of 3mm thick plate without pitting or corrosive loss will be unlikely to sink.

For example, providing that it has been well maintained a vessel built out of 3mm plate with a freeboard of 100mm may be perfectly acceptable for operating in the flat calm knee deep waters of a canal no wider than the vessel's own length in sheltered inland waters; but may not be suitable for operating in deep tidal rivers and estuaries exposed to the elements and wave action.

The next topic for discussion is the construction and corrosion issues with regards to steel Inland Waterways vessels and, in fact, steel craft generally.

I have written in the past about the surveying standards of Inland Waterways craft, which was triggered by an Insurer refusing to insure a steel narrowboat with a hull under 4mm thick. As mentioned previously, we have heard of some insurers setting a limit of 3mm, even though as we know some vessels were originally built using 3mm steel plate.

Insurers were also insisting that all the surveyor's recommendations, even minor advisories, should be rectified before insurance cover could be granted. But as can be seen from the previous and following sections this brings into question on what basis these recommendations were made and their validity.



Unfortunately, from what we have seen in far too many circumstances the standards of both the vessels and the quality of surveying these craft on inland waterways leaves a lot to be desired. I am sure that this has, and quite rightly should have, an influence on an insurer's decision-making processes.

During continued insurance investigations into claims against surveyors of inland waterways craft it continues to become apparent that there is a wide range of standards being applied by marine surveyors during their assessments of surveyed vessels. This has resulted in claims being made against IIMS members, meaning it has become necessary to advise surveyors, insurers and lawyers with regards to 'what is the acceptable level of corrosion and resultant diminution of metal hull plate-work'. When asked, surveyors' opinions varied wildly for the acceptable level of wastage due to the corrosion of steel plate as far as diminution and pitting are concerned.

For example, with regards to 6mm plate, opinions vary between accepting a limit of 20%, (approximate 4.8mm) to 50%, (3mm), to the lowest limit of 70%, (2mm). In fact, both the MCA and Classification Societies have percentage rules, which in general are 20% dependent on longitudinal position and these rules apply to all craft whether sea going or inland waterways.

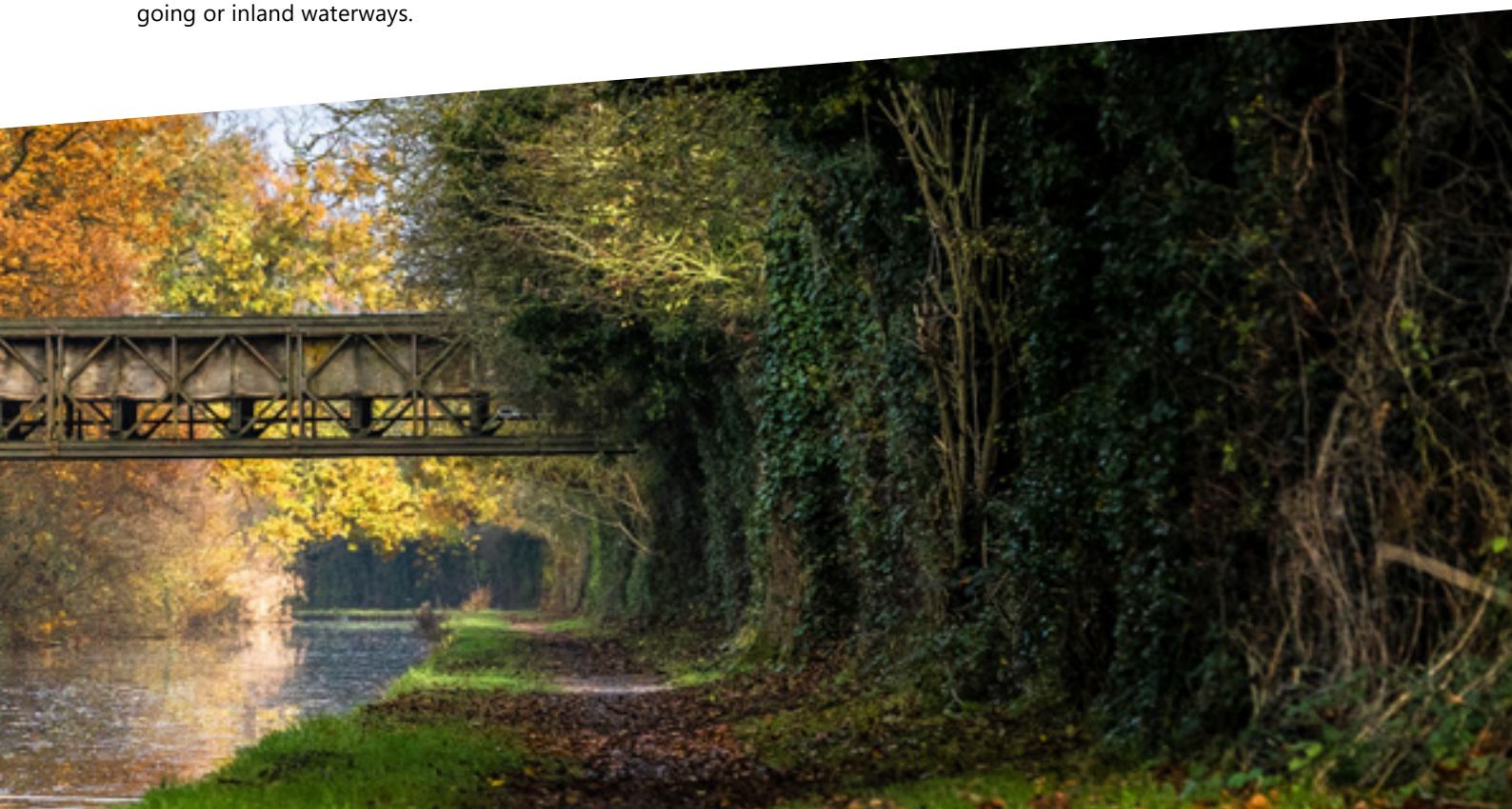
Talking to surveyors of inland waterways craft, as I have done extensively, there appears to be a good deal of 'That's OK', and 'That's the way it's always been'. I have yet to see a disputed Inland Waterways vessel survey report where the vessel surveyed was presented in a clean condition. That means the hull plate work cannot be thoroughly inspected, there was no proper access to inspect the outer bottom and almost without exception there was no access to inspect the internal structure. A hull fouled by freshwater mussels, weed and slime cannot in any circumstances be properly inspected, examined or even properly assessed.

However, this seems to be routine practice for some. I was advised that the reasons are that owners and purchasers will not accept the cost of lifting and pressure washing the craft for survey - and due to the extensive use of cheap environmentally unfriendly bituminous paint, resulting in the potential additional cost of re-painting the hull prior to relaunch due to the "blackening" being washed off by the pressure washer.

Some of these issues also appear to be the result of the lack of suitable facilities for the removal of craft from the water. Some vessels involved in claims were removed on trollies, which were too low to allow access underneath.

In one instance the vessel to be inspected was too heavy for the capacity of the hoist, so it was only lifted just an inch or two above the water (presumably because of concerns over gear failure). Conducting surveys in these conditions is an impossible challenge and a surveyor should not accept these limitations. Apart from the Health and Safety aspect which should be included in the surveyor's risk assessment, if an owner or purchaser cannot present a vessel in an acceptable condition for survey, they must accept either that the surveyor will refuse to survey the vessel or that the owner/purchaser will be receiving a partial and therefore largely meaningless survey report which may not be accepted by insurers.

There is a fundamental design difference between sea going vessels and Inland Waterways vessels. This stems largely through intended use. Sea going vessels are mostly used for recreation whereas Inland Waterways vessels are increasingly being used for permanent or occasional floating accommodation. Sea going vessels will most usually be fitted with portable/removeable sections of flooring, locker bases and ships side linings, similar to a ship, whereas the Inland Waterways vessel will be fitted with fixed flooring and linings similar to that of a house.



The fixed and non-portable internal panelling and flooring commonly fitted to Inland Waterways vessels means that more often than not the internal construction cannot be inspected as part of a survey. Even without leaks, all hulls, but especially steel hulls, will sweat internally leading to corrosion. Other issues are internal water in flat bilges areas which cannot be removed by bilge pumps. Bilge water which may be trapped where it is constrained by sub-division and frames may lie unseen. Internal ballast should be removeable and placed on battens or frames. However, ballast, often in the form of paving slabs or engineering bricks, may lie directly in contact with the hull plating.

All of these issues need to be determined. Therefore, if a surveyor cannot conduct a survey properly and, therefore, professionally, due to lack of access then the surveyor should either refuse to survey the vessel, or at least ensure that the instructing client is aware that there were circumstances that made a thorough inspection impossible at time of survey. Consequently, the integrity of the hull structure could not be determined and therefore they are receiving a partial and largely meaningless survey report, which once again may not be accepted by insurers.

By analysing the existing rules and interpreting the details, all vessels (sea going and inland waterways), should comply with the rules applied by the Classification Societies, CE Compliance (RCD ISO 12215) and the MCA. These are the standards to which the vessels should have been originally constructed to, and this should be determined by the surveyor to enable assessment of suitability of and any subsequent deterioration of the structure.

The Canal Boat Builders' Association (CBA) Code of Practice for steel inland waterways craft and narrowboat construction includes vessels up to 20 feet constructed of 3mm steel plate. All vessels to be constructed to RCD Cat D (IAW ISO 12215). Under RCD and now RCR, preferred Classification Society rules are those that are principally intended for use with pleasure craft, e.g.:

- Germanischer Lloyd Pleasure Craft Rules (2004).
- American Bureau of Shipping Guide for Offshore Racing Yacht (1994).
- American Bureau of Shipping Guide for Motor Pleasure Yachts (2000).

The information required to make a safe judgment on the acceptable parameters of loss of thickness when conducting a survey of a steel inland waterways craft is available to all. Levels of diminution requiring replacement/repair are variously considered to be a loss of approximately 15-25% of the original plate thickness. The surveyor must use all the information gleaned from the vessel's original build specification concerning plate thicknesses together with his/her visual observations and experience. But in general, a loss in excess of 20% of original thickness will be deemed the point at which steel plate is replaced.

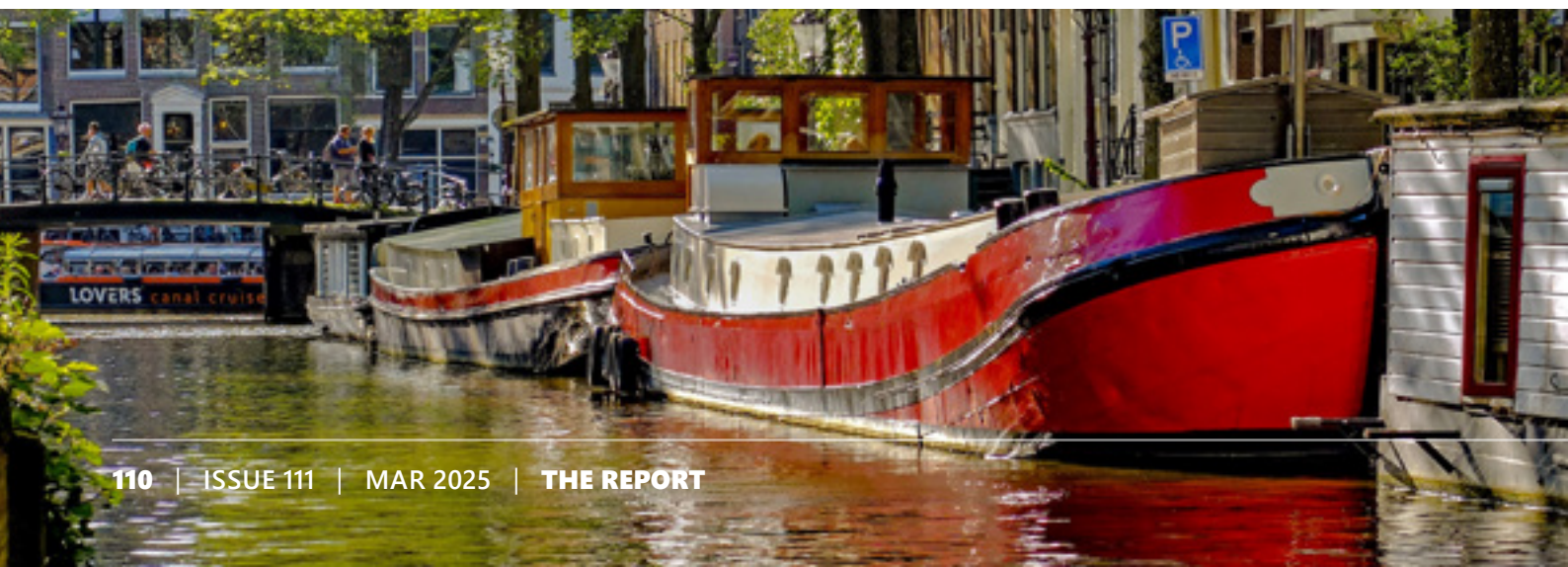
In order to inspect a hull once removed from the water, it should be pressure washed and cleaned of any marine growth as previously stated. This will allow an initial, thorough visual inspection of the hull plating which, depending on the type and thickness of the hull coatings, may include the welding. The visual inspection is primarily to look for evidence of buckling or distortion and the identification of any suspect areas that might require

further investigation using hammer soundings and ultimately thickness measurement. Even if the coatings have not been removed or if due to their nature i.e. epoxy coatings, where it would be inappropriate to remove them, their condition and suitability should be recorded.

Ultrasonic Thickness Measurements taken during survey are only an indication of the overall thickness and level of steel loss (diminution). Thin areas of plate may be discovered but equally where readings were not taken, such areas may be missed. Unfortunately, without removing all the paint coatings a full detailed inspection would never be possible. If the hull is found to have a high level of surface corrosion the hull will require to be blasted off back to bare metal.

Internally the surveyor should insist on a level of access to check the condition of the hull plating and structure. The internal areas where the highest levels of corrosion are likely are those that are least accessible for maintenance. In this instance the surveyor's terms and conditions, circumstances and limitations of survey should include a disclaimer for all the areas that could not be inspected to his/her satisfaction.

Modern Multi Echo Ultrasonic thickness measurement meters can cope with some surface coatings providing they are smooth and dense but ultimately grinding back to smooth metal will generally produce more reliable results. This limitation also needs to be explained to the commissioning client and the potential risks arising out of not having the coatings removed should also be included in the disclaimers contained within the surveyor's terms and conditions and limitations of survey.





When surveying a steel vessel and having conducted a thorough visual inspection, including light hammer soundings and if required some surface scapings, an Ultrasonic Thickness Survey (UTS) may be undertaken.

Ultrasonic Thickness measurements can be taken to assist in determining, or confirming, the original construction and give an indication of the hull thickness in suspect areas. The IIMS has a guide for undertaking an Ultrasonic Thickness Survey, which covers method and also result analysis. Readings can be random, wind and waterline (always included) bands, or grid pattern. Pitting can be measured using a suitable pitting or even tyre depth gauge.

A full UTS is a major undertaking and will be required periodically by a regulatory body, such as the MCA, with regards commercial craft. To conduct an MCA UTS it seems a surveyor is now required to be certificated. To conduct a UTS on a steel pleasure vessel some basic training is sufficient. In all instances the meter must either be in date for calibration, or calibrated on site at time of survey.

A full UTS will require more time than will be allocated to a general Pre-Purchase, Insurance, or Condition Survey and may require additional assistance. A grid pattern can be marked out over the outer bottom in chalk to assist. One meter squares will require in excess of nine readings and additional readings may be required in the wind and water line, garboard strake and areas of stressed plate work such as the turn of bilge. (See photo example on following page).



The readings should be presented on a separate UTS form (see example below) stating the parameters used for assessment. As you can see the diminution measurements have been listed as a percentage of material lost and can be colour-coded and easily referenced, so highlighting when a repair is imminent or required.

Ship's Name : Test Ship				LLOYD Number : 8000111				Report Number : LON123456				
				TM1 - Deck, Shell & Bottom Plating								
Space / Compartment Description :				Main Deck Plating								
Stroke Position :				Stroke 8								
Sketch Reference ID	As Built Thickness	Max Allowable Diminution	Renewal Thickness	Port Reading								Mean Diminution
				Forward			Aft					
				Gauged Thickness	Diminution	Thickness As Renewed	Gauged Thickness	Diminution	Thickness As Renewed			
	(mm)	(%)	(mm)	(mm)	(mm)	(%)	(mm)	(mm)	(%)	(mm)	(%)	
E	13.5	25.00	10.1	12.0	0.6	4.44	18	13.1	0.4	2.90	3.70	
F	14.5	25.00	10.9	11.6	2.9	20.00		10.7	3.8	26.21	23.10	
G	19.5	25.00	14.6					18.8	0.7	3.59		
H	25	25.00	17.3	20.6	2.4	10.45		18.8	4.2	16.80	14.36	
I	25.5	25.00	17.6	21.8	1.7	7.25		18.1	5.4	21.00	15.11	
J	24	25.00	18									

Repair recommendations

In response to the question regarding 'Over-plating' or 'Doubling', I personally recall in the 1980s the Ministry of Defence requiring all welders on hull structure (me included), to be code B qualified to a hull insert inclined overhead procedure. Doubling plates were to be considered an emergency repair process only. In the 1990s as a Ship Repair Manager the attending Lloyd's surveyors would only allow doublers as temporary repairs, which were required to be replaced with inserts at the next scheduled docking. However, this was in relation to sea going craft.

In Inland Waterways vessels the over-plating/doubling of the wind and waterline appears to be quite common and if completed properly with window welding to ensure

attachment to the underlying structure, should be considered a suitable repair. However future surveys should take into consideration that no one ever knows what is going on under the over-plating.

Another exception would be floating house boats (definition: a boat which is or can be moored for use as a dwelling or a non-navigable vessel used for accommodation), often kept on non-tidal waters or drying berths. With these vessels the principal concern is keeping water out and staying afloat rather than structural strength. But again, this must be made perfectly clear in the report, because the danger is that the vessel could be sold to someone who intends to re-engine the craft and turn it back into a navigable vessel. It is not unknown for owners to take their vessels across the English channel to cruise the continental waterways!

To conclude, the reason for producing this Open Letter to industry is that we are keen to advise our surveyor members, insurers, owners and operators of the correct rules, as well as highlighting some of confusion and conflicting regulations that currently exist.

We also recognised a need to advise our members and other interested parties of a correct Code of Practice to apply in an attempt to level the playing field and ultimately to keep surveyors safe from litigation.

In truth, there may be no simple answer to all of this. I personally find some of it confusing. I hope that this article has helped to shine a light on the complexities and to enable a more informed judgment to be made when undertaking and assessing these types of surveys.

And finally. Another question recently posed by a member was to do with the installation of lithium-ion batteries in Inland Waterways vessels and for that matter, in all vessels. This remains a hot topic currently.

The requirements are covered in MGN 550 and the Workboat 3 Code of Practice below:

8.3.3 - A fuel tank and lithium-ion batteries used as a source of power for propulsion shall be located in separate spaces which do not share a boundary with any accommodation space or each other.

The misleading wording is "batteries used as a source of power for propulsion" which implies that batteries installed for other uses such as engine starting and domestic power are not subject to the same guidelines.

This has resulted in surveyors, (me included) in making judgements and interpretations which were not to the vessel owner/operator's liking. Unless more specific advice is forthcoming, the decision on the suitability of a particular installation will often fall to the surveyor concerned depending on the individual circumstances. Once again it is left to the surveyor to interpret the rules and guidance to the best of his/her ability and ultimately at their own conscience.

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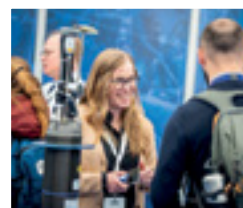
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Removing the risk of confined space entry from industrial tank cleaning

Case study no. 2

All images are courtesy of Swan & Co.

By Darren McAllister, QHSE Manager, Swan & Co. (Marine Surveyors) Ltd.

Non-Entry Support Tool (NEST)

- Since 1996 310 people are known to have lost their lives in enclosed spaces on ships.
- 224 seafarers and 86 shore personnel in 197 accidents.

Swan & Company has called on the shipping industry to work together to improve safety in these challenging onboard areas and has worked tirelessly behind the scenes to create their own changes, improvements, and innovation. Specifically, Swan & Company has focused on industrial tank cleaning operations which traditionally required extended periods of time within confined spaces. The company has developed a hugely effective solution.

Background Information

Swan & Company (Marine Surveyors) Ltd. has been industry leaders for more than 50 years. The business has a core staff with over 90 years of combined experience within the industry. Our role to our clients is to ensure that quayside operations are not just carried out efficiently and effectively but are done so under the safest possible means. Every single operation offers up its own set of risk, hazard, and vulnerability, but our presence overseeing these operations ensure safe and controlled execution. The team's experience has allowed Swan & Co. to research and develop industry defining innovation which increases safety and efficiency for clients, quayside vendors and contractors.

Executive Summary

This study will show how Swan & Co has addressed the ongoing concern of confined space entry during industrial tank cleaning operations on offshore supply vessels. People are killed or seriously injured in confined spaces every year in the UK and worldwide. This happens in a wide range of industries, from those involving complex plant to simple storage vessels. Those involved in these incidents include not just people working in the confined space, but also those who try to rescue without proper training and equipment.

A confined space can be any space of an enclosed nature where there is a risk of death or serious injury from hazardous substances or dangerous conditions (e.g. lack of oxygen) – the study is concerned solely with supply vessel and offshore storage tanks of any kind.

During industrial tank cleaning, personnel can spend long durations in these dangerous spaces, exposed to hydrocarbons, whilst utilising high powered jetting equipment. The risks are always present and are amplified further with the introduction of the cleaning equipment. The solution has been to create a tool that allows all tank cleaning to be conducted from the safety of the vessel deck. The company focuses on entirely removing the need for confined space entry whilst ensuring to retain the ability to clean storage tanks to desired industry standards, all from the safety of the deck.

Problem Statement

Tank cleaning procedures in the North Sea and abroad have been in place for a long time. Despite the risk involved, it has been accepted that the operations are adequately controlled and safe to continue with. The first hurdle was to change the opinion that confined space entry to bulk cargo tanks remains the best way to clean, and that alternative and safer means were required.

Stage two was to create the equipment that would be effective enough to achieve the same cleaning results from the tank hatch as is achieved whilst inside the tanks. This process took approximately 2 years to get correct, or to the point of the team beginning cleaning trials.

Some further issues that were considered during the process included:

- Working at height
- Working with high powered cleaning equipment
- Exposure to hydrocarbons and harmful atmospheres in general
- Adaptability to all types of vessel tank hatches

Objective

The company's aim has always been to create equipment that allowed tank cleaning to be done from the safety of the vessel deck, eradicating any need for confined space entry. The equipment will be adaptable to any vessel and tank hatch and will have all relevant safety controls for use. The equipment will be efficient and effective enough to achieve the same cleaning standards as traditional person-entry cleaning would regardless of which tank people were working with. The main objective is to keep people out of confined spaces and thus increasing the safety of cleaning operations tenfold.

Methodology & Approach

The company knew because they wanted to avoid confined space entry, it would need to develop equipment that was appropriate for use from outside the tank, and mainly from the main entry point - the tank hatches. Swan & Co. teamed up with a local fabrication company and presented detailed blueprints of what they envisaged to have in place. The team created initial sample products that were used to identify potential issues and hurdles, and from there, re-designed whilst ironing out problems identified.

The company also researched specific cleaning lances and cleaning heads which were used to develop new, extendable, and adaptable lances that would be compatible with the support tool whilst also being efficient when cleaning the tanks and user friendly for the cleaning teams.

Final designs were settled and committed to create a prototype which could be used for trials onboard supply vessels.

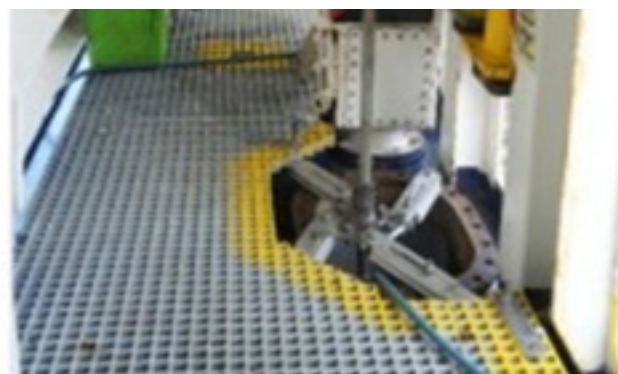
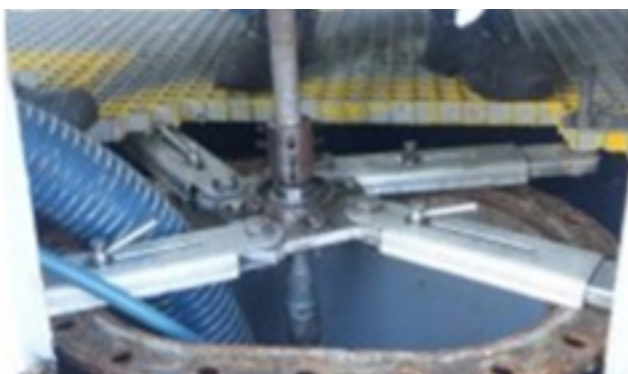
Along with the product itself, the organisation created working methods, operational procedures, and risk assessments to ensure that initial use and trials would be fully controlled and safe. Swan & Co. also ensured to have in place appropriate weight load testing and heat testing for all equipment and placed appropriate patents on all of the equipment.

Solution

The innovative equipment, which the business named the Swan Non-Entry Support Tool (NEST), has been designed to fit to any supply vessel tank hatch. It allows for cleaning equipment (lances/guns) to be secured through the NEST allowing for the cleaning operator to target areas of the tank floors, walls, and roofs from the safety of the deck.

The lances are secured in place within the NEST which allows for all of the pressure and weight from the lance to be supported solely by the NEST, and not by the operator. A visual is gained from the hatch which allows the operator to target areas of the tank that require attention, whilst the waste created is removed to shoreside via discharge lines or Wilden pumps.

The cleaning heads which have been identified and put in place allow for the different levels of cleaning required, whether that is simply clearing a floor, washing down walls, or cutting up solids (mud fall out). The NEST is easily secured to any supply vessel tank hatch and has been pressure tested, weight tested, and heat tested to ensure complete safety whilst in use.



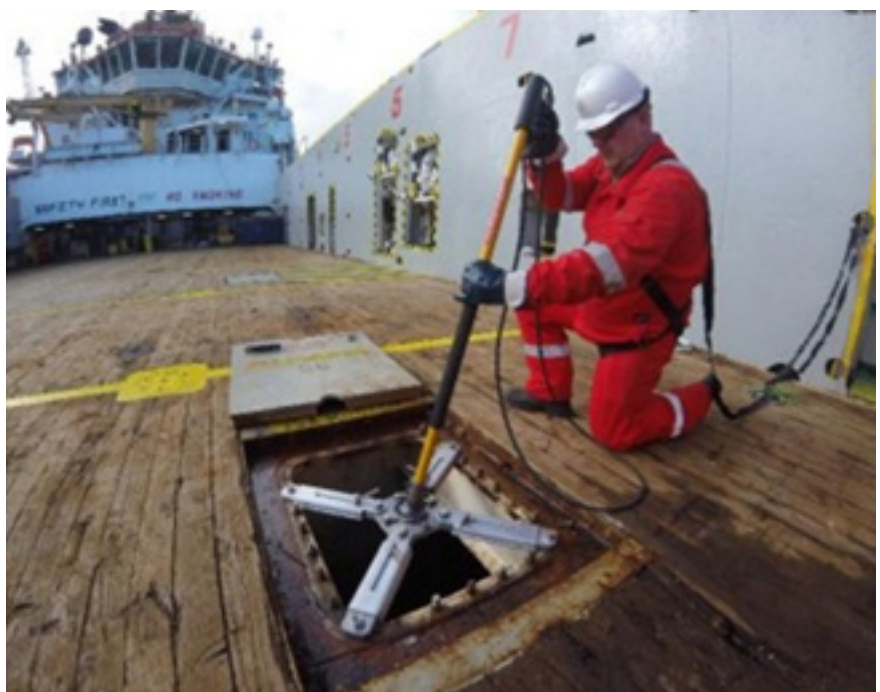
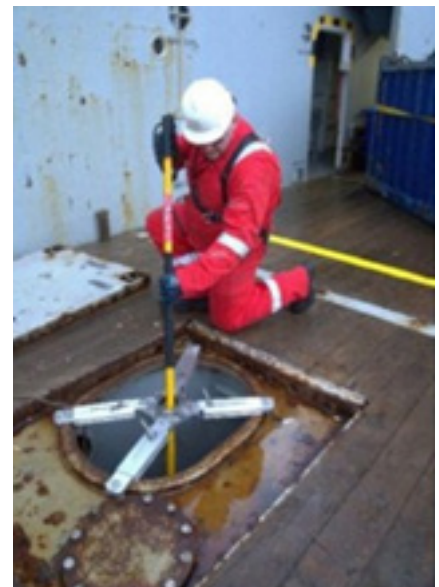
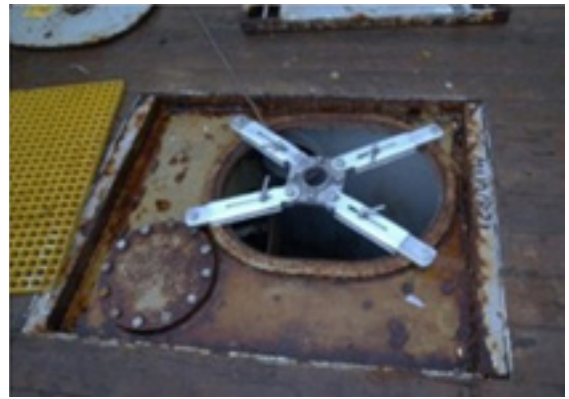
Recorded Results So Far

Over the company's initial trial period between August and October 2024 the NEST cleaning equipment has been utilised on 7 separate occasions. Permission has been received to utilise the equipment during already planned tank cleaning activities. The clients and vessels have not been noted on this document in order to respect client confidentiality. Using the equipment over the course of 7 individual operations and recorded trial time, 95% of confined space entry time into vessel tanks was prevented. The cleaning standards were also all recorded as acceptable 'mud clean' standard, as well as giving tank walls attention during use.

Analysis

When the team began this process, the main aim was to remove the multiple risks associated with confined space entry and specifically confined space entry for tank cleaning. Through extensive client correspondence it became very clear that the risk involved in tank cleaning needed to be reduced dramatically, and alternative methods for cleaning developed. The company wanted to design equipment that, as a minimum, reduced the risk of trips and falls from height, remove exposure to noxious or oxygen deficient atmospheres, eliminate dangers of flooding/drowning, and also increased the safety controls of using high pressure jetting equipment.

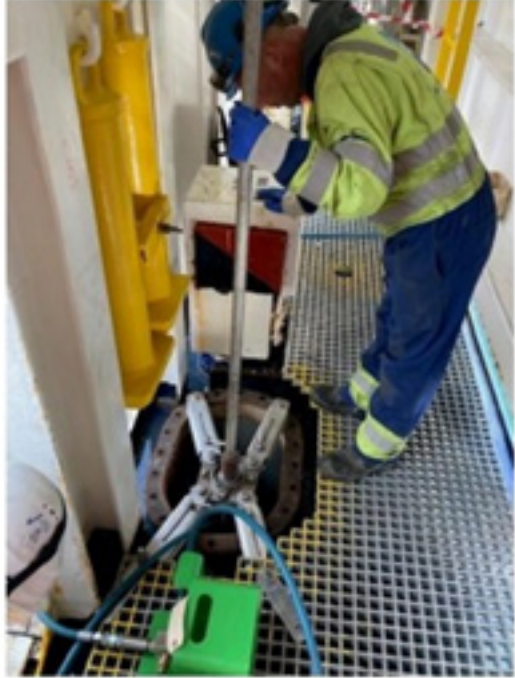
Over an extended period of time the team studied the usage of cleaning lances and all the associated risk involved. It was quickly established that the business wanted to create a tool that would allow for supported cleaning equipment and without the need for tank entry. From that point on the team worked on a specific solution which allowed for efficient cleaning – to the same standard that is achieved through standard tank cleaning, but without the need for entry and the associated risks.



What Swan & Co. has since researched and developed:

- Vessel tank hatch designs and variations with regard to connecting equipment
- Vessel tank hatch appliances, adaptable to all typed of tank hatches

- Cleaning lances and protective housings
- Cleaning nozzles
- Pressures rates associated with specific lances and cleaning nozzles
- Effectiveness to standards muds/wastes and other associated products carried within vessel tanks

Currently	Our Solution Impact
A very minimum of 90% reduction of person-entry to tanks over the course of 12 months. (this is solely for muds and waste only)	We aim to reduce time in confined spaces by a minimum of 90% over the course of the year - removing at least 972 hours spent in confined spaces.
	

Challenges & Limitations

Cleaning effectiveness: As personnel have been removed from tanks, the most obvious challenge has come in the form of effectively breaking up the more stubborn products that may be left in tanks. Breaking up difficult product and 'solids' is relatively easy from ground level, but as there is now restricted entry, and all cleaning is conducted from the deck, this sometimes introduces difficulty in breaking up stubborn product. This has lead to the team increasing the ability of lances, pressure use and the standard of the nozzles adapted for the lances as well as how the equipment is controlled by the cleaning personnel.

Set up: The team has been challenged with the setup of the equipment that has been developed as there are many aspects to it. The lance itself is separated into multiple sections as there is an obvious need for it to be long enough to access all areas of tanks (which are often extremely large). The business has worked

with this and introduced CamLock connections which have in turn allowed it to assemble equipment far more efficiently and quickly.

Adjustability and progression: As it stands the equipment is designed to focus mainly on tank floors and lower to mid sections of the walls. The company's progression plan is to get to the stage where the equipment is adaptable enough to allow for targeting all areas of the tank including upper sections and roofs – all from the safety of the deck. This process is ongoing.

Recycling of cleaning water: The team is currently exploring options to recycle the water being used to clean tanks – this will further allow for reduction in waste creation and the associated disposal costs.

Lessons Learned

The company's research has enlightened the whole team with much valued knowledge of the vast

array of cleaning heads available and for what they are exactly best used for. The business has been able to identify and put in place different cleaning heads which allow for the various degrees of cleaning with different products from the hatch.

It has also been able to identify ways in which to achieve appropriate levels of pressure, through extended cleaning lances which both allow for effective levels of cleaning as well as safe operation for the cleaning team.

Conclusion & Outcome

When Swan & Co. began this process, we did so because we refused to continue to overlook the risk associated with excessive confined space entry during tank cleaning. The data which highlights the number of incidents that arise as a result of confined space entry were enough for us to put our experience and knowledge into action.

There were challenges during this process that made us question whether it was even possible to clean tanks suitably without entry, but we persevered and eventually began to come up with effective outcomes.

We are now extremely proud of the equipment that we have created. Equipment that not only allows for the effective cleaning of bulk tanks, but also whilst keeping personnel out of confined spaces whilst doing so. We have effectively removed all the risk associated with confined space entry, which therefore increases the safety of industrial tank cleaning by a huge amount.

We are also increasing the efficiency of vessel turnaround times – our equipment requires much smaller cleaning squads that a traditional clean would require, as well as less quayside equipment and congestion.

We have reduced the amount of waste created as our equipment allows for full control over when and how much waste is required for cleaning. Our cleaning equipment is lightweight and easily transportable to and from operations. The equipment has been built in a manner which allows us to take it abroad or to offshore locations very easily.

Testimonial & Client Feedback

“The introduction of the NEST has removed a huge amount of risk from vessel tank cleaning. For far too long the industry was happy to put people into confined spaces knowing full well the risks associated with such operations. Credit to the team at Swan & Co. for doing something about this and introducing this fantastic, industry changing innovation.”



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Statistics show worrying trend of enclosed space related deaths which continue to occur

InterManager's safety statistics highlight a worrying development of seafarers and shore personnel that lose their lives in enclosed spaces accidents onboard ships.

By January 2025, InterManager estimated that around 350 seafarers and third-party workers had died from asphyxiation in enclosed spaces onboard ships since 1996, with 43 accidents since 2022 accounting for 70 of these deaths.

Gard Club highlights that while these alarmingly high numbers may be partly attributed to improvements in reporting and investigation methods, it does not change the fact that the overall number of enclosed space deaths onboard ships remains too high.

Additionally, it is also worth noting that these types of accidents do not only affect trainees and inexperienced personnel. Many of those who die in these accidents are members of a ship's leadership team, including Masters and Chief Officers. Deaths among shore personnel are also relatively common.

Furthermore, data show that more than 40% of the enclosed space accidents occurred onboard bulk carriers, primarily inside the cargo holds or the hold accesses, although tankers and general cargo ships are also frequently represented in its statistics.

InterManager's safety statistics demonstrate that the number of enclosed space accidents and fatalities has not decreased between the implementation of Res.A.1050(27) in 2011 and January 2025, and accident investigations reveal that the reasons of the incidents have not changed.

As a reminder, in June 2024 InterManager raised concern on enclosed space deaths, and submitted a paper to the IMO regarding the alarming trend which was well publicised at the time.

In September 2024, the IMO Sub-Committee on Carriage of Cargo (CCC 10) presented an amended version of Res. A.1050(27). The Gard P&I Club provides an overview of the other amendments and recommendations with regards to enclosed space entry:

Enhanced training and knowledge, particularly for the designated competent and responsible persons. A reference to the SOLAS Reg.III/19.3.6. requirements for drills has also been incorporated.

Maintenance of an enclosed space register. The register should be ship-specific and record and assess the hazards of all enclosed spaces onboard. It should also take into account how the atmosphere of each space may change depending on its content or the cargo carried. Associated risk mitigating measures should be listed.

Making shipper's declaration available to the master or his representative onboard. The declaration should contain all relevant information relating to the hazards of the cargo and convey this information in a format that is understandable to the ship's crew.

Better onboard activity and resource planning to ensure that external factors such as undue time pressure or simultaneous operations (SIMOPS) do not put enclosed space entry activity at risk. Furthermore, enclosed space activity should be conducted during a ship's normal working hours and single person entry into an enclosed space is not recommended.

Improved access and entry procedures that make sure also shore personnel are informed of any potential hazards and safety precautions required before and during entry, including any enclosed space entry permit arrangements to be used. A new appendix provides examples of warning signs



and diagrams to be used at space entry points and ships' gangways.

Testing of the atmosphere, which now refers to detection equipment and testing instruments as required by SOLAS Reg.X1-1/7. It is also advised that, in addition to testing for oxygen, flammability, and toxicity, the atmosphere be checked for carbon dioxide.

Establishment of an enclosed space emergency response plan that is easy understood, regularly practiced, verified as being effective, and followed precisely. It should be stressed that in the event of an emergency, ship crews or shore personnel should always follow the established rescue plan and never try to do rescue operations on their own in an enclosed space.

The amended enclosed space entry recommendations are up for final approval at the IMO MSC 110 in spring 2025. However, ship operators are encouraged to review and take relevant advice from the new version of the recommendations as soon as possible and update onboard procedures as necessary.

About InterManager

InterManager members are in-house or third party ship and crew managers, related maritime companies, and shipping organisations, involved in managing more than 7,500 ships and responsible for over 330,000 seafarers.

InterManager is the only organisation dedicated to representing the ship management industry. Internationally-recognised and well-respected, we represent our members at an international level, lobbying on their behalf to ensure their views and needs are taken into account within the wider maritime community.

Their unrivalled presence within the wider maritime industry has allowed the Association to be at the forefront of several initiatives, including:

- Enclose Space Deaths
- Shipping KPIs
- The single window system
- Onboard Alarms
- Seafarer fatigue
- Paperless shipping

Website: <https://www.intermanager.org>

Saving lives: dangers of enclosed spaces



By Frances Birkett,
IIMS Marketing &
Publishing Executive

Throughout my first year at the Institute (almost), the dangers involved with working in enclosed, or confined spaces, have cropped up time and time.

Currently the China Maritime Safety Administration is in the midst of a nine-month special campaign against illegal entry into dangerous enclosed spaces onboard ships. A circular issued by Huatai Marine announcing the campaign said: "In recent years, the number of accidents caused by the act of illegally entering enclosed spaces has been increasing year by year, and such illegal acts have [posed serious threats] to the safety of both personnel and ships."

In December 2023, InterManager called on the shipping industry to work together to improve safety and prevent further deaths in enclosed spaces. It came as it revealed 310 people had died in 197 accidents in enclosed spaces since 1996.

Then in July last year, the Association sent statistics to the International Maritime Organization (IMO) warning that the casualty rate for enclosed space accidents had almost doubled. When looking at enclosed space accidents in 2022 versus 2023, despite both years recording 14 incidents, there were 34 casualties in 2023 compared with 18 in 2022.

One story that stuck in my mind was a Britannia P&I Club BSafe case study on the death of a contractor on board a bulk carrier in 2021. The vessel arrived in Chennai, India to load 53,000 tonnes of yellow corn. Specialist contractors boarded to install ducting for fumigating the cargo. A

cargo hold was loaded and its hatches and accessways were sealed. Six days later, a team of fumigation contractors prepared to enter the cargo hold. Two workers entered with gas masks and a phosphine gas detector and, shortly afterwards, worker A emerged feeling breathless and noticed worker B had fallen over inside the cargo hold. He went back to help his colleague, and at some point, also collapsed. Other team members did attempt to help but had to retreat due to breathlessness. Both workers were retrieved and given first aid and oxygen. However, worker A was later declared dead while worker B recovered. What struck me the most was that in this scenario the would-be rescuer was the one who ended up losing their life.

Unfortunately, this is an all-too-common occurrence.

The UK Maritime & Coastguard Agency (MCA) published an enclosed spaces guidance leaflet, which shared an alarming statistic crediting the International Association of Classification Societies (IACS) - "Over 50% of workers who die in enclosed spaces are attempting to rescue other workers."

I've read many articles and guidance notes on enclosed spaces highlighting the dangers of workers responding to incidents which then tragically result in multiple casualties. It has been a concern repeatedly reported on in the maritime industry throughout the years.

These reports, from the UK Marine Accident Investigation Branch (MAIB) and the German Federal Bureau of Maritime Casualty Investigation (BSU), feature some well-known enclosed space incidents and casualties:

- **ERRV Viking Islay:** Three seamen died after entering an enclosed space while the vessel was conducting rig support operations in the North Sea in 2007. Two of them had gone to try and secure a rattling anchor chain in the chain locker. The first seaman collapsed, and the other raised the alarm before going in to help his companion. He also collapsed. The third seaman, the first rescuer, entered while wearing an Emergency Escape Breathing Device (EEBD). At some point the EEBD hood was removed or dislodged and they also collapsed.
- **Sava Lake:** In 2008, two seamen collapsed in a store on board the general cargo ship. The chief officer entered the store to try and rescue the men but was soon forced to leave after becoming short of breath and his vision narrowed. The two seamen had asphyxiated. To clear the cargo hold ventilation trunking of any build up of cargo residues from the hold, or sea water from the deck ventilator, the flexible bellow pieces fitted adjacent to the ventilation fan had been cut. This created a direct air path from the cargo hold into the forward store. A test showed air in the cargo hold contained only 6% oxygen.

- **Saga Rose:** Later that same year, an experienced seaman died on board passenger cruise ship Saga Rose after he entered an almost empty ballast tank. The tank's manhole cover, which was inside a small cofferdam accessed from within the engine room, had been removed and the seaman had been instructed to confirm the tank's contents. As it was not intended for the seaman to enter the tank, no permit to work was issued. When the seaman was found to be missing, an experienced motorman was sent into the cofferdam to check on his wellbeing. He found the seaman lying at the bottom of the empty tank and raised the alarm. The motorman then entered the tank but collapsed when trying to recover the seaman. After the ship's emergency response team provided air to the stricken crew via in-line breathing apparatus, the motorman recovered and was able to leave the tank. However, the seaman never regained consciousness.
- **MV Suintis:** In 2014, three crewmembers were found unconscious on board the timber cargo vessel in the port of Goole, UK. Two of the crewmembers, possibly one after the other, climbed into the forward tween deck hatch during the discharge operation and collapsed there. The chief officer attempted to rescue both seamen and lost consciousness as well. They were all recovered but did not survive despite rigorous attempts at resuscitation.



Alarm bells rang following the events of the Viking Islay, Sava Lake and the Saga Rose with the MAIB. Six seafarers dying in confined spaces in nine months prompted the MAIB to issue a safety bulletin in July 2008. Lessons identified in the report included complacency leading to lapses in procedure; lack of knowledge; potentially dangerous spaces not being identified; and, would-be rescuers acting on instinct and emotion rather than knowledge and training.

Fighting that instinct to help has to be easier said than done. Watching a colleague collapse and not wanting to immediately rush to their aid must be incredibly difficult.

Draft revised recommendations of resolution A.1050(27) presented at the 10th session of the Sub-Committee on Carriage of Cargoes and Containers (CCC) last year included enhanced safety procedures on entering and working in enclosed guidance. The revisions also focused on guidance on emergency response plans. If adopted, these recommendations should help to enhance the safety of personnel, reduce enclosed spaces incidents, and therefore prevent further fatalities in this area.

And what about the marine surveyor?

At IIMS we have a number of handy guides for sale, and our first ever one was on what a marine surveyor needs to know about working in enclosed spaces (published in 2015). In its preface, the authors say, "Of all those who board a ship for work in enclosed spaces it is the surveyor who is most at risk." It adds a surveyor is totally reliant on ship's staff having correctly prepared the space, carrying out all the relevant tests, completing the risk assessment and work permit procedure, as well as providing a well-trained rescue team. (Although you would hope the latter would not be needed.)

Guidance in the book covers a range of topics relevant for a marine surveyor, including marine enclosed spaces, enclosed space culture, design features associated with enclosed spaces, enclosed space equipment, enclosed space training, and oxygen and dangerous gases.

IACS has also introduced guidelines on safety standards for work, Rec. 184. These recommendations aim to enhance safety standards for surveyors, which also addresses the occupational health and safety risks that performing surveys in confined spaces presents. In regard to confined space entry/work, Rec. 184 has included a list of do's and don'ts for performing surveys in a safe and efficient manner.

Please, do not become complacent when entering an enclosed space. Be safe and do not become another unwelcome addition to the statistics.



SAFETY RECOMMENDATIONS FOR EMISSION CAPTURE AND CONTROL

OCIMF has issued an interim information paper to provide minimum functional requirements for the safe application of barge-based Emission Capture and Control (ECC) to oil, chemical and oil product tankers operating at onshore conventional berths, such as piers, jetties and quays.

According to OCIMF, the adoption of Emission Capture and Control (ECC) can bring environmental advantages to maritime operations in ports and terminals. By using ECC while at berth, ships can reduce their emissions, contributing to improved local air quality and aiding in compliance with environmental regulations.

It highlights critical risks and technical and operational challenges and identifies potential preventive measures to safely apply a barge-based ECC. Apart from addressing technical aspects, OCIMF also presents considerations relating to the human factor. Safety recommendations relating to the human factor include:

THE ROLE OF HUMAN FACTORS

Human factors are the characteristics that affect human interaction with equipment, processes, and other people. They can include physical, psychological, and social factors. Humans contribute to most incidents, and wherever people are involved in the design, construction, or operation of equipment and processes, human error is likely.

Human error, actions, and decisions are often the result of how the workplace is set up, i.e., how work, equipment, and safeguards are designed and how leaders influence an organisation's culture.

Incidents start as mistakes or workarounds that stem from the following circumstances:

- Problems with tasks.
- Unclear procedures.
- Difficult-to-use equipment.
- Workload fatigue.
- Lack of resources.
- Low-quality or insufficient training.
- Improper communication.
- Improper situational awareness.

Tackling underlying conditions and hard-to-use systems that influence human error, actions, and decisions can reduce the likelihood of incidents. People in leadership play an essential role in this.

The human factors and influences are summarised in the following principles:

- People will make mistakes.
- People's actions are rarely malicious and usually make sense to them at the time.
- Mistakes may be due to conditions and systems that make work difficult.
- Understanding the conditions under which mistakes happen helps to prevent or correct them.
- People know the most about their work and play a critical role in identifying solutions.
- Facilities, equipment, and activities can be designed to reduce mistakes and manage risk better.
- People in charge of activities help shape the conditions that influence what other people do.
- It matters how those in charge respond when things go wrong and that they take the opportunity to learn.

HIERARCHY OF CONTROLS

The hierarchy of controls provides a recommended order of priority for selecting preventive and mitigating measures or controls to reduce risk to a level that is As Low As Reasonably Practicable (ALARP).

The hierarchy of controls is as follows:

- Elimination: Remove the cause of the hazard completely, e.g., by not performing a proposed operation.
- Substitution: Replace the proposed procedure with a less hazardous one.
- Engineering Controls: Physically separate personnel from hazards, e.g., fitting guards at dangerous equipment, rigging barriers around open hatchways, or using Lock-out/Tag-out (LO/TO) equipment.
- Administrative Controls: Use procedures to perform tasks safely, e.g., hot work permits, enclosed space entry permits, hazard identification tools, risk assessments, and duty rosters to minimise exposure to hazards.
- PPE: Use Personal Protective Equipment (PPE) to protect the person carrying out the operation, e.g., safety glasses. Select PPE to mitigate against the identified hazard. Train personnel on how to use it correctly, including how to check if it still fits the intended purpose.

This hierarchy of controls recognises that eliminating a task may provide the best protection against the risk from that task, especially when compared to the less effective controls of additional procedures or signage. It also recognises that humans make mistakes and that relying on people to always follow procedures or wear PPE correctly is not always effective.

As you move down the hierarchy of controls, the level of supervision required to ensure the control's effectiveness increases:

- Elimination and Substitution: The most effective controls, requiring the least supervision.
- Engineering Controls: Require regular inspection and maintenance.
- Administrative Controls: Require active supervision to ensure procedures are followed.
- PPE: The least effective control, requiring constant supervision to ensure it is worn and used correctly.

Download the safety recommendations at <https://bit.ly/435P3nV>.



Historic canals repurposed to address modern UK's challenges

A new report highlights how the UK's historic canal network, originally a product of the Industrial Revolution, is being adapted to tackle key contemporary issues. These interconnected waterways, rich in biodiversity, are contributing to efforts addressing the biodiversity crisis, improving public health, and mitigating some effects of climate change.

The Canal & River Trust, a charity responsible for maintaining 2,000 miles of canals across England and Wales, has released an Impact Report demonstrating the ongoing relevance of these waterways. The report also details the challenges posed by the ageing infrastructure and the organisation's efforts to preserve and enhance the UK canal network.

The report underscores the role of canals as significant habitats supporting biodiversity. The network includes 304 conservation areas, 68 sites of special scientific interest, and numerous biodiverse corridors that act as 'nature highways', enabling species to thrive and navigate the fragmented landscape. The charity has mapped the ecological footprint of its waterways, identifying their contributions to resilient ecosystems.

The network flows through 32 of 48 local nature recovery strategy areas, with the charity advocating for canals to be integrated into these strategies to help reverse biodiversity loss and promote greener communities.

Access to green spaces has proven benefits for mental health, and canals provide unique blue-green environments. Over nine million people live within a 15-minute walk of a canal, and research shows that visits improve mental wellbeing by six per cent—an impact greater than green spaces alone. In areas with health and wellbeing disparities, canals offer accessible opportunities for exercise, relaxation, and nature connection. With 859m visits recorded last year, the network's significance to communities continues to grow. Over one-third

of the canal network has achieved Green Flag status, with urban areas receiving special focus.

As the effects of climate change worsen, canals are providing urban cooling, water security and flood protection. During the heatwaves of 2022, urban canals reduced temperatures by an average of 2°C in three cities. The network also supports flood defence through embankments and reservoirs, aids water security, and facilitates low-carbon transport such as cycling and walking.

Despite their value, the network faces challenges linked to ageing infrastructure. Last winter, £9m in storm damage was recorded, highlighting vulnerabilities. The Canal & River Trust is conducting over 150 critical maintenance and conservation

projects this winter to address these issues and strengthen resilience against extreme weather.

The charity's work relies on government funding, third-party contributions, public donations, and volunteer efforts. In October, the Canal & River Trust released its annual report & accounts for 2023/24, revealing a year marked by record spending on maintenance and increasing pressures on its operations due to the ageing canal infrastructure and rising costs exacerbated by climate change and inflation. These challenges come at a critical time, with the trust facing significant government funding cuts set to begin in 2027.

Last year, Fund Britain's Waterways said government cuts will have a "devastating" impact in the coming years on the UK canal network. Richard Parry, chief executive of the Canal & River Trust, says: "Our canals have been part of the UK's story for over two centuries, and today they're stepping up to meet the challenges of our time. Whether it's providing vital havens and connecting corridors for wildlife, supporting mental health in our communities, or helping cities adapt to climate change, the power of canals is proving to be an irreplaceable part of our nation's future.

"But we can't take them for granted. The challenges facing our ageing network mean that we urgently need continued investment, public support, and partnerships to keep canals thriving and ensure they remain a vital part of modern society."

Dr William Bird, CEO of Intelligent Health, comments: "Canals are unique spaces where nature and people come together, creating havens for wildlife that also offer a lifeline for our wellbeing. These vibrant corridors of biodiversity bring nature right into the heart of our communities, including areas where access to green space is often limited. For people living in more deprived areas, the presence of wildlife-rich canals can be transformative, providing moments of connection, calm, and inspiration that are vital for mental health. By protecting and enhancing these spaces, we're not just supporting nature's recovery but fostering healthier, happier communities too."



The full impact report is available at <https://bit.ly/42eDBWj>

DO YOU KNOW WHAT P&I STANDS FOR?

Protection and Indemnity insurance, more commonly known as P&I insurance, is a type of mutual maritime coverage offered by a P&I club. While marine insurance companies offer “hull and machinery” coverage for shipowners and cargo insurance for cargo owners, a P&I club covers broader, open-ended risks that conventional insurers are typically unwilling to insure.

Protection is essential for ensuring the safety of seafarers and ships while Indemnity is necessary to compensate for any loss of life, environment, and property. P&I plays a critical role in protecting crews, the marine environment, coastal communities, and third-party claimants in the event of a shipping casualty or incident.

In essence, a P&I Club is owned by its shipowner and charterer members, and its operations and activities are overseen by a board of directors, or committee, elected from the membership. The day-to-day operations of the Clubs are handled by professional managers, either “in-house” or external, who are appointed by and report to their Club board/committee.

The coverage offered by P&I Clubs has grown and adapted over time. What began as protection against collision liability has expanded to address a broad range of people-related risks in the maritime industry. Today, it offers the financial strength needed to ensure ships can operate in an environmentally conscious world, where issues like pollution and wreck removal are high priorities.

Today, P&I Clubs insures their members against a wide variety of risks including:

- **Injury, illness, and death of crew**
- **Injury, illness, and death of passengers and other third parties on board**
- **Stowaways and the costs of repatriating them**
- **Damaged or lost cargo**
- **Collisions**
- **Wreck removal**
- **Damage to property**
- **Pollution**

LOSS PREVENTION IS AT THE HEART OF P&I CLUBS

Protection and Indemnity (P&I) Clubs and loss prevention are closely related because one of the core missions of P&I Clubs is to minimize risks and prevent losses for their members. Preventing incidents that could result in claims directly benefits P&I Clubs, as fewer claims mean lower payouts, better sustainability of funds, and potentially lower premiums for members.

Loss prevention resources from P&I clubs are designed to support members in managing risk, preventing accidents, and ensuring compliance with industry standards. These resources are often easily

accessible online and are crucial in helping shipping companies improve safety, reduce claims, and ultimately safeguard their business operations.

Joakim Enström, Senior Loss Prevention Officer at The Swedish Club has stated that the main loss prevention issues fall into four areas:

1. Navigational claims

2. Cargo claims

3. People claims

4. Machinery damage

P&I Clubs publish loss prevention publications written in language which is easily accessible to all nationalities and in a format which can be used in monthly safety training meetings.

“This way, when the case studies are used in training, the seafarer can identify with the problems faced, and some of the difficult decisions that those on board have had to make. When debating the case study with their crew colleagues, the reality of the situations makes discussions more relevant, and learning outcomes more likely to be applied should they themselves face a similar situation,” Enström said.

THE INTERNATIONAL GROUP OF P&I CLUBS

The International Group is a not-for-profit association of 12 P&I Clubs providing marine liability cover for 90% of the world's ocean-going tonnage. Through the unique Group structure, the member Clubs, whilst individually competitive, share between them their large loss exposures, and also share their respective knowledge and expertise on matters relating to shipowners' liabilities and the insurance and reinsurance of such liabilities.

There are twelve separate and independent principal Clubs in the International Group which provide marine liability cover (protection and indemnity) for approximately 90% of the world's ocean-going tonnage.

They are:

The American Club

Britannia P&I

Gard

Japan P&I Club

The London P&I Club

NorthStandard

Shipowners Club

Skuld

Steamship Mutual

The Swedish Club

UK P&I

West P&I

It is worth mentioning that in early 2023, the Standard and North of England P&I Clubs merged to form a unified entity known as the NorthStandard Club. Additionally, since November 2024, discussions have been underway regarding a plan to establish an Indian Protection & Indemnity (P&I) Club. This initiative aims to support domestic fleet owners by reducing their reliance on foreign entities for insurance coverage.

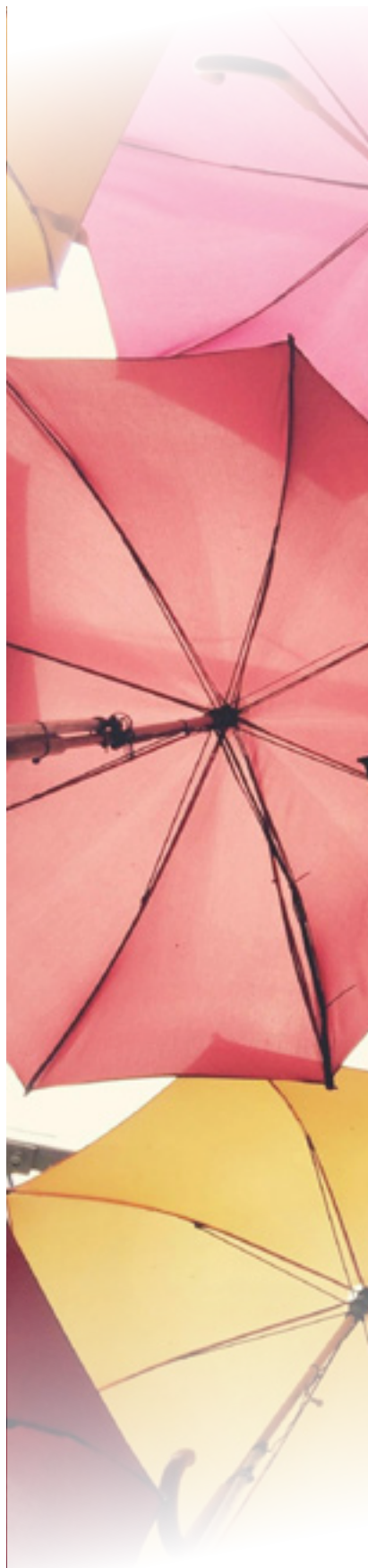
P&I CLUBS ARE A SOURCE OF BROAD KNOWLEDGE

Apart from their liability protection, P&I Clubs often offer guidance and alerts about industry's challenges not only to their members but to whoever is concerned about keeping up with maritime trends and insights. This is a growing trend in the industry as more vessels experience the hazardous phenomenon that not only endangers the integrity of the vessel itself but the seafarers' welfare.

P&I Clubs serve as vital repositories of maritime knowledge, combining historical data, regulatory expertise, and real-world experience to educate and support their members. These clubs provide insights not only into technical matters but also on critical topics such as the well-being and mental health of crews on board ships. For instance, The Britannia P&I Club provides insightful publications, including the award-winning BSafe crew safety initiative, which features case studies, guidance, videos, and posters focusing on seafarer safety, health, and security. Similarly, The American Club offers information and comprehensive guidance on the award-winning SASH (Sexual Assault and Sexual Harassment) prevention initiative for crew on board, raising awareness within the industry through a series of animations and other resources.

Overall, P&I Clubs have become more indispensable than ever in the modern maritime industry, adapting to the evolving challenges brought by technological advancements and global trade. With rising threats such as crew welfare concerns, cyber security breaches, piracy, and fuel safety issues, P&I Clubs play a pivotal role in safeguarding the interests of shipowners and operators.

The enduring importance of P&I Clubs lies in their ability to uphold the principles of protection and indemnity in an ever-changing and increasingly complex industry landscape. Their continued support is crucial to the success and sustainability of global maritime operations.



By Harry Valentine

Above water applications of Voith-Schneider Propulsion

*Image credit: Cyclo Tech*

The Voith Schneider propulsion system rotates on a vertical-axis and is well-proven in tug boat and ferry boat propulsion. A new-generation Austrian company has advanced that technology to rotate on a transverse-axis above water in aeronautical application, with capability for vertical lift-off. Their technology has possible application in wing-in-ground (WIG) vehicles that require vertical lift-off capability at land-based coastal terminals.

Introduction

The history of transverse-axis machinery in vessel propulsion predates the development of longitudinal-axis propellers. Side-wheel and stern-wheel propulsion technology evolved from waterwheels that had for centuries been installed along rivers to deliver mechanical power and proved quite successful in early riverboat operation. Side-wheel propulsion technology proved to be problematic in ocean operation when waves caused vessels to roll, alternately lifting one of the side-wheels above water and affecting vessel directional control. During the early 20th century, several aircraft developers attempted to adapt transverse-axis technology to airplane propulsion, with limited success.

While inventor Ernst Schneider intended to develop a turbine for hydro-electric power dams, the Voith group sought to adapt Schneider's concept to operate as a water pump. By 1931, the water pump had been developed into a propulsion system for a ferry vessel that sailed on Lake Constance. During early 1960s, designers developed a horizontal-axis version of the Voith Schneider technology to operate on aircraft. Many decades later in Austria, designers at the Cyclo Tech group in Austria adapted modern, lightweight high-strength material to operate on a transverse-axis, in aeronautical propulsion and with prospects for future success.

Applications Above Water

The original intention by Ernst Schneider was to operate the rotary technology as a turbine. In this modern era, there may actually be potential to adapt Schneider's concept to operate as a vertical-axis wind turbine, installed above the deck of a boat. The design allows the blades to change angle with respect to direction of fluid flow, in turn reducing the parasitic drag that is inherent in vertical-axis wind turbines. It is a concept that needs to be tested to determine whether it could efficiently activate a marine propulsion system and enable a vessel to sail into a headwind.

The transverse-axis aeronautical propulsion system offers the combination of vertical lift-off, touch-down and propulsion. It has potential application in ground effect vehicles that due to coastal wave conditions at numerous coastal locations internationally, could be designed to touch down on and lift off from land-based coastal terminals. The transverse-axis propulsion system is compatible with ground effect wings. A forward mounted propulsion system would direct a rearward flow of air to move at low elevation directly under the ground-effect wings. Companion rear propulsion assemblies would provide a greater percentage of forward thrust.

Flying Car

Cyclo Tech of Austria is focused on developing a flying car that uses forward and rear transverse-axis propulsion assemblies based on the Voith Schneider concept adapted to aeronautical service. It is a technology that could ferry small groups of passengers between the deck of a ship anchored offshore and a coastal location, or between a ship sailing parallel to a coastline and a shore-based location. The Cyclo Tech flying car could carry ship pilots to and from the deck of a moving ship during rough sea conditions, when transfer of pilot between small boat and large vessel is problematic.

The inclusion of ground effect wings into the design of the Cyclo Tech flying car would extend its operating range across water, such as carrying passengers to and from the deck of an offshore drilling platform. The vertical lift-off and touch down capability of the Cyclo Tech vehicle enhance its attractiveness as the technology to carry ship pilots to and from the decks of vessels, or personnel to and from the land pad of an offshore platform. There may be a market for large commercial versions of the technology capable of carrying 12-people between land and offshore locations.

Future Development

While Cyclo Tech has undertaken a considerable amount of research and development into adapting the Voith Schneider propulsion system to aeronautical application, their version of the flying is a prototype with much potential for future development. The growth of airline travel at overcrowded airports provides market opportunity for a vehicle with vertical lift-off and touch-down capability, at small terminals that involve limited space. A large-scale wingless version of the technology could carry passengers over short distances across land while a winged, large-scale variant could be developed to travel over extended distances above water a water surface.

There is likely potential to increase the diameter and width of the rotors, with the option of developing a vehicle with 3-pairs and even 4-pairs of rotors spaced along a fuselage that might also include forward and rear ground-effect wings. A ground-effect winged version of the technology might feature partially enclosed rotors with variable area outlet, to increase air exit speed that would in turn increase vehicle travel speed above water. Vectored thrust that redirects the air stream would assure vertical lift-off and touch down at land-based coastal terminals that offer limited space for vehicle acceleration and deceleration.

Conclusion

The work undertaken by Cyclo Tech of Austria has greatly advanced the concept of adapting maritime-based vertical-axis propulsion technology for the combination of transverse-axis lift-off, touch down and propulsion involving aeronautical technology. As a matter of coincidence, their technology also has potential involving maritime vehicles that travel just above the water surface, using ground effect wings. There is much potential to develop the Cyclo Tech concept to ground effect vehicle application, to provide extended operating range and higher speed capability above a water surface, perhaps involving a vehicle built with the combination of forward and rear ground-effect wings.

Ernst Schneider originally envisioned the vertical-axis technology converting energy at a hydro-electric power dam, except staff at Voith envisioned the technology as a water pump with possible vessel propulsive application. There may be potential to develop a vertical-axis wind turbine based on Ernst Schneider's original concept, for testing on the deck of a wind-powered vessel where the wind turbine drives an underwater propulsion system. So far, people such as New Zealand engineer Jim Bates, Canadian physics professor Brad Blackford and British researcher Peter Worsley have built wind-powered vessels with horizontal-axis wind rotors, that have sailed directly into headwinds.

The safety debate after the 2024 Sydney to Hobart tragedy

Photo credit -
Facebook: Rolex
Sydney Hobart

The 2024 Sydney to Hobart Yacht Race will be remembered not only for its ferocious conditions but also for the tragic loss of two sailors, Nick Smith and Roy Quaden, on the very first night. As 30-40 knot winds roared and 5m swells battered the fleet, their deaths have reignited a heated debate about the race's safety protocols and the balance between adventure and responsibility in competitive sailing.

The fleet of over 100 yachts set out on Boxing Day in near-perfect conditions, but as night fell, the Bass Strait lived up to its treacherous reputation. The weather rapidly deteriorated, forcing several boats to retire with equipment failure or crew exhaustion. Tragically, Smith, aboard the yacht Bowline, and Quaden, from Flying Fish Arctos, lost their lives during the chaos. Details remain scarce, but these incidents highlight the perilous nature of offshore racing. The Sydney to Hobart Yacht Race has always been a test of endurance and skill, earning its place among the world's premier ocean races. However, its history is marred by danger. The 1998 disaster, which claimed six lives, led to a comprehensive overhaul of safety protocols. From improved lifejackets and storm sails to mandatory training for crew, the lessons of that year seemed to pave the way for safer racing. Yet, 2024's events have shown that no amount of preparation can entirely eliminate risk.



Central to the debate is the autonomy of skippers to make decisions during extreme conditions. The Cruising Yacht Club of Australia (CYCA), which organises the race, defended its choice to proceed despite the forecast, citing that skippers ultimately bear responsibility for their vessels and crews.

"Each skipper must assess their boat and team's capability," said CYCA Commodore David Jacobs. "The race has always been about pushing limits, but within the boundaries of sound judgment."

However, Christian Beck, skipper of LawConnect, raised concerns about the risks of heavy downwind sailing. "The safety of crew members should always be the priority. Racing in these conditions stretches the limits of both boats and people," he said, emphasising the need for better equipment standards. An experienced skipper, with many off-shore races under his belt, he mentioned that he found the first night 'super scary'.

Critics argue that the CYCA's emphasis on skipper responsibility is insufficient. Public outcry following the deaths has called for stricter measures, including race postponements during extreme

forecasts. Others advocate for enhancing communication tools, such as satellite tracking and distress systems, to ensure faster responses during emergencies.

Despite these criticisms, many in the sailing community defend the race's current framework. "Ocean racing is inherently risky," said veteran sailor Peter Kingston. "No amount of regulation can make it completely safe, and it's up to participants to accept that reality."

The Sydney to Hobart Yacht Race epitomises the allure of pushing human and technological boundaries. However, as this year's tragedy shows, the line between daring and, what some people would consider to be recklessness, can be perilously thin. Striking a balance between preserving the race's adventurous spirit and ensuring participant safety is a challenge that organisers, skippers, and crews must navigate together.

The deaths of Nick Smith and Roy Quaden are a heartbreaking reminder of the risks sailors face in pursuit of their passion. While the 2024 Sydney to Hobart has reopened old wounds and sparked fresh controversy, it also presents an opportunity to reflect, adapt, and improve.

Safety and Leadership: the two important pillars of maritime excellence



During the 2024 SAFETY4SEA Singapore Forum, Capt. Vishal Gupta, Senior Manager (Marine/QA Team), MOL Ship Management (Singapore) Pte. Ltd, acknowledged the significant strides the maritime sector has made over the past few decades in achieving high operational safety standards for ships and crews. However, he emphasized the importance of continually assessing and re-evaluating these standards to foster ongoing improvement.

The maritime industry has come a long way in improving operational safety for ships and crews. Yet, despite these advances, incidents and conversations around the human element persist. As someone who has worked closely with these dynamics, I firmly believe that achieving enduring safety and operational success requires a deep commitment to two foundational principles: safety and leadership.

Rethinking safety

Safety is often seen as a set of rules and checklists: "Do this safely," "Wear safety gear," "Follow procedures." But is this enough? In my opinion, safety is more than compliance; it is a tool in everyone's hands to identify, assess, and minimize risks to acceptable levels.

However, one challenge remains: the perception of risk and safety varies among individuals. This inconsistency can lead to gaps, even with the best systems in place. True safety is a culture—a mindset where individuals think critically about risks, proactively mitigate them, and feel responsible for their actions and decisions.

Leadership: A social endeavour

Leadership, often perceived as the role of an individual team leader, is, in reality, a collective process. It's not about one person guiding the group but about creating an environment where people work together to achieve results they could not reach alone.

Effective leadership produces three critical outcomes:

- Direction: Clarity of vision and a defined path forward.
- Alignment: A unified effort where everyone, from senior management to the crew, moves in the same direction.
- Commitment: Dedication from all stakeholders to ensure success.

In the shipping industry, direction is largely shaped by governing bodies like the IMO and ILO. Alignment comes from enforcers such as Port State Control, vetting inspectors, and company auditors. Commitment, however, is where the real challenge lies - it requires buy-in from everyone, from vessels and ports to inspectors and authorities.

The overlooked element: Psychological Safety

One aspect of leadership that cannot be overlooked is psychological safety. Without it, teams may hesitate to raise concerns or propose new ideas, fearing criticism or reprisal. But when people feel safe to speak up, creativity and collaboration flourish, driving better outcomes.

A balancing act

Even as safety systems grow more sophisticated, the human element remains a significant factor in maritime incidents. Having volumes of procedures and manuals onboard will not solve this problem. In my view, the solution lies in striking a balance between robust systems and a human-centric approach.

The rules, regulations, procedures, and training are designed to enhance the safety of vessels, cargo, crew, and the environment. However, if they have become excessive and are causing undue stress on the crew or creating unnecessary burdens, it may be time to review and streamline them.

We need to foster a culture where safety is seen not as a mandate but as a shared responsibility, and leadership is embraced as a collective effort rather than the task of a few. With these principles at the forefront, the maritime industry can continue its journey toward excellence, navigating challenges with confidence and resilience.



Promoting excellence in
professional maritime standards

The purpose of the **Maritime Professional Council of the UK** is:

- To promote the professionalism and esteem within the British Merchant Navy and to those organisations directly concerned with the sector.
- To provide a central point from which professional opinion on maritime matters can be offered to the Maritime Community, Industry, Government and the Media.
- To provide independent expert advice and guidance based on our combined professional knowledge and experience unhindered by any financial or commercial interests.
- To provide guidance to regulators and employers on the professional training standards adequate for our maritime professionals.maritime standards

www.mpc-uk.org

AI in the Maritime Industry:

an Overview

By Aliceluna Parenti

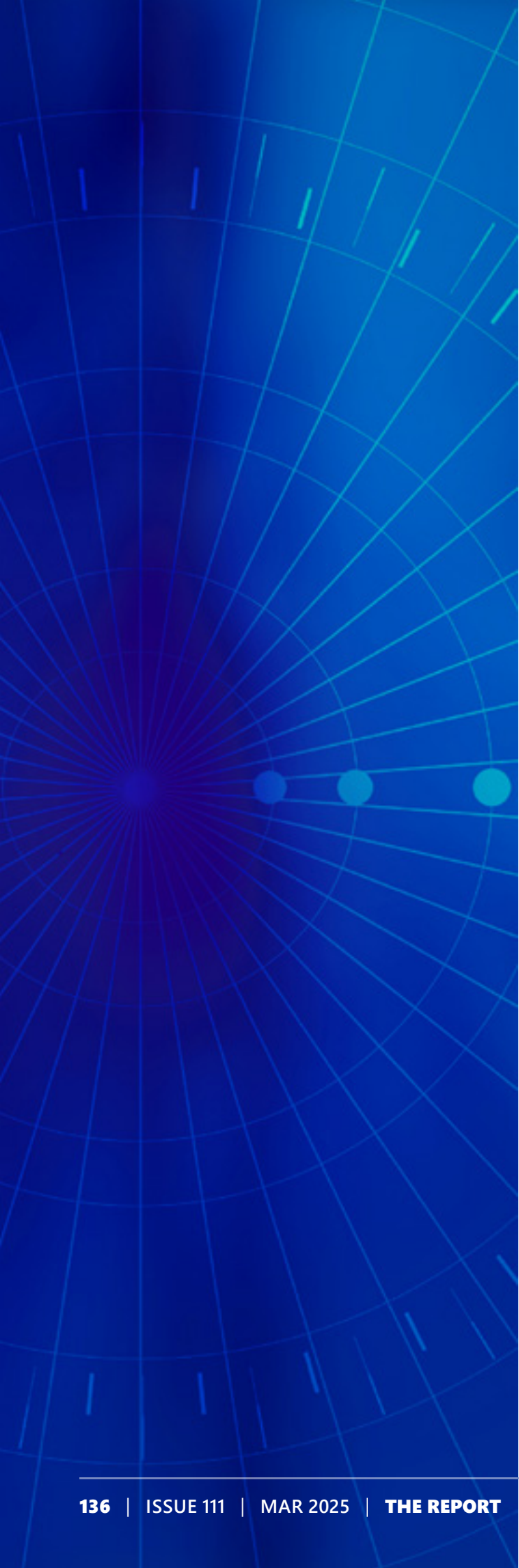
The maritime sector is experiencing a transformative shift as Artificial Intelligence redefines how ships are operated, maintained, and navigated. Maritime is embracing AI with open arms, driven by the need for increased efficiency, safety, and sustainability. AI's ability to process vast amounts of data and make real-time decisions is helping optimise voyages, reduce fuel consumption, improve navigational safety, and ensure better reliability across the board. Let's take a closer look.

The maritime Artificial Intelligence market is expanding rapidly. Valued at £4.13 billion in 2024, it is projected to grow at a 23% Compound Annual Growth Rate (CAGR) over the next five years, according to a recent report from Lloyd's Register. In the last 12 months alone, 420 organisations have adopted AI technologies in maritime, a significant rise from 276 in 2023. Start-ups and SMEs are leading the charge, making up 63% of the AI tech suppliers in the sector. A prime example is Orca AI, a (as they call it themselves) 'fully automated lookout on the bridge'. Orca AI secured £23 million in May 2024 to enhance its platform, improving voyage safety and reducing CO2 emissions by 170,000 tonnes annually. This growth shows just how quickly Artificial Intelligence is becoming integrated into the maritime sector. But how exactly is it transforming the industry?

Unlike traditional methods, AI systems continuously learn and adapt. How? The answer is **machine learning**. Imagine a machine that doesn't just follow instructions but learns from experience becoming smarter over time. That's the magic of machine learning, a branch of Artificial Intelligence that's revolutionising industries and everyday life. Think of it as teaching a computer to recognise patterns, make predictions, or even develop solutions based on past experiences. Unlike traditional software, which operates based on explicitly programmed instructions, machine learning algorithms get smarter the more data they process, gradually improving their accuracy, efficiency and self-programming. In simple terms, machine learning algorithms are sets of instructions that help computers learn from past data. The more training data the system receives, the better it can predict future outcomes. This "learning" ability (the quotes are not to be ignored, as what we call 'learning' is mostly statistical induction) is what enables Artificial Intelligence to handle complex tasks — from diagnosing diseases to predicting the stock market.

One of the most impactful uses of AI in the maritime industry is weather forecasting. AI-driven models analyse vast datasets from historical weather patterns, satellite imagery, ocean currents, and more, enabling more accurate predictions and longer lead times. This is crucial, as it helps shipping companies work out the best course time and money-wise.

IBM, in collaboration with NASA, has released a new open-source AI foundation model called Prithvi WxC, designed for weather and climate-related applications, where 'open-source' simply means the software is freely available to everyone, unlike proprietary software that requires a license. A 'foundation model' refers to an Artificial Intelligence system that's initially trained on a broad task, and can then be fine-tuned or customised to perform a variety of specific tasks — think of it as a 'base' model that learns general patterns, and then can be 'adapted' to handle more specialised tasks, much like how a general knowledge meteorologist might be trained to focus on a specific field like marine weather. Trained on 40 years of historical weather data from NASA's MERRA-2 dataset, the model is built on advanced AI architectures, including a masked autoencoder, a type of AI model designed to learn from incomplete data. A masked autoencoder works by 'masking' or hiding part of the information and then learning how to predict or fill in the missing pieces — think of it as a puzzle-solving Artificial Intelligence that uses the pieces it has to guess what's missing. These sophisticated techniques allow it to handle complex spatial-temporal data, making it one of the most advanced tools in maritime forecasting. It also has a unique training process that teaches it to predict missing weather data, mimicking the forecasting process. Nonetheless, it is also designed to run efficiently on desktop computers, offering accessibility even without massive supercomputing resources.



While Artificial Intelligence's impact on weather forecasting helps optimise voyage planning, its applications extend to real-time navigation, where it plays a crucial role in collision avoidance, another area where machine learning-based Artificial Intelligence is making significant strides. Advanced AI-powered navigation systems integrate data from radar, GPS, and Automatic Identification Systems (AIS) to detect nearby vessels, predict their movement, and autonomously adjust a vessel's course to avoid collisions. These systems help ships make real-time decisions, even in low visibility or crowded waters. One example is SEA.AI. SEA.AI uses the latest camera technology in combination with artificial intelligence to alert crews early and reliably about objects on the surface of the water — objects that might otherwise escape conventional systems like Radar or AIS. Whether it's unsignalled craft, floating obstacles, buoys, inflatables, kayaks, or even persons overboard, SEA.AI can detect and classify these potential hazards in real-time. The ability to reliably detect and respond to obstacles on the water, particularly those that are not easily picked up by traditional sensors, is crucial in preventing accidents and improving navigational security.

As Artificial Intelligence and other technologies advance, the role of the skipper is also evolving. Navigational tasks that once required constant human attention — like monitoring foils or adjusting sail settings — are now assisted or even automated by Artificial Intelligence, freeing up sailors to focus on more strategic decisions. The evolution of autopilot systems in high-performance sailing boats exemplifies this trend. MADBrain, a cutting-edge autopilot system developed by Madintec, is a champion of this. Powered by artificial intelligence, MADBrain continuously optimises a boat's performance, autonomously adjusting the rudder based on real-time data, such as speed, position, wind conditions, and wave patterns. As it learns from each sailing experience, the system improves its reactions and performance, ensuring the vessel stays on course even in challenging conditions.

The integration of systems like MADBrain and SEA.AI is revolutionising how modern boats are sailed. For this reason, even the insurance industry is embracing AI. Insurers are increasingly turning to AI to assess risks, streamline underwriting, and optimise claims management for both large vessels and smaller crafts. AI is helping insurers predict potential risks more accurately, set more appropriate premiums, and even anticipate claims before they occur. This data-driven approach is revolutionising risk management in both commercial shipping and recreational boating. Some insurers are even using AI to monitor ships in real-time, offering proactive maintenance suggestions to prevent costly repairs and operational disruptions.

Interestingly, many innovations that are transforming how we think about commercial maritime operations get tested in the world of sailboat racing — where the goal is not just to win but to push the boundaries of technology. Teams invest millions in research and development, and every race introduces new advancements in boat design, performance, and safety. The AI tools developed for these high-speed, high-risk races are increasingly being integrated into commercial vessels, autonomous shipping, and even marine surveying. For instance, the same AI that helps race teams optimise their strategies in real time is being adapted to improve navigation systems on larger vessels. What starts in the high-stakes world of racing often filters down to influence commercial shipping, recreational boating, and other maritime sectors, showing the intersectionality of Artificial Intelligence.

The latest editions of the America's Cup, for example, have represented a proving ground for AI's potential in data analysis and decision-making. During New Zealand's victorious 2021 campaign, AI was crucial in optimising every aspect of the team's strategy. As one team member put it, "We had the best sailors, the best boat, and the best AI." This collaboration between top-tier Artificial Intelligence and expert sailors allowed the team to process vast amounts of real-time data — from wind patterns to competitor movements — and make split-second adjustments to their tactics. The result? Faster boats, smarter decisions, and ultimately, victory. As mentioned, the AI tools developed for the America's Cup have far-reaching applications, with insights and innovations flowing into larger commercial vessels, autonomous ships, and even port management systems.

And so it goes with the Vendée Globe, considered one of the toughest solo sailing races on the planet. Yachts like the IMOCA 60s are equipped with sophisticated data systems powered by AI, which autonomously adjust key operations such as rudder angles. This allows sailors to save crucial mental and physical energy rather than micromanaging every aspect of the boat's performance. For example, the aforementioned MADBrain autopilot system, which continuously adjusts the course based on changing conditions like wind, waves, and speed, and SEA.AI, are AI-driven technologies that are laying the foundation for the future of all vessels. These same technologies, tested and perfected in racing, are now set to become standard practice.

Something surveyors might want to keep an eye on is the intersection of AI and robotics. AI-powered robotics could revolutionise boat inspections, a crucial aspect of maintaining the integrity and safety of vessels. Traditionally, inspecting ship hulls and other critical parts of a boat required humans to work in challenging and sometimes hazardous environments. This process was not only time-consuming and expensive but also posed significant risks to personnel. Now AI-powered remotely operated vehicles (ROVs), whether aerial or subaqueous, are transforming the way inspections are carried out. AI-enhanced drones are autonomous robots equipped with a range of advanced sensors and high-definition cameras designed to inspect or from top to bottom. The combination of AI and robotics allows these vehicles to not only gather visual data but also to process it on the fly, identifying issues that might otherwise go unnoticed. Using sophisticated AI algorithms, these vehicles can detect cracks, corrosion, structural weaknesses, or damage to the hull, as well as monitor the condition of vital systems like rudders and propellers. The AI can flag any abnormalities or patterns that suggest emerging issues, prompting early maintenance before they escalate into major problems.

Yet, despite all the promises of Artificial Intelligence, its use in the maritime sector still faces several challenges. Data quality is one of the biggest hurdles. AI systems rely on accurate, timely, and detailed data to function properly. Without high-quality data, AI struggles to make decisions. To make autonomous vessels safer and more efficient, experts like Dr. Hideyuki Ando emphasise that clean data is non-negotiable. For companies like NYK Line, investing in better sensors and infrastructure to collect robust data isn't just a short-term fix — it's the foundation for developing advanced autonomous systems. But there's a catch: the maritime industry lacks standardised data compared to other sectors, making it difficult to train AI models effectively.

AI also faces a trust barrier. Crew members are naturally wary about letting AI make critical decisions without understanding how it works. Stena Line's Michael Ljunge reveals that the company had to reframe their AI system — Captain's AI — to be seen as an intelligent assistant rather than a replacement for human judgment. This shift in perception has helped increase acceptance onboard, as the AI now supports the captain's decisions rather than trying to replace them.

While the potential benefits of AI in the maritime industry are clear, it's important to recognise that these technologies are still in their early stages of deployment. AI systems, especially in complex and unpredictable maritime environments, have limitations. Challenges such as data quality, system reliability, and the need for human oversight in decision-making are ongoing considerations. As AI continues to mature, industry leaders will need to navigate these hurdles to fully realise its potential, ensuring a harmonious balance between automation and human expertise.

As AI continues to evolve, its impact on the sector will likely only grow, as the maritime industry will want to stay ahead of the curve in an increasingly tech-driven world. As we have seen, the lessons learned and innovations tested in the competitive world of race boats are directly influencing the future of all maritime operations. Although surveying is intrinsically a hands-on process, AI-powered robotics and insurance matters are developments to watch closely by surveyors. As these technologies become mainstream, they will undoubtedly influence how ships and small crafts are inspected.

Things are moving fast – very fast – and AI is here to stay. But let's not forget that, up until today, no AI can truly replace a human. And, perhaps, now it's the time to seriously ask ourselves whether it should ever be.



AI is empowering shipowners to tackle new safety management challenges

It is no secret that the maritime industry is undergoing a digital transformation, and one of the key innovations increasingly making waves is the integration of artificial intelligence (AI) into safety management systems.

The increased documentation required following the gamut of new rules and procedures place increasing demands on seafarers but companies such as WiseStella are leveraging AI to ease the cognitive burden to enhance safety across the global fleet.

"Seafarers today are faced with an overwhelming amount of information and documentation to manage," explains Ali Demiral, Chief Technology Officer, and AI lead at WiseStella. "This cognitive load can be a significant source of stress, especially when it comes to tackling complex safety assessments. But AI-powered technology can provide seafarers and ship managers with the tools they need to navigate these new requirements with confidence."

WiseStella's AI solution, dubbed "Wise-AI," taps into the power of large language models (LLM) to analyse vast troves of historical data from past safety inspections.

By identifying common issues and potential root causes, the development, which is being incorporated across WiseStella's suite of cloud-based solutions, provides seafarers with tailored recommendations and insights, even if they're unfamiliar with the intricacies of the regulations.

"Imagine a scenario where a second engineer is tasked with completing a self-assessment, for example," Demiral illustrates. "They may come across a question about the vessel's processes, unsure of whether current practices are 'as expected' or not. With the introduction of Wise-AI, they can simply input the details, and the system will suggest potential problem areas and offer guidance on how to address them."

This proactive approach not only helps seafarers save time and reduce stress levels, but it also fosters a deeper understanding of safety protocols. By learning from

the AI's insights, crew members can better anticipate and mitigate issues, enhancing the overall safety of the vessel.

But the benefits of WiseStella's AI-based learning extend beyond individual vessels. The platform also provides fleet-wide benchmarking capabilities, allowing managers to compare their vessels' performance against industry standards.

"Suddenly, fleet managers have the ability to identify areas where their vessels are excelling or falling behind, empowering them to make data-driven decisions and target

their training and resources more effectively,” Demiral says.

Interestingly, WiseStella’s AI technology has been developed in-house by a team of data scientists, setting it apart from off-the-shelf solutions. This custom-built approach allows the company to continuously refine and improve the algorithms, ensuring that the system’s predictions become more accurate and relevant over time.

However, AI outputs are always reviewed by academics and experts before the information is presented in the WiseStella platform.

“Physical assessment of the findings with ‘human-in-the-loop’ analysis helps improve information outputs,” says Demiral, “as AI continually learns from the additional input and recommendations to provide the optimum solutions.”

“The more data we collect, the better our AI becomes at identifying patterns and providing meaningful insights,” Demiral explains. “It’s a

continuous learning process, and we’re committed to staying ahead of the curve to support our clients’ evolving needs.”

One of the key advantages of Wise Stella’s AI-powered platform is its ability to leverage data from a variety of sources, including industry reports and published research. By aggregating and anonymizing this information, the system can provide a comprehensive view of common issues and best practices across the maritime sector.

“We’re not just relying on the data we collect from our own clients,” Demiral clarifies. “We also incorporate insights from various guidance published by professional bodies and organisation ensuring that our recommendations are grounded in the broader industry context. This helps us deliver more robust and reliable solutions to our users.”

As the maritime industry continues to navigate the uncharted waters of new safety regulations, the

integration of AI-powered tools like Wise-AI into the WiseStella platform is poised to become a crucial lifeline for seafarers. By reducing cognitive stress, enhancing safety awareness, and providing data-driven insights, these innovative solutions are paving the way for a more resilient and efficient future at sea.

“The ultimate goal is to empower our clients to proactively address safety challenges, rather than simply reacting to them,” Demiral says. “With Wise-AI, we’re giving seafarers the tools they need to anticipate and mitigate issues, fostering a culture of continuous improvement and safety excellence.”

As the maritime industry continues to evolve, the role of AI in safety management is only set to grow. Companies like WiseStella are at the forefront of this digital transformation, leveraging cutting-edge technology to support the people who keep our global supply chains moving. By easing the burden on seafarers and providing data-driven insights, these AI-powered solutions are poised to become indispensable in the years to come.





The risks and benefits of AI translations in safety critical industries

*By Moana Ewald,
Quality Assurance
& Impact Analysis
Coordinator at
Mintra.*



In safety-critical industries, clear communication is essential. At Mintra, client interest for multilingual training has increased significantly, reflecting the need for accessible training in workers' native languages, says Moana Ewald, Quality Assurance & Impact Analysis Coordinator at Mintra.

Several factors are at play, primarily fuelled by the availability of AI translation engines to make multilingual training more accessible and affordable. The emerging conversation acknowledges that training undertaken in the mother tongue is not just about convenience, it helps learners 'feel safer'. There is an increased confidence, a sense of value and a positive learning outcome that directly impacts safety. However, it's not all plain sailing, relying on AI-powered translation engines without adequate quality review processes can lead to critical errors. There are lessons to be learnt.

In 1978, the International Maritime Organization (IMO) adopted English as the official working language for seafarers under the Standards of Training, Certification and Watchkeeping (STCW). The goal was clear: To ensure smooth, unambiguous communication across multinational crews. Yet, despite using English as the de facto language for maritime safety and operations for the last 45+ years, improvements in AI have made multilingual training more feasible, accessible and increasingly in demand.

The energy sector, known for its stringent health and safety regulations and high-value workers, is leading the charge with customers requesting high-quality translations in safety-critical courses, particularly into Norwegian, Brazilian Portuguese and European

Spanish. Training delivered in your native language is not just a matter of preference, it is proven to be more effective. As people naturally think in their native tongue, your brain must first translate information, then understand it, before storing it.

By providing the option of native-language training, these companies ensure a clearer understanding of safety protocols, reducing risks and improving compliance. The emphasis on seeking high-quality translations offers valuable lessons for the maritime sector, which faces similar challenges of employing and training multilingual teams. But it's not quite as rose-tinted as it looks. Whilst the availability of AI-powered translations has made the process quicker and less labour intensive, there are inherent risks. Using unregulated AI translation engines in safety-critical sectors can pose significant risks where precise communication is essential.

Services like Google Translate are popular for their speed and accessibility on phones or laptops. They can handle basic translations but often fail to capture the nuances of technical jargon, industry-specific terminology and cultural context, potentially leading to dangerous misunderstandings or mishandling of critical tasks. In safety-sensitive contexts, such errors could result in severe consequences, including accidents, damage to equipment or even fatalities.

This issue is compounded by the fact that AI systems are often not tailored to the specialised needs of industries like energy or maritime, where precision is non-negotiable. More rigorous translation practices, where human expertise remains integral, are vital for ensuring both safety and accuracy.

At Mintra, we have several layers of 'human' expertise that check and edit the AI translation, ensuring that it is correct and meeting the high standards of our accreditations, such as the DNV standard for Maritime Training Providers (DNV-ST-0029). We perform our quality assurance (QA) reviews with a constant language sensibility. In one instance, a translation tool used by a third-party provider rendered the word "plant" incorrectly, translating it into German as "Pflanze" (a plant in the biological sense) rather than the intended "industrial plant" (Anlage). The whole course became nonsensical and such errors, especially when applied to safety protocols or emergency procedures, could lead to catastrophic consequences. This type of mistranslation highlights the critical importance of human intervention and a robust quality assurance process.

It's not all doom and gloom. The careful use of AI in translation services offers numerous advantages, particularly when paired with human expertise. One of the main benefits is its speed and efficiency, as AI can process large volumes of text rapidly, enabling quicker project completion and significant cost savings. Furthermore, AI ensures consistency across large-scale translation projects, preventing errors that can arise when human translators interpret materials with their own individual nuances. The scalability of AI tools is also a key factor, as they can manage vast amounts of translation work at a scale impractical for human translators, making them ideal for extending multilingual training into the global market.

Here at Mintra we understand the value of AI for speed and delivering cost efficiencies which we are keen to pass on to our clients. Combining the power of AI-assisted tools with an API (Application Programming Interface) Key of our previously created 'term bases'. Everything is then fact-checked by our language experts who carefully review and refine the work to ensure accuracy and cultural appropriateness. By using this hybrid approach, blending the speed

of AI with the quality control, cultural sensitivity and precision of human expertise, we deliver translations that are not only efficient but also meet the high standards needed for safety-critical industries.

Manual translation used to take on average 8 hours for 2,000 words, but with the system we have devised it's cut to between 3 and 6 hours, making it a more viable option for our customers. This process stands to become even quicker and more accurate as the database of terms grows and the AI gets smarter.

As we move forward, we are committed to providing courses in multiple languages, such as Norwegian, Brazilian Portuguese and European Spanish. We are working with clients to offer courses flagged with language options on the portal, so they can switch between languages. Encouraging them to learn in the language / style that suits them best.

We are constantly reviewing our translation partners and we spot-check all courses, providing robust feedback on translations. In addition to this, the Mintra team keeps up to date with technology and we continually review our policies and procedures to ensure our systems are 'best in class'. With this approach, we can provide safe, consistent and efficient training for everyone working in high-risk industries, regardless of their language.

The key takeaway for industries like energy and maritime, is that AI has a place in the translation process, but it must be continuously trained to improve its accuracy and human oversight is essential in high-stakes training environments. While AI offers clear benefits in terms of speed and scalability, its limitations are evident when industry-specific terminology and cultural awareness are essential. By combining the speed of AI with the expertise of human professionals, we can efficiently deliver high quality training materials that meet the critical demands of safety-critical industries.

As AI continues to reshape the translation landscape, we must remember that there is no substitute for the human touch, especially when lives are at stake. Always ensure that your translation processes are robust and culturally and linguistically sensitive—because in high-risk industries, clear communication saves lives.

About Mintra

Web: <https://mintra.com>

Mintra services over 4,000 companies operating under strict legislation and in some of the most challenging environments in the world. These organisations provide crucial energy and transportation services in the supply chain and their employees are classed as key workers. There is a growing demand in these sectors for innovative and remote solutions to enable businesses to continue to operate, and demonstrate corporate and workforce compliance while maximising operational efficiency.

This article appeared on the Safety4Seas website and is republished here with our thanks.



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**Capt.
Andy
Moll**
OBE

Captain Andrew Moll OBE, Chief Inspector of Marine Accidents, Marine Accident Investigation Branch (MAIB) in discussion with Mike Schwarz, IIMS CEO.

The Marine Accident Investigation Branch (MAIB), as the name suggests, investigates marine accidents involving UK vessels worldwide and all vessels in UK territorial waters. The MAIB's job is to help prevent further avoidable accidents from occurring, not to establish blame or liability. The role of the MAIB is to contribute to safety at sea by determining the causes and circumstances of marine accidents and working with others to reduce the likelihood of such accidents recurring in the future. Accident investigations are conducted solely in the interest of future safety. The MAIB does not enforce laws or carry out prosecutions.

Q1. What drew you to a sea-going career in the Royal Navy?

I grew up in Norfolk, close to the sea, and I learned to sail on the Broads. I think I had decided by the age of 14 that I wanted to join the Royal Navy. It was definitely a matter of 'heart' not 'head'; I wanted a life of adventure at sea and was not thinking about the pension plan when I signed up.

Q2. I understand you saw action in the Falklands War on board HMS Coventry. What are your lasting memories of that conflict?

In 1982, the Royal Navy was training for World War three against the Soviet Union. Two or Three times a year, we would form large task groups that would head into the North Atlantic to practice holding the line against the might of the Soviet

Naval Airforce and Submarine Service so that resupply and reinforcement shipping from the USA could reach Europe. To put it bluntly, none of us expected such a war to end well, but we trained in the hope it would never happen. So, while we were good at forming task groups, to find ourselves heading to the southern hemisphere to fight a war against a former ally, who was using western weaponry, came as a bit of a shock.



*The British destroyer HMS Coventry (D118) enroute to the Falkland Islands in 1982.
Source: <https://catalog.archives.gov/id/6417241>*

Morale on board went sky high when the Argentinian cruiser Belgrano was sunk, and it hit rock bottom the next day when HMS Sheffield was hit by an Exocet missile. From then on, it was all very serious. The action became more intense as the invasion approached, but fortunately the Argentinian air force did little flying at night, so we had some respite.

My ship, HMS Coventry, was bombed on 25 May by A4 Skyhawk aircraft while we were occupying an air defence position to the north of Falkland Sound. The bottom was blown out of the ship, which capsized in about 20 minutes; 19 of the crew were lost and another 30 injured.

I was different after the Falklands, driven by a strong determination that, should I find myself in another conflict, my ship would not be one of those sunk by enemy action. I think something of that drive has remained with me through my working career.

Q3. How proud are you of the vital investigation work the MAIB undertakes and its output?

Immensely proud. Accidents almost always have consequences whether they be in human terms, such as the loss of the Titanic; economic terms, such as when the container ship Ever Given blocked the Suez Canal; or environmental terms, such as when the tanker Sea Empress grounded off Milford Haven spilling 72,000 tonnes of oil into our coastal waters. Fortunately, these major disasters are very few and far between but learning the lessons from lesser accidents and near misses will help prevent disasters in the future.

Q4. What are the fundamental causes of the incidents and accidents you investigate once the outcomes are known – mechanical or human failings, or a mixture of both?

Before answering that question, can I say that a swift and effective emergency response can usually prevent a drama becoming a crisis? A wise captain once said to me, it is not what happens but how you deal with it that matters. As such, practicing reversionary means of control and drilling emergency procedures can be time well spent.

Turning to the question; most accidents occur because someone or something is overwhelmed and fails. However, systemic weaknesses usually exist well before the accident occurs, and this is where remedial action can be preventative. Shortcuts in training, skimping on maintenance procedures, not following up on previous accidents or breakdowns can all lead to latent weaknesses in the system. Then just a little more haste or pressure on the day is enough to tip the balance and for the accident to occur.

A few years ago, I asked the head of a large boat building and maintenance operation what his highest usage spare part was. His answer was that he did not know, but he could find out for me. Actually, he had already answered my question. Paying attention to the small stuff can seem unnecessarily burdensome when things are going well, but no one wrote a training manual or a maintenance procedure for the good of their health.

Q5. What one achievement are you most proud of during your career and why?

I'm not sure I can point to anything as my proudest achievement, but I'll keep trying. I hope when I'm gone that someone will say, 'he helped make a difference'; that would be more than enough.

Q6. As far as modern technological developments are concerned are you in favour and what is their likely impact on the future safety of vessels at sea?

I am very much in favour of technological developments, but I feel we are at a challenging point in time where the marine industry is struggling to understand where humans fit in. I see two particular manifestations of this during accident investigations, at opposite ends of the spectrum of human alertness. The first, is that technology is now doing many of the time-consuming, perhaps mundane tasks, with the result that human watchkeepers can have little to occupy them. With insufficient stimulation from the job, they can self-distract or fall asleep, and are then slow to react when an emergency does occur. Secondly, for the most part, humans are still the decision makers. To alert them to the need for a decision, systems supply alarms, warnings and cautions, but currently these can be a very coarse tool. Too often, we find operators overwhelmed by information, sometimes to the extent that they turn off or mute the alarm systems altogether. If I had one wish that would improve safety at sea, it would be for manufacturers (and regulators) to focus on the role of the human in the digital workplace.

Q7. When recruiting a new accident investigator to the team, what skills do you look for and are such individuals easy to find?

The MAIB recruits people with a marine background and trains them to be investigators. Although inspectors will not have an in-depth knowledge of all marine trades, they understand the environment, and this is key to carrying out a good investigation. Most of our inspectors were either senior deck officers or marine engineers before joining, but we also have naval architects, a former trawler skipper and an expert in human factors.

Solid credentials and a good level of experience are essential, but we are also looking for curiosity, empathy and resilience. If you want to know what happened, keep asking questions, don't be satisfied by the first answer, and check everything. Curiosity is difficult to test for during selection, but we give it our best shot. Empathy is also key. Our inspectors are often dealing with traumatised second victims, be they witnesses, or the colleagues or next of kin of those injured or killed; hearing their story takes patience and understanding. Finally, resilience. While MAIB inspectors are not first responders, they are often on scene with the emergency services, and they have to be able to deal with that. However, being

regularly exposed to the human cost of accidents can take its toll and our inspectors need to remain professional whatever they are seeing or hearing as they carry out their investigations.

And are such individuals easy to find? No: the number of qualified mariners wanting a shore-job in the UK is declining, so we are fishing in a shrinking pool against stiff opposition from the larger commercial companies. That said, there are still enough people who 'get' safety and want to work for the MAIB.

Q8. In your opinion, how important is the role of the marine surveyor in helping to minimise accidents and to preserve life at sea?

To misquote football legend, Bill Shankly, good surveying is not a matter of life and death, it is much more important than that! Surveyors check that 'things' are fit for purpose, just as a MoT tells us that our cars are safe to drive on the roads. That third party assurance might just be for our own peace of mind, such as when buying a second-hand boat, or it might be an essential part of securing certification that allows us to trade. Anyone who sees securing a surveyor's sign-off as a compliance activity is missing the point. It is the surveyor's expert opinion that is the important thing.

Q9. The modern generation seems to see things differently to folks like you and me. For those considering a career in the modern marine world, what advice can you offer to encourage them?

About 95% of the UK's imports by volume arrive by sea, and around 18 million people travel to and from the UK by ferry each year, so shipping is not going away any time soon. Further, like other transport sectors, shipping has entered a new period of rapid change and development, whether that be in the adoption of decision support aids, automation and AI, or the drive for net-zero and the adoption of novel fuels. Anyone who understands the business of trading by sea is well set for a second career in any of those fast-changing sectors. Consequently, I would wholeheartedly recommend a career in the marine industry, but it does not have to mean a lifetime at sea.

Q.10. Apart from the MAIB's most recent accident investigation report, what was your last good read and why did it hold your interest?

Isaac Asimov's *The Complete Robot*, which is a collection of 31 short robot stories he wrote between the early 1940s and the late 1970s. Isaac Asimov died in 1992, but his stories were prophetic. If he were alive today, I am sure the tech giants developing AI and advancing robotics would have him on their advisory boards!

An MAIB inspector in action.





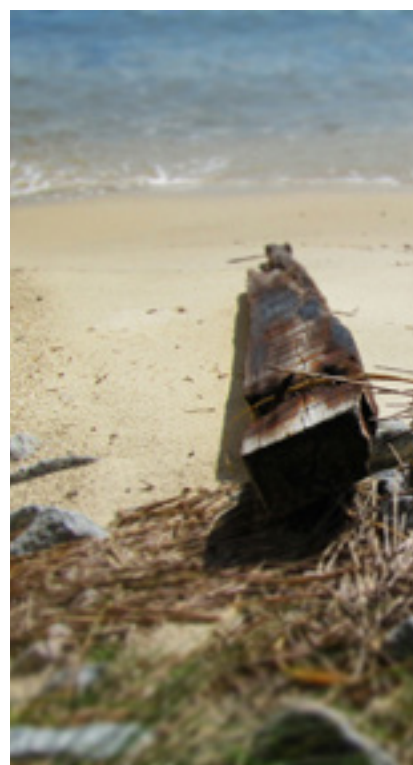
An MAIB inspector at work.

Q11. Once the work is done, how do you choose to spend your leisure time?

Sailing, powerboating, kayaking, diving, beachcombing; anything that involves the sea. Unfortunately, my job is a busy one so too often leisure time gets squeezed out. Consequently, I am hoping to be reincarnated as a seal. I can then be in the sea all day, and if the going gets tough I can bask on a rock in the sun for a while.

Q12. And finally, what personal message would you like to send to the worldwide shipping industry and marine surveying community?

For an industry that is so essential to the world economy it surprises me that profit margins are so tight. When money is in short supply, compliance can become a target instead of an irreducible minimum standard. While major disasters might not occur often, at MAIB we see very close calls happen much more frequently. My advice, as the Chief Inspector of Marine Accidents, would be to learn the lessons from the near misses and act upon them.





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