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TURBULENCE IN THE PLANET'S MAJOR ROUTES ENDANGERS EMISSIONS CONTROL GAINS OF RECENT YEARS

DOMINO EFFECT AS RED SEA BECOMES A WAR ZONE

BY: NICHOLAS CONFUORTO



Nick Confuorto, Senior Advisor



Saber rattling in the Red Sea has already resulted in rerouting of traffic via southern Africa, according to reports, upending long-established commerce routes and unleashing a tsunami of repercussions that could, ultimately, severely weaken emissions-control gains of the past quarter of a century.

The situation could quickly reach the point of no return, with the presence of war vessels from various countries.

The South Pacific is undergoing a similar situation as territorial disputes involve major powers, including the People's Republic of China (PRC), Taiwan (Republic of China/ROC), Brunei, Malaysia, the Philippines, and Vietnam.

It increasingly looks like nothing short of a miracle will stop the situation from exploding.

Here's why: The Red Sea, where about 12% of the world's trade goes through every year, is becoming a real battlefield, with warships of various classes and sizes returning fire from enemies on land and water. Missiles and drones have become the daily fare. This has led to a rerouting of some vessels, through Cape Horn, lengthening the journey and increasing pollution and costs.

Additionally, shutting a major shipping route will have a domino effect of negative consequences: Ports not used will lose readiness while ports in alternative routes could be overwhelmed by increased demand, causing bottlenecks.

This instability could lead to neglecting or rescinding norms that have been setup to protect our environment. We must make sure it doesn't happen. MARPOL must remain operational.

Our team at CR Ocean Engineering will continue to do our part to clean the environment by reducing ship's diesel emissions.

We helped introduce and gain acceptance of the now well-known scrubbing systems. Systems proven to clean diesel emissions in a cost-effective way, allowing shippers to burn high-sulfur diesel while still meeting the stringent MARPOL emissions reduction requirements. We believe that the best and most expeditious way to achieve lasting environmental benefit is when both a shipowner and the environment can gain from the application. Scrubbing systems can do that.

CR Ocean Engineering is one of the world's leading manufacturers of this powerful and increasingly attractive technology. Cleaning deadly emissions has been our core mission for over a century.

As one of the world's leading manufacturers of marine scrubbers, the main lesson we have learned from the strict MARPOL emissions requirements is that a scrubber on board (built with the ship or retrofitted) increases the shippers' choices. Like the choice to use the more established higher sulfur bunker fuels. As additional benefits to using exhaust gas cleaning technology, dangerous particulates are reduced and exhaust gas is prepared for future decarbonization technologies. And lastly, exhaust gas cleaning systems (scrubbers) when combined with heavy fuels, have a significantly smaller CO₂ well-to-wake footprint than low sulfur fuels.

CR Ocean Engineering scrubbers are available in three standard configurations, customizable to a ship's requirements:

- Open-Loop (hybrid ready): once-through scrubber using sea-water
- Closed-Loop: a recirculating scrubber using sea-water (or freshwater) with caustic
- Hybrid: a combination of both designs for maximum flexibility.

CROE Scrubbers normally replace the silencers. They are small, have a compact configuration, have flexibility of design, and are one of the most reliable in the industry. They can be installed inside or outside the ship's funnel.



CROE Scrubber installation



CROE Scrubber

- Alloy construction (external and internal) to extend the life of the system and to allow the exhaust gas to travel through the scrubber system at high temperatures in case of dry-run conditions without a bypass.
- Used proprietary internals designed specifically to increase contact area with lower liquid flows to save on typical pumping costs associated with some scrubber designs.
- Optional proprietary Caustic-Assist™ feature for Open-Loop assist operating in low-alkalinity areas.

Over the many installations in operation, the CROE design has proven very reliable and effective for all clients.

While until recently, the primary focus for our sales team has been the 0.1%S and the 0.5%S regulations on fuel sulfur content (as issued by IMO, effective January 2015 and January 2020 respectively), the CROE research team has been busy developing new technologies for fine particulate reduction ($PM_{<2.5\mu}$), black carbon reduction, and CO_2 capture and sequestration.

While a handful of ports have implemented restrictions on the use of Open-Loop Scrubbers, most independent studies have shown that this discharge is not harmful to the sea nor to sea life. To avoid conflicts on this issue, CROE partnered with an advanced filtration system supplier to provide an easily-integrated high efficiency wash-water filtration system to remove the sludge in a non-hazardous dry form, and to streamline the process of discharging the much cleaner water filtrate back into the body of water.

Furthermore, the use of scrubbing systems has a much smaller carbon footprint than using low-sulfur fuels such as VLSFO and MGO. Using low-sulfur fuels will increase the ship's environmental impact for CO_2 and the very dangerous $PM_{<2.5}$. A CROE scrubbing system instead will have lower CO_2 (well to wake), will have much lower particulate emissions (total of PM_{10} and $PM_{2.5}$), lower Black Carbon and in most cases can also have lower sulfur emissions than low sulfur fuels.

At CROE, we'll continue helping our clients by speeding up yard work, reducing processes to the maximum. To this end, our new designs can be installed outside of the ship's funnel and allow for greater prefabrication prior to the ship's arrival at site.

CROE Scrubber Technology is truly beneficial for our planet. It controls deadly emissions. It expands options. It protects shippers' revenue stream and can increase profits in the short (one-year ROI) run.

I'd like to close this note with positive news -- I am no prophet of doom. But the situation at the very best demands the shipping industry to remain vigilant. We need to protect every gain of the past decade and a half because the future is uncertain.

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CR Ocean Engineering, LLC is headquartered in New Jersey, US

Some of the features of the CROE Scrubbing Systems include:

- Option of bottom entry I-Type, side entry L-Type or our U-Type entry designs to better fit any funnel configuration and simplify engine exhaust gas duct, with or without a bypass. The CROE system can also be installed outside the funnel, if that is preferred, to maximize pre-assembly and expedite the installation.
- Strategically configured exhaust gas inlet and scrubber drainage to eliminate any potential water back-flow to the engine.
- Eliminated circulation water storage from bottom of scrubber vessel to reduce weight at the higher elevations, improving stability.

CR Ocean[®] Engineering

MIKO FLEXISHAPE PATCHES DEMONSTRATE THEIR EFFECTIVENESS IN AN EMERGENCY



Tests of fitting methods were conducted by divers on sample Miko Flexishape patches

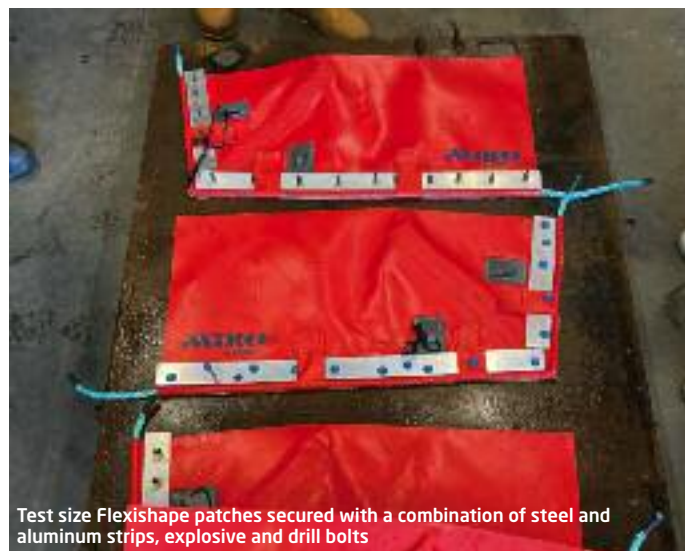
Detailed tests performed recently in Bergen have confirmed the effectiveness of Miko Flexishape patches at sealing tears and irregular damage to a ship's hull. Miko engineers wanted to verify the performance of its flexible patches in a controlled environment so tests were conducted at the Submara Diving Company premises where navy personnel and various stakeholders watched as different configurations of the patches were put through their paces.

The tests were an important opportunity to assess the performance of the patches because if the hull of a ship is damaged, sealing any leakage obviously becomes the top priority. The options available to the ship operator are limited and often ineffective but the two types of patches available from Miko Marine are already a well proven answer. The purpose of the tests was to formally compare fixing methods for the Flexishape patches and to assess how easily they could be handled by divers.

If the hull damage is a clean puncture like a knife cut then the Miko magnetic plaster has no rivals. It can be applied to the even surface of the hull like a sticking plaster to create an instant water tight seal. Consisting of a flexible magnetic surface backed by super-strength fabric a Miko plaster can be applied in minutes rather than hours. If reinforced by additional magnets, it has no rival for speed of application and the strength of its seal. It will provide seaworthy security that will enable the vessel to sail safely to a yard for permanent repair.

If the hull damage is not so conveniently clean and even, a Miko Flexishape patch is seen as the answer because a magnetic patch cannot provide a watertight seal. To close a jagged tear with protruding shards the Bergen tests looked at the latest fixing options for the Miko Flexishape patch. It had been developed specifically to

deal with these situations and is basically one piece of high strength fabric that is used to cover the irregular damage. A single diver, working alone, can then bolt the patch onto the hull in a way that makes it immovable and leakproof. The outer layer of the patch is a polyester-reinforced PVC matting, strong enough for a 50 mm strip to carry the weight of an average car. The inner layer is a Kevlar fabric, similar to bullet proof vests, which protects the patch from sharp edges on the damaged hull. The material is flexible to follow the hull curvatures and has rubber strips along the outer edges help improve the seal when pressed against the hull surface. Fastening the patch to the hull is achieved by using narrow strips of steel or aluminum along its outer edge and bolting them to the hull by using either of two methods.



Test size Flexishape patches secured with a combination of steel and aluminum strips, explosive and drill bolts



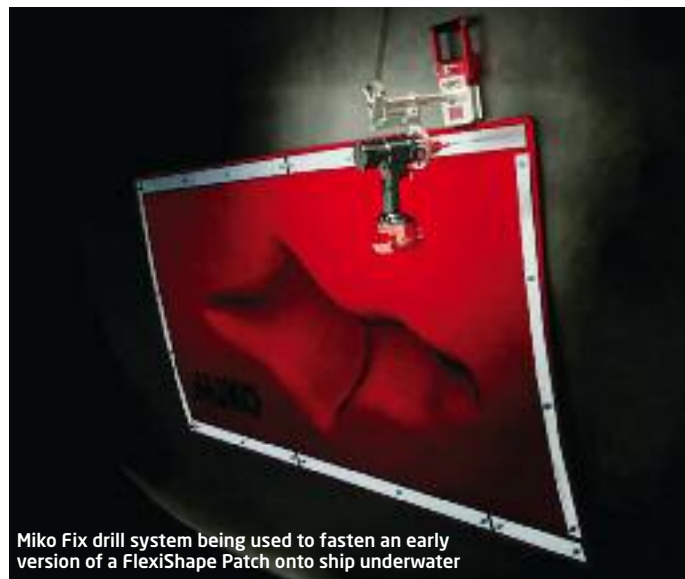
What would be the inside of a ship's hull showing Miko Flexishape test fastenings.

For many years explosive rivets have been shot through the strip, the patch and the hull by divers to provide a fast and powerful seal. They are a very effective method but the complications of transporting them by commercial airline made it difficult to get them to many emergency locations. To solve this problem Miko developed the MikoFix drill which penetrates the strip, patch and hull with a self-tapping screw, and holds the patch tightly against the hull in one action while providing the option of easier removal if required. The battery powered drill is mounted on a stand that is held against the hull by a high-power Miko magnet.

Once the diver has positioned the drill it takes just 90 seconds for the bolt to penetrate the holding strip and secure the patch tightly against the ship's hull and create a water tight seal.

An important part of the Bergen testing was to compare the use of steel or aluminum holding strips. Although they were heavier, the steel strips were found to follow the contours of the hull more effectively and ensure no leakage. Nevertheless, aluminum strips have a sound performance history. A notable example occurred several years ago when a family-owned trawler, the Nybo, was holed while at anchor in northern Norway three weeks before the end of the Arctic fishing season. After some internal structural repairs and the application of a Flexishape patch using aluminum strips, the Norwegian Coastguard judged it to be seaworthy and authorized it to continue working for the remainder of the season. This enabled the trawler's owners to earn essential revenue that would have been denied them if the vessel had been required to sail directly to a yard for repairs.

Hull damage to any ship or floating offshore structure is a serious event that can leave its owner with few options. The traditional methods of sealing a leak are cumbersome and unreliable. Wooden or fabric plugs have a poor performance record and only the determination of the crew will get a ship safely to a yard for repair. Miko Flexishape patches can now be seen as a viable alternative which is good news for seafarers and for the environment.



Miko Fix drill system being used to fasten an early version of a FlexiShape Patch onto ship underwater



Trawler Nybo being repaired with Miko patches before resuming fishing. Photo courtesy Geir Birkely.

MIKO MARINE AS

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MARITIME WEEK LAS PALMAS

The Port of Las Palmas is a key strategic mid-Atlantic maritime and logistics hub serving the offshore energy sector as well as ships sailing to and from Africa, Europe and the Americas. Lately it has also been playing a vital role in refuelling vessels diverted around Africa from the Red Sea and Suez Canal.

Maritime Week Las Palmas will examine the port's maritime activities, from bunkering and bulk storage to fuel testing and ship repair; from cargo handling and agency to ship supply and spare part services. The high-level Flagship Conference programme will be combined with an exclusive hands-on tour to showcase the multitude of activities that make this unique port function.

A comprehensive one-day training course on Alternative Fuels, a table top exhibition, and an abundance of stunning networking events, guarantee that this year's Maritime Week Las Palmas will deliver.

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MARITIME WEEK LAS PALMAS 2024

The Port of Las Palmas is a key strategic mid-Atlantic maritime and logistics hub serving the offshore energy sector as well as ships sailing to and from Africa, Europe and the Americas. Lately it has also been playing a vital role in refuelling vessels diverted around Africa from the Red Sea and Suez Canal.

Maritime Week Las Palmas - the second edition of which takes place from 17-19 June at the famous Santa Catalina Hotel in Las Palmas de Gran Canaria - will examine the port's maritime activities, from bunkering and bulk storage to fuel testing and ship repair; from cargo handling and agency to ship supply and spare part services. It will also examine key international issues such as the energy transition, environmental regulations and game-changing geopolitical events including the diversion on international shipping from the Red Sea and Suez Canal to South and West Africa, an issue which is currently having a big impact on the maritime sector in the Canary Islands.

The week consists of a high-level Flagship Conference, an alternative fuels training course, and a unique tour of the port and its facilities. It will also include a full-blown fuel spill simulation exercise in the anchoring area of the Port of Las Palmas involving local bunker barge operators and oil spill clear-up specialists. The exercise will underline the Port Authority of Las Palmas's commitment to the environment and sustainability.

The event is heavily supported by the leaders of the Canary Islands Government, the Port of Las Palmas and the local shipping and maritime sector. The Flagship Conference will be opened by German Suárez, President of the Canary Islands Maritime Cluster and shipyard ASTICAN, Beatriz Calzada, President of the Port of Las Palmas, Antonio Morales Méndez, President of the Cabildo of Gran Canaria and Fernando Clavijo, President of the Canary Islands.

The opening keynote speech will be given by International Maritime Organization Ambassador Nancy Karigithu, Special Envoy and Advisor on the Blue Economy at the Executive Office of the President of Kenya who will focus on developments in Africa and beyond.

Sessions in the packed conference programme will cover all the maritime activities that take place in Las Palmas, including a focus on bunkering. Decarbonisation and digitalisation will also be examined in depth, while a special Women in Maritime session will bring together a selection of women working at various levels and in different sectors

of the maritime industry, in Las Palmas and beyond, to share their views on key issues that impact their daily work experience.

The Port of Las Palmas and FEDEPORT - the Canary Islands Federation of Port Enterprises - are collaborating to deliver the oil spill exercise, a reception in the heart of the port, and a guided tour of the facilities at the Port of Las Palmas, including bunker barges, oil storage and delivery facilities, container and cruise terminals, offshore drill ships, tugs and other workboats, and the island's key shipyards.

The oil spill exercise will be a realistic scenario in which all anti-pollution plans provided for in international regulation will be activated. The exercise will be an opportunity to update and improve communication processes between the public and private agents involved and to demonstrate the professionalism and capacity of the Port of Las Palmas in the event of marine pollution due to discharge.

According to the Port of Las Palmas, the incidence rate in fuel supply operations in the port is well below 0.01% thanks to the professionalism of the bunkering companies, who will unite for the first time to conduct the drill. Despite some 12,000 bunkering operations being conducted annually, very few accidents occur, and when they do, the speed and effectiveness of the entities involved minimise the impact.

Promoting the event, Beatriz Calzada, the President of the Port of Las Palmas said: "We have a robust and consolidated port, we are leaders in bunkering and naval repair, strong in transportation and logistics and we are firmly committed to the offshore wind sector and sustainability. Characteristics that we strive to show and improve, that have made us a benchmark in the Mid-Atlantic and that today allow us to host this international summit of the maritime sector."

Llewellyn Bankes-Hughes, Founder and CEO of Petrosport, creator and organiser of the biennial event, said: "The Port of Las Palmas is a key strategic mid-Atlantic maritime and logistics hub but while everyone in the shipping and bunkering sectors know about the role Las Palmas plays in refuelling ships, the same still cannot be said for many of the other outstanding maritime services available in Las Palmas which remain relatively unknown. Maritime Week Las Palmas is designed to highlight the port's maritime activities and to bring international companies to the event so that they can see and hear for themselves what Las Palmas has to offer.



Photo by Timon Reinhard on Unsplash

POSIDONIA 2024 EXHIBITORS ANTICIPATE PARADIGM SHIFT IN MARITIME INDUSTRY AS AI GAINS TRACTION



The maritime industry, often viewed as conservative and measured in its approach to technological integration, is on the cusp of a transformative era with Artificial Intelligence (AI) emerging as a prominent player. Insights from key exhibitors at the upcoming Posidonia Shipping Exhibition reveal a new landscape, where industry leaders strategically align with the inexorable rise of AI and consider adopting it already.

According to Theodore Vokos, Managing Director, Posidonia Exhibitions S.A., demand for space from advanced technology and innovation companies providing services to the shipping industry has risen significantly for this summer's edition of Posidonia, which will be held at the Athens' Metropolitan Expo Centre from 3 to 7 June.

He said: "A comprehensive report on the future landscape of AI in the maritime sector, titled 'Out of the box' and produced by Lloyd's Register and maritime innovation consultancy Thetius, indicates that the market for AI-driven systems and vessel autonomy is anticipated to achieve a collective value of \$5 billion by 2028. According to the report, presently there are already 276 active companies identified in the maritime AI segment. The report underscores the significance of proactive investment by maritime organisations in enhancing their comprehension of AI across various levels. It recommends a strategic focus on workforce education and training initiatives to augment awareness of safety measures and regulations pertinent to advanced technologies within the maritime domain."

EMMIS MARINE S.A., an industrial manufacturer of premium electrical supply and control solutions, signifies a broader industry sentiment. Andreas Miserlis, Owner & CEO, emphasises the industry's advanced technological standing, where AI is recognised as pivotal in addressing current challenges. Miserlis articulates a proactive stance, with plans to incorporate AI into research and development, aligning technology with industry needs. "AI stands at the forefront of meeting the technological demands of the maritime industry. Our commitment to incorporating AI into our R&D department and production lines reflects our proactive approach to staying ahead in the era of digital transformation," he said.

The maritime manufacturing sector in general, also exemplified by Captain Nemo, foresees rapid AI adoption. The emphasis on data analysis and project development reflects a keen awareness of AI's potential to streamline processes and drive innovation. "With early AI projects already underway, we look forward to incorporating AI in data analysis, automating standards, and developing new projects within the maritime manufacturing sector," said Merkouris Panoutsopoulos, CEO of the company which is preparing for its third consecutive participation at Posidonia.

But the adoption of AI is not only limited to the manufacturing sector, but is also rapidly embraced in the services sectors.

According to Bureau Veritas, "AI is already being adopted by the shipping industry. AI investment rates leave little doubt AI is becoming a key enabler in the digitalisation of the shipping industry, offering benefits such as reduced costs, less risk, reduced emissions, improved forecasting, and faster deliveries through optimised routes. As a class society we are using AI to help make our work - and shipping - safer and more efficient," said Laurent Hentges, Vice-President, Digital Solutions and Transformation. As a classification society, BV is leveraging data and AI to optimise its operating modes and services to clients. More specifically, AI supports operations in going from fully physical surveys on board a vessel to partly remote and partly augmented surveys, by leveraging data to build over time optimised and predictive survey schemes, by combining data extraction techniques such as OCR with Robotics Process Automation to gain internal efficiency in their processes, and by enabling Generative AI (LLM Large Language Model), hence building chatbots, which help in responding to client technical queries and provide a quicker and better service.

Verifavia, a company specialising in marine surveying services and auditing, already navigates the challenges and promises of AI. The company believes that AI brings exciting possibilities to shipping, improving navigation, predictive maintenance and compliance. Notably, the company emphasises responsible AI usage, weaving sustainability into the narrative. "At Verifavia, we are using AI where it matters most, especially in voyage optimisation, data quality enhancements and

carbon market transparency. We're all about responsible AI, ensuring our solutions contribute to a sustainable future," said Nicolas Duchene, President.

Governmental ship registry services, as embodied by San Marino Ship Register, foresee AI expediting administrative processes and envision that AI will help accelerate ship registration, a testament to the pragmatic applications of AI beyond operational realms. "AI will soon be applied to speed up the process of ship registration, bringing efficiency to administrative functions within the maritime sector," said Gianluca Tucci, General Director of the new Registry, which will leverage its participation at Posidonia 2024 to launch its merchant vessel offering.

AI also plays a role in the peripheral services sector of the marine industry, aiding marine travel management companies, like GMT Greece, in predicting travel movements for cost-saving benefits. Additionally, vessel cleaning companies, like Greensea IQ, utilise small robots equipped with AI to enhance the prediction of cleaning routines, enabling more efficient and faster hull cleaning services.

But every revolutionary change has to be approached with care, and companies like N. Bogdanos Marine Bureau Ltd bring a sober perspective to AI in shipping. Adamantios Papapetros, Vice President & CEO, highlights the industry's historical prudence, which will wait for AI technology to be further tested before fully embracing it and applying it on ships. "Shipping historically waits for proven results before adopting new technologies. Applications like unmanned navigation are still away from being applied, however, the lack of skilled seamen will accelerate the introduction of similar applications," he said.

Drawing from these industry insights and considering broader trends in maritime technology, the future of AI in shipping appears dynamic and transformative. As the industry navigates towards digital maturity, AI is set to play an increasingly pivotal role in optimising operations, ensuring safety, and steering the sector towards a sustainable and technologically advanced future. The Posidonia Shipping Exhibition stands as a testament to the industry's collective recognition of AI's potential, marking the dawn of a new era in maritime innovation.

Posidonia 2024 is organised under the auspices of the Ministry of Maritime Affairs & Insular Policy, the Hellenic Chamber of Shipping and the Union of Greek Shipowners and with the support of the Municipality of Piraeus and the Greek Shipping Co-operation Committee.



ISLE OF MAN SHIP REGISTRY (IOMSR) WELCOMES WORLD'S MOST POWERFUL SAILING CARGO SHIP TO ITS FLEET



The Isle of Man Ship Registry's Capt Raja Ray, right, with Gurpreet Sandhu of Berge Bulk onboard the Berge Olympus

The world's most powerful sailing cargo ship has gone into service under the Isle of Man flag. The pioneering Berge Olympus was officially unveiled in October after its retrofit by Berge Bulk, one of the world's leading dry bulk ship owners.

Four WindWings have been installed on the Newcastlemax bulker as part of Berge Bulk's ambition to become carbon neutral by 2025. The cutting-edge technology uses wind power to reduce fuel and emissions.

In addition, Berge Olympus has been retrofitted with a shaft generator system. The shaft generator is driven by the main engine to supply electric power to the vessel, also saving fuel and reducing emissions.

The Isle of Man Ship Registry (IOMSR) participation in the projects is a testament of shared vision with Berge Bulk as one to lead the industry to a zero-carbon future through safe, efficient, and sustainable shipping.

And the IOMSR's Singapore representative Captain Raja Ray was one of the first on board to see the new technology first-hand following the retrofit.

He said: "I inspected the vessel last year before its retrofit and returning on board, the transformation and the technology behind it that I saw was truly amazing.

"Berge Olympus holds a bold vision for the future, serving a testament to both innovation and sustainability.

"We are very proud that the Berge Olympus is part of the IOMSR fleet and that we are able to support Berge Bulk in its future ambitions as we both work together in leading the industry on its journey to net zero."

The IOMSR flagged Berge Olympus will sail between Brazil and China - a trade route known for having favourable wind conditions.

Its WindWings are large, rigid sails that can be adjusted to optimise the aerodynamic performance of the ship. Each of the four WindWings is 20m wide and 37.5m tall, which is taller than a 10-story building.

The WindWings can save up to 20 per cent fuel consumption, and corresponding CO₂ emissions on an average worldwide route.

Starting out with 12 vessels in 2007, the company now owns, operates and manages a fleet of 85 safe and fuel-efficient vessels, equating to 14 million DWT.

Cameron Mitchell, IOMSR director, said: "Berge Bulk's WindWings project stands as testament to its commitment to lead the way towards a zero-carbon future while enhancing vessel efficiency.

"The initiative aligns with the new IMO goals, to reach net-zero GHG emissions from international shipping by or around 2050, goals which IOMSR is also fully committed to, through our industry leading work.

"We look forward to continuing our partnership with Berge Bulk as it works towards its sustainability aims.

"The project also highlights that there are clear opportunities for vessel owners to swiftly retrofit new technologies to make a rapid and profound difference to the climate impact of their fleet."

IOMSR believes the maritime industry has a collective responsibility to respond to the climate emergency.

To that end it became the first flag state to join the Getting to Zero Coalition, an industry-led alliance working towards decarbonising the international maritime shipping sector.

It is a partnership between the Global Maritime Forum, the Friends of Ocean Action and the World Economic Forum. Members include more than 120 organisations from the maritime, energy, infrastructure and finance sectors

In another industry leading development, in April 2022 IOMSR became the first flag state in the world to reduce registration fees for ships deploying green technology.

The measure gives ship owners a 15 per cent reduction on their annual registration fee. The reduced fee is available to operators of cargo ships, commercial yachts or passenger ships which are investing in biofuel, alternative fuels, wind, or shore-side energy technology.

IOMSR is one of the world's leading flag states and is ranked 19 in the world by Clarkson's with around 300 ships and 12.5m GT under its flag. The registry has held top spot on the Paris MoU Port State Control whitelist and is on the whitelist in the Tokyo MoU rankings.

The registry is headquartered in Douglas, Isle of Man, a self-governing British Crown dependency and is a Category One member of the Red Ensign group.

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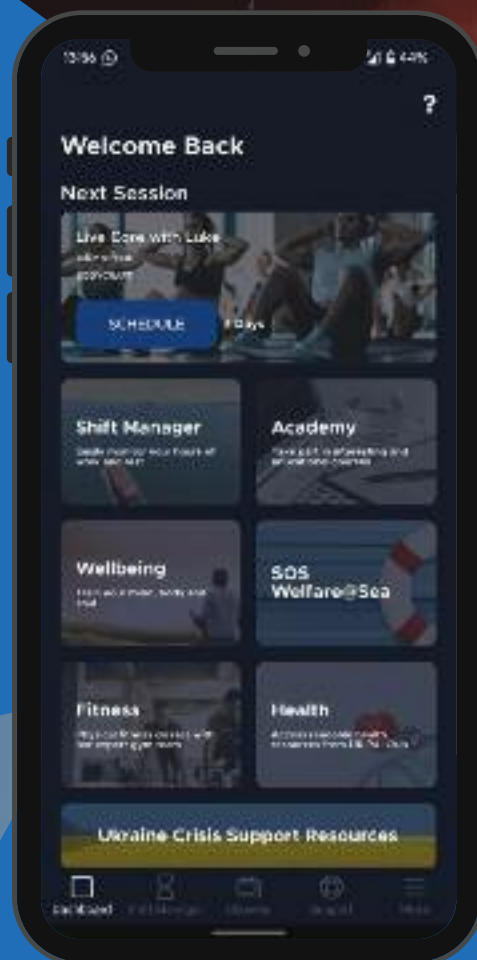
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SIKA'S SUSTAINABLE MARINE FLOORING SOLUTIONS TO IMPROVE SHIP ACOUSTICS



There are many sources of vibrations and sounds onboard, e.g., propellers, gearboxes, diesel engines, HVAC etc. To ensure the safety and comfort of the crew as well as the passengers, it is important to use noise controlling floor systems to suppress the vibrations and noise. Sika® offers a wide variety of products which have different degrees of vibration and noise reduction properties to meet the requirements for both regulatory bodies and ship owners. One of the latest Sikafloor® Marine VEM and VEM-X technologies are paving the way for sustainable innovations and improved ship acoustics.

Vibration Damping in Ships

Noise and vibration levels are some of the most important concerns for the vessels nowadays. Vibration caused by the engines and other sources in many cases lead to noise where noise in his turn can create trouble with concentration, prevents to rest properly and in case of an emergency even not hearing alarm bells is an important reason to reduce vibration and noise on board as much as possible. Much of the disturbing noise is low frequency noise coming from vibrations in the steel structure, caused by the propeller, engines, generators, propulsion system, thrusters, etc.

Vibrations are transmitted through the steel structure and ship vibration is the response between vibration sources and the ship's structure aggravated by resonance. Visco-elastic systems are used to avoid structure vibrating at resonance and to dampen structure borne noise.



Sika® Sustainable Advanced Flooring Systems

Sika® offers a wide variety of innovative products for the marine industry. The especially created advanced flooring systems are designed to tackle the problem of reduction of structure-borne noise via the precise measurement of floor solutions' damping properties. The future of vibration damping onboard vessels comes with the sustainable technology based on Visco-Elastic cement-based flooring and is called Sikafloor® Marine- VEM (Visco Elastic Mortar).

Sikafloor® Marine VEM & VEM X technology is a patented environmentally friendly, one component solution, providing the best damping effect of structure borne noise. The products are easily mixed and applied, making live much easier for the application crew as the hassle of difficult two component resin-based products is now made redundant. As it is cement based technology, the green passport for shipment can be left blank as there are no hazardous goods to be declared.

The Sikafloor® Marine VEM technology comes in two variations, one with steel tiles as the constrained layer and one with a cementitious mortar as the constrained layer, for example Sikafloor® Marine-190. The visco-elastic system can be used in connection with all Sikafloor® Marine Litosilo steel and cement based floating floors, to improve the overall acoustic performance. This combination provides extremely good sound reduction in low, as well as in high frequencies. It can also be used in combination with the latest Sika® innovation, the Sikafloor® Marine Ultralight Floating Floor, where the total vibration and noise dampening floating floor system weighs as little as 29 kg/m².

The two systems offer different advantages. The constrained visco-elastic system has extremely good structure borne noise damping features over the entire frequency range. This system is an isolator, which, through its deformation in the visco-elastic layer, dampens the vibration energy and thus reduces the radiation of noise. The floating floor systems, on the other hand, provide high airborne noise reduction, but poor structure borne noise reduction in low frequencies. The floating floor performs best as a barrier, absorbing the airborne noise between the source and the adjacent areas.

The combination of visco-elastic and floating floor systems is key for optimal acoustic performance. With the marine flooring range Sika leads the way into a sustainable future for passengers, crew, but also for the contractors and application teams across the world.

About Sika

Sika is a well-known specialty chemicals manufacturer with a leading position in the development and production of products, systems, and solutions for sealing, bonding, and protection in the marine industry. Sikafloor® Marine offers a complete range of primary deck coverings, acoustic flooring solutions and decorative floor systems. The systems set new standards with features like low weight, fast curing, high noise reduction, thermal insulation, A-60 fire rated floating floors and vibration damping systems with low building height - less than 50mm.

All Sikafloor Marine products are Wheel-mark approved according to Council Directive 96/98/EC on Marine Equipment and are also approved by the US Coast Guard and other major authorities and leading classification societies in compliance with IMO rules.

More information on SIKA's sustainability policy:

<https://www.sika.com/en/sustainability/sika-sustainability-strategy.html>

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CURRENT & FUTURE SHIPPING ISSUES



C/V ASTRAIOS, Newbuilding container vessel with 22,750 DWT, delivered on March 19, 2024, built by Hyundai Mipo Dockyard, Korea, managed by CAPITAL-EXECUTIVE SHIP MANAGEMENT CORP.

The shipping industry faces numerous challenges, including decarbonization, digitalization, geopolitical tensions, labor shortages, and environmental regulations. To remain resilient and committed to change, the industry will need to adopt a number of strategies. We briefly present the issues and dealing strategies from the perspective of the Liberian Flag Administration.

Decarbonization, Net-Zero GHG Emissions and Environmental Regulations

The maritime industry is at a crossroad mainly caused by the environmental challenge, and the response to this huge challenge needs the maritime industry to transform to a net-zero Greenhouse Gas (GHG) emission industry by or around 2050, as also required by the revised IMO GHG Emissions Reduction Strategy that was adopted at the IMO MEPC 80 meeting in July 2023. This revised IMO GHG Strategy is a significant strengthening of the initial strategy that was adopted at MEPC 72 in 2018 and was 'only' pursuing efforts to reduce CO₂ emissions of 70% by 2050. Now the target is 100% reduction of all GHGs by or around 2050 on a well-to-wake basis, i.e. net-zero GHG emissions by 2050.

Fortunately, we are in the midst of embracing the challenges and opportunities of the 4th Industrial Revolution, and this together with an agile and adaptive international regulatory framework from the IMO, we as an industry, stand a realistic chance to respond well and in a timely manner to the environmental challenge.

There is a challenge though as the IMO does not always recognize and provide the desired benefits from adoption of innovative design features, new technologies and alternative fuels. Whilst the IMO regulations for ship designs have changed over the recent years from prescriptive rules and regulations to now goal-based standards and risk assessment-based regulations allowing for the much-needed innovation in ship design, the IMO environmental regulations do not always recognize these innovative solutions in terms of their contribution to GHG emissions reduction. As an example, can be

mentioned onboard carbon capture systems that can significantly reduce the GHG emissions from ships but currently the environmental regulations (EEDI, EEXI and CII) do not recognize these systems. Several proposals to reflect onboard carbon capture systems in the regulatory framework have been submitted to IMO but these have not yet been fully discussed and concluded upon, hence the process of identifying and allowing practical solutions to support the GHG emissions reduction needs to be accelerated with the same priority as strengthening the IMO GHG strategy.

To fully utilize the opportunities for innovation and adoption of new technologies that the regulatory framework now allows, we need close global collaboration between all high-quality and forward-looking stakeholders (shipyards, design companies, classification societies, engine manufacturers, innovative technology companies, shipowners/managers and other relevant stakeholders) and thereby unlock the potential to decarbonize international shipping and eventually reach net-zero GHG emissions shipping. To do this we need to increase collaboration and secure funding to undertake research and development projects. IMO has now embarked on developing the mid-term measures of the 2023 IMO GHG emissions reduction strategy, and it is expected that these measures will be a combination of a technical measure and an economic measure. The technical measure will probably be a Global Fuel Standard (GFS) and the economic measure a GHG levy or a feebate mechanism to incentivize increasing the uptake of net-zero or near net-zero GHG emission fuels. It is anticipated that the funding collected from the economic measure will also be allocated to fund the much-needed innovative joint industry research and development projects.

In this context the Liberian Registry has been forward thinking and since 2016 been actively involved in joint industry projects (JIPs) and our involvement is steadily increasing. Over the last 3 years, we have participated in over 35 JIPs and we expect this to increase further until we have developed and approved the net-zero emission vessel of the future and its application in international shipping is feasible and sustainable.

In regard to the net-zero GHG emissions, it should be noted that at the MEPC 80 meeting in July 2023, IMO also adopted the Guidelines on Life Cycle GHG Intensity of Marine Fuels (IMO Resolution MEPC.376(80)), also known as the LCA (Life Cycle Assessment) Guidelines, and these guidelines provide guidance on life cycle GHG intensity assessment for all fuels and other energy carriers used on board a ship. They cover well-to-tank, tank-to-wake, and well-to-wake GHG intensity and sustainability aspects related to marine fuels and energy carriers (e.g. electricity for shore power) used for ship propulsion and power generation onboard. The relevant GHGs included are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). The well-to-wake approach is complex and present challenges in terms of accurately reflect and document the GHG emissions as it covers the entire process from feedstock extraction, cultivation, recovery, feedstock conversion to a fuel product, transportation as well as distribution, bunkering, and fuel utilization on board a ship. However, compared to absolute zero GHG emissions (i.e. tank-to-wake) the well-to-wake concept offers theoretically more fuel types with pathways to zero GHG emissions. Especially in combination with onboard carbon capture systems and/or other systems and energy efficiency technologies there could be a variety of pathways to net-zero or near net-zero GHG emissions.

Although international shipping transports about 90% of all global trade and only emits less than 3% of the world's global emissions, our industry including IMO is committed to decarbonize and reach net-zero GHG emissions by mid of this century. The maritime industry is on the right track to tackle the immense environmental challenge; however, we have just embarked on decarbonization and the journey towards net-zero GHG emissions, and there is a lot of hard and dedicated work ahead for our industry to reach the levels of ambition in the IMO GHG emissions reduction strategy.

Going forward the Liberian Registry is dedicated to continuing to lead the way for Flag Administrations to support our shipowners to decarbonize international shipping through our involvement at the IMO and in joint industry and research projects. These projects can pave the way to find solutions to fully decarbonize international shipping in a sustainable way and ensure transportation of cargo remains competitive.

On the issue of Environmental regulations, the shipping industry must comply with all applicable environmental regulations. This includes regulations on air and water emissions, waste disposal, and ballast water management.

By investing in clean technologies, the shipping industry can reduce its environmental impact by using emission control systems, advanced wastewater treatment systems, and energy-efficient ship designs.

Finally, it is about time that the shipping industry start collaboration with environmental organizations to develop and implement sustainable shipping practices.



LPG GAS ANAX, Newbuilding Gas carrier vessel with 30,138 DWT, delivered on September 5, 2023, built by Hyundai Mipo Dockyard, Korea, managed by BENELUX OVERSEAS INC.

On the Digitalization front, the shipping industry can improve its efficiency and resilience by adopting digital technologies such as artificial intelligence (AI), big data, and blockchain. These technologies can be used to optimize ship operations, improve supply chain visibility, and reduce fraud. At the same time, shipping will need to invest in training and education to ensure that its workforce has the skills to operate and maintain digital systems. A need for development of digital infrastructure such as high-speed data networks and secure data centers to support its digital transformation may arise in the years to come.

On Geopolitical tensions, while shipping operates under operates under most challenging conditions perhaps shall consider reducing its exposure to geopolitical tensions by diversifying its supply chains. This can be done by using multiple ports and shipping routes, and by sourcing goods from a variety of countries. Contingency plans development may be required to deal with disruptions caused by geopolitical tensions. These plans should include alternative shipping routes, secure storage facilities, and insurance coverage.

Labor shortages is and would be one of the major challenges for shipping moving forward. As such, the industry will need to invest in training and education to attract and retain qualified workers. This includes training for seafarers, port workers, and logistics professionals. Moreover, promotion of diversity and inclusion is required to create a more welcoming and attractive workplace for all employees. Last but not least, improvement of working conditions to attract and retain workers is most critical inclusive of provision of competitive wages and benefits, safe and healthy work environments, and opportunities for career advancement.

By adopting these strategies, the shipping industry can maintain its resilience and its commitment to change, and continue to play a vital role in the global economy.

A Shipping Partnership

As a final word, shipping is an industry of partnership and not a one-way street, and we, the Liberian Registry, are committed to making sure to share with shipowners our experiences, our networks, our technology, and our global network to ensure their vessels get the support they need to operate in an ever changing and increasingly complicated regulatory environment. The aim for continuous improvement, innovation, technology utilization to improve existing system for ships to operate efficiently, safely and environmentally friendly is a continuous effort, and Liberia is committed on this continuous effort that will improve not only shipping but the community at large and this is a commitment more than ever now.

MICHALIS PANTAZOPOULOS, has more than 30 years working experience in shipping and offshore industries in Greece and United States. Graduating with a PhD in Mechanical/Ocean Engineering from the University of Washington, Seattle, he joined EXXON Corporation where for the next ten years served in engineering and managerial positions in offshore and marine engineering fields including 2 years of service as technical support to Exxon's legal team in the EXXON VALDEZ trial. Upon returning to Greece, he joined ABS Consulting (American Bureau of Shipping) in managerial positions serving the shipping and offshore industry in Greece and south Europe. Cooperation with AVIN INTERNATIONAL as Manager of the Fleet Services Division started in 2000.



Since 2004, Michalis is part of the Liberian Registry, serving in their Piraeus office as Senior Vice-President.

A regular speaker and contributor to shipping conferences and technical magazines, Michalis has been affiliated with several shipping and technical committees including INTERTANKO Associate Members Committee, Society of Naval Architects & Marine Engineers of USA and Greece, Technical Chamber of Greece, HELMEPA, Propeller Club etc.

IMO IN ACTION: SAVING THE OCEAN THROUGH GREEN SHIPPING

BY GYORGYI GURBAN, HEAD OF PROJECT IMPLEMENTATION, IMO



Shipping is the backbone of global trade and essential to modern life, transporting more than 80% of world trade in goods each year. The industry provides the most sustainable, affordable way to carry vital commodities across vast distances worldwide. But 60,000 commercial ships crisscrossing the ocean each day can impact the marine environment. That's why securing a greener maritime future is essential to protecting ocean health and biodiversity.

The transition to a more sustainable maritime sector is already unfolding. It is an essential element in addressing the triple planetary crisis of climate change, biodiversity loss and pollution. Amongst other things, a greener maritime future envisages net zero greenhouse gas emissions from ships, minimal ocean pollution (plastics, sewage, oil and chemical spills) and the effective management of biodiversity threats such as biofouling and underwater noise.

As the global regulator for shipping, the International Maritime Organization (IMO) has a crucial role to play in ensuring these areas are addressed through robust regulations as well as long-term technical support to Member States, as demonstrated in the following examples.

Climate action in the shipping sector

To help combat climate change, the 2023 IMO Strategy on the Reduction of Greenhouse Gas (GHG) Emissions from Ships sets out an ambitious course towards net-zero shipping by or around 2050. Indicative checkpoints include cutting annual GHG emissions by at least 20% by 2030 (striving for 30%) and 70% by 2040 (striving for 80%), compared to 2008 levels. Adopted in July 2023 by IMO Member States, this strategy requires the uptake of alternative, zero and near-zero GHG fuels and technologies to represent at least 5% (striving for 10%) of the energy used by international shipping by 2030.

Technical cooperation projects and initiatives led by IMO, such as GreenVoyage2050, GHG SMART, GMN, SMART-C GHG and FINSMART work to fast-track the strategy's implementation in Member States. Recently, the GHG-SMART programme announced a new group of emerging maritime leaders from 14 small island developing states (SIDS) and least developed countries (LDCs) to join a year-long training course on maritime decarbonization. Similarly, the IMO CARES project has generated funding opportunities for technology solutions to accelerate decarbonization of domestic vessels and ports in Africa and the Caribbean.

IMO is expected to adopt a new set of legally binding mid-term measures in late 2025, to meet emission targets. This includes a global standard for marine fuel and a global pricing mechanism for GHG emissions. This demonstrates shipping's commitment to supporting global climate action - even potentially setting an example for other industries.

Tackling marine plastic pollution

Marine litter presents a huge problem in our ocean, with some scientists warning that plastics in the ocean will outweigh fish by 2050. IMO has been regulating marine plastic litter for the last 50 years - from the dumping of waste at sea to discharges from ships. More recently, the IMO Strategy to Address Marine Plastic Litter from Ships was adopted in 2021, endeavoring to achieve zero plastic waste discharges to sea from ships by 2025.

To help implement the strategy, the GloLitter Partnerships Project, jointly implemented by IMO and the Food and Agriculture Organization (FAO) supports 30 countries across Asia, Africa, the Caribbean, Central and Latin America and the Pacific to tackle marine plastic litter from sea-based sources, including fisheries. The success of the GloLitter project has led to two new projects: The Regional Litter Project (RegLitter) and Plastic Reduction in the Oceans: Sustaining and Enhancing Actions on Sea-based Sources (PRO-SEAS).

In addition, IMO follows ongoing negotiations at UNEP's Intergovernmental Negotiating Committee (INC-4) to develop a new international legally binding instrument on plastic pollution, including in the marine environment.

Protecting biodiversity

Biofouling is one of the greatest threats to marine biodiversity and to the industries that depend on it, such as tourism and fisheries. It refers to the build-up of aquatic organisms on ships' hulls, which can be introduced into new environments as ships travel across oceans.

In 2023, IMO adopted Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species. These provide a globally consistent approach to the management of biofouling - a decisive step towards reducing the transfer of invasive aquatic species by ships.

To support the guidelines, IMO's TEST Biofouling project was launched to pilot innovative technologies and sustainable methods for managing ships' biofouling in countries in Africa, the Caribbean and Asia-Pacific. The pilots explore cutting-edge innovations such as in-water cleaning technologies, antifouling paints and Remotely Operated Vehicles (ROVs). The work closely aligns with that of the GEF-UNDP-IMO GloFouling Partnerships project.

Underwater noise

In addition, IMO is addressing underwater noise from shipping, which is a stress-factor particularly for marine mammals. The GloNoise Partnership project is establishing a global stakeholders' partnership to deal with this major environmental issue. The project will raise awareness and help build the capacity of developing countries to collect information on mitigating underwater noise from shipping.

Game-changing opportunity

Greening the maritime sector is a game-changing opportunity to support global efforts towards climate action, biodiversity protection and less pollution. As detailed above, IMO is taking the lead in ensuring that shipping makes advances in these crucial areas, while delivering on its core mandate to ensure safer, more secure shipping on cleaner seas.

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THE MARITIME STANDARD TRANSPORTATION & CLIMATE CHANGE CONFERENCE



16th April 2024, Dubai, UAE: The Maritime Standard is pleased to announce the staging of the second TMS Transportation and Climate Change Conference (TMS TACCC), which is taking place on Thursday, 26th September 2024, at the high quality Saadiyat Rotana Resort, Saadiyat Island in Abu Dhabi.

TMS TACCC is a prestigious event that brings together industry leaders, experts, and innovators to address one of the most critical challenges of our time: climate change caused by the transportation sector. Join us to discover the latest advances, strategies, and best practices in tackling transportation's impact on climate change across sea, land, air and rail.

Gain valuable insights from renowned speakers as they discuss topics such as United Nations climate change initiatives, carbon footprint reduction strategies, the legal and financial aspects of climate change, sustainable shipping and marine technology, and alternative fuel developments.

This conference provides a unique platform for networking, collaboration, and knowledge-sharing with influential transportation sector executives, government officials, UN representatives, academia, scientists, legal experts, green finance specialists and insurance industry professionals. Engage in meaningful discussions, explore innovative solutions, and learn how to drive positive change in your organization and the industry as a whole.

WISTA INTERNATIONAL'S EXCO MID-TERM MEETING AND CONFERENCE CHAMPIONS CONNECTIVITY AND DIVERSITY IN THE MARITIME INDUSTRY



After a successful mid-term meeting of the ExCo (Executive Committee) of WISTA International, today, the Women's International Shipping & Trading Association (WISTA) holds its Mid-Term Conference with the theme "We Are All Connected in Shipping." Hosted and organised by WISTA Türkiye, this pivotal event brings together industry leaders, experts and stakeholders to explore the interconnectedness of the global shipping sector and advocate for greater diversity and inclusion.

In her opening speech, Elpi Petraki, President of WISTA International, emphasised the organisation's dedication to advocating for its members and the broader maritime, trading, and logistics community.

She highlighted WISTA's proactive engagement in pivotal International Maritime Organization (IMO) meetings, such as the recent Joint ILO/IMO Tripartite Working Group (JTWG), focusing on enhancing the safety of women seafarers and addressing issues of sexual assault and harassment at sea. Additionally, she reaffirmed WISTA's commitment to participating in high-level discussions and initiatives concerning the future of employment within these industries, ensuring that women's involvement and empowerment are integral to decision-making processes.

WISTA International, with over 5000 members in 59 countries, represents a diverse range of industry professionals, including ship owners, operators, mariners, traders, logistics and port executives, legal and finance experts, engineers, government officials and seafarers. Emphasising the importance of diversity, Petraki remarked, "In today's global marketplace, evolution is critical for optimal performance and the best way to achieve greater innovation is through diversity of thought."

The conference agenda encompasses key areas affecting the industry, beginning with insightful keynote speeches by Mr. Tamer Kiran, the Turkish Chamber of Shipping Chairman, and Ms. Mariana Noceti from the Technical Cooperation Division of the IMO. The day's discussions will delve into pressing topics such as the impact of sanctions on shipping, the EU Emission Trade Scheme, technology utilisation onboard and ashore, and the role of Istanbul as an arbitration centre.

The panel sessions will be moderated throughout the conference by distinguished industry figures, including Prof. Dr Ahmet Samim Unan, Mr. Cihan Ergenc, Mr. Levent Sen, and Ms. Nazli Selek. These sessions will feature esteemed panellists from various sectors, offering diverse perspectives and insights into the maritime industry's challenges and opportunities.

In addition to fostering dialogue and knowledge sharing, WISTA International is championing its pledge for diversity and inclusion within the maritime sector. The pledge calls on industry stakeholders to embrace diversity of thought, champion equal opportunity and pay, confront implicit bias, and promote gender-neutral practices in recruitment and evaluation. It invites all industry stakeholders to take their pledge; together, we can work towards a more equitable and prosperous maritime sector.

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GROWING STEADILY: SMM 2024 EXPECTS MORE VISITORS AND EXHIBITORS



From 3 to 6 September, SMM 2024 will once more be the maritime industry's centre of attention. Organisers expect more visitors and exhibitors than last time; the exhibition halls are nearly fully booked. This year's SMM focuses on decarbonisation of the shipping industry. International exhibitors, including start-ups, will showcase smart and efficient solutions. Other topics high on the agenda include Artificial Intelligence (AI) and recruiting young talent.

Less than five months before the beginning of the trade fair, the industry is showing huge interest in SMM: "We are expecting more than 2,000 international exhibitors from 70 nations to be here from 3 to 6 September 2024. This means we are almost fully booked," says Claus Ulrich Selbach. "We are overwhelmed by the response. We are actually setting-up an additional hall to accommodate all requests," says Business Unit Director Maritime and Technology Fairs & Exhibitions at Hamburg Messe und Congress. "Ticket sales are likewise very strong and we are anticipating an attendance of over 40,000," Selbach adds.

Asia showing strong presence at SMM 2024

This positive development is in part attributable to the fact that more Asian exhibitors and visitors are reporting back after the pandemic. In particular, China and Korea, the two leading shipbuilding nations, will have a stronger presence again at SMM 2024. The second key factor is the unique standing of SMM in the marine industry. Those who travel to Hamburg in September will be able to meet international exhibitors, explore state-of-the-art technologies, and attend conferences featuring renowned speakers as well as attractive networking events. "The high quality and the internationality and density of key industry players at SMM are unparalleled world-wide," says Selbach.

Future Fuels Arena and AI CENTER

The main topics at SMM 2024 will address key needs of the industry: In recognition of the rapidly growing importance of smart innovations, SMM will provide a section specifically dedicated to Artificial Intelligence for the first time: At the AI CENTER, start-up companies will highlight AI technologies and projects for the maritime industry (Hall B6). "AI fundamentally changes our economy and our business processes - across all industries. It harbours many opportunities for the shipping sector, as well," says Petra Vorsteher, Co-Founder and CEO of AI.HAMBURG and initiator of the AI CENTER. Examples include innovative solutions enabling ships to operate more efficiently. But the key to carbon-neutral shipping is alternative fuels. They are an essential prerequisite for a successful Mission Zero Emission. "Shipowners have been reducing their emissions by as much as 30 per cent through efficiency enhancements. An additional 10 per cent is possible. But the rest must come from alternative fuels," says Dr Martin Kröger, Managing Director of the German Shipowners Association

(VDR). At the global maritime environmental congress (gmec) experts will discuss the pros and cons of various alternative fuels. Great hopes are being placed on hydrogen. Companies specialising in this clean technology and its derivatives will have a dedicated exhibition area of their own for the first time, the Future Fuels Arena (Hall A2).

Cruise industry: Innovator for sustainability

MARINE INTERIORS @SMM (Hall B5) is a fixture at SMM. With a total of 130 exhibiting companies from 20 countries specialising in ship interior design, this special exhibition section will be significantly larger this year. The Cruise Lines International Association (CLIA), an official SMM Partner, will be represented for the first time: On the Cruise & Ferry Stage, the leading organisation of the cruise industry will hold various sessions on sustainable cruises - a subject the cruise sector is placing great emphasis on, as a look at the global orderbook shows: From now until the end of 2026, 41 new cruise ships will be delivered; 27 of them will be equipped with alternative propulsion systems. This includes LNG-ready engines, and many LNG-fuelled ships will also be methanol-ready. "The introduction of these new technologies and the many pilot programmes and trials in place reveal how the cruise industry is an innovator and early adopter of technologies that are helping us sail to a more sustainable future," says CLIA CEO Kelly Craighead.

Sustainability & Recruiting

The maritime industry is hoping that its eco-friendly mindset will attract the young talent it urgently needs. To support the sector's recruiting efforts, SMM 2024 will put the spotlight on this topic. For the first time, the Maritime Career Market and the Career Forum will take place on two days (Hall B2). "Young people are especially concerned about sustainability. At the Maritime Career Market, companies can demonstrate how much the maritime industry has to offer," says SMM Director Christoph Lücke. This is where young jobseekers can meet potential employers. They will receive information about jobs on shore and at sea as well as training programmes, career opportunities and job openings in the maritime sector.

About SMM

The leading international maritime trade fair takes place in Hamburg from 3 to 6 September 2024. More than 2,000 exhibiting companies and around 40,000 visitors from over 100 countries are expected to attend. Covering the entire value chain of the maritime industry on 90,000 m² in twelve exhibition halls, SMM is the world's foremost platform for innovation and the latest technologies in the maritime sector that brings together business leaders from around the world. Themed "SMM - driving the maritime transition", the 31st SMM will focus on the maritime energy transition and the digital transformation. An attractive conference programme and a wide range of networking opportunities will supplement the exhibition. For the first time, the conferences will take place on open stages inside the exhibition halls - free of charge, and accessible to all fair visitors.



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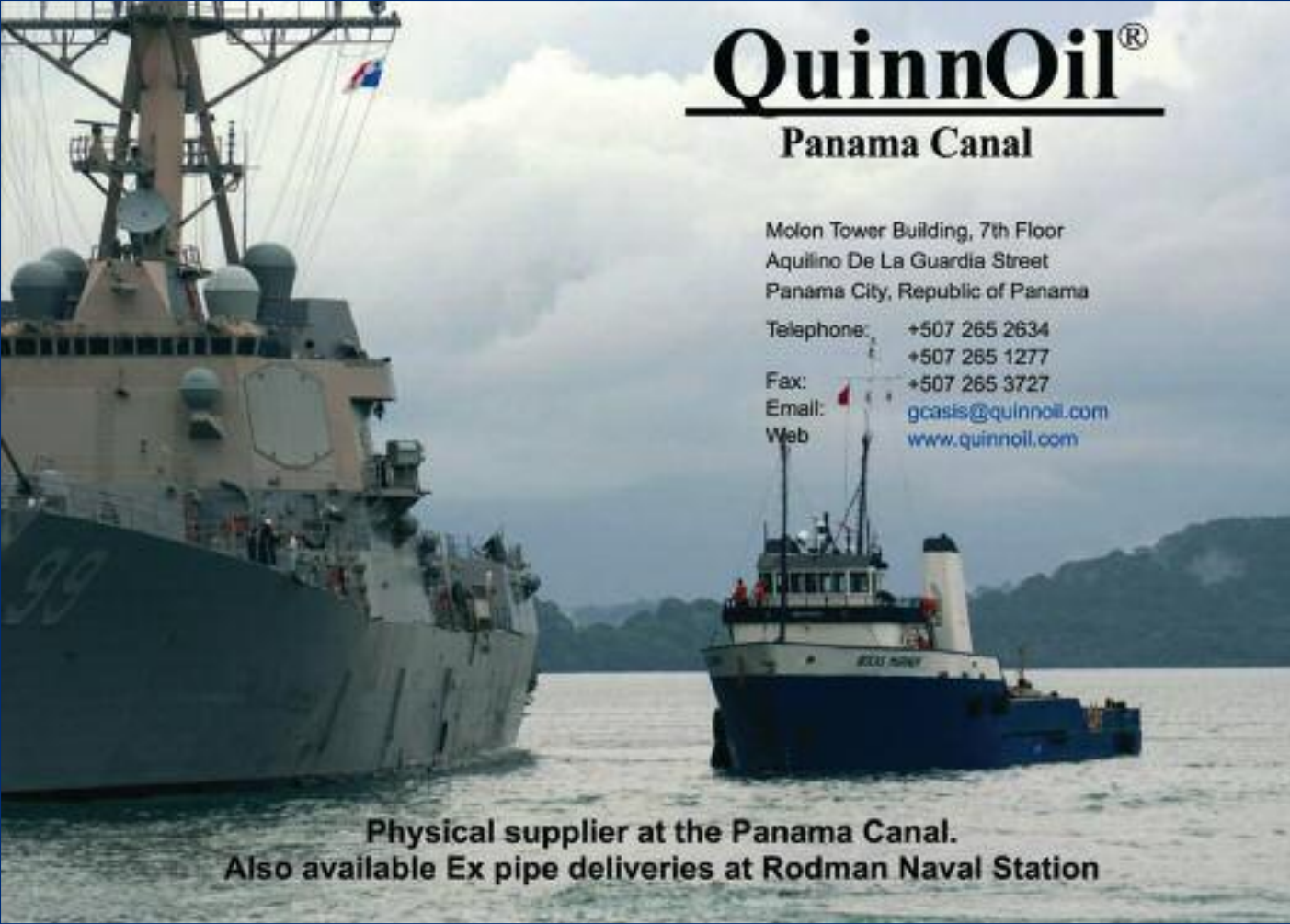
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NAVIGATING THE GREEN WAVE: SCRUBBERS' VITAL ROLE IN THE ENVIRONMENTAL TRANSFORMATION OF THE SHIPPING INDUSTRY

The uncertainties surrounding the availability and environmental impact of green fuel throughout the well-to-wake lifecycle emphasize the rationale for the existence of scrubbers.



An exhaust gas cleaning system (EGCS), also known as a scrubber system, is an internationally acknowledged technology developed to meet the International Maritime Organisation's (IMO's) regulations to reduce greenhouse gas (GHG) emissions from international shipping, but few realize that using higher sulphur fuel oil (HSFO) or heavy fuel oil (HFO) with a scrubber system in fact appears to be the most cost and environmentally beneficial way to reduce emissions considering the well-to-wake GHG emissions of marine fuels in general.

Predicting future ship fuel has become nearly impossible, prompting ship owners to find ways to secure the needed capacity. However, only a fraction of the required green fuels seems to be available, necessitating a focus on future-proof seaborne logistics that are cost-effective and, at the same time, comply with stricter global regulations.

As a tech company, we believe it is necessary to look at the impact of technologies on the environment from a more holistic perspective. Instead of implementing outright bans, regulations for emission limits could be tightened, allowing us as a company to optimize the technologies, accordingly, says CEO Anders Skibdal, PureteQ.

Scrubber systems are encountering political opposition in the climate debate, despite their proven value in combating air pollution and cost-effectiveness for the shipping industry. Overall, scrubbers remain a vital technology irrespective of fuel, as even new e-fuels require scrubbing for unintended emissions. Additionally, scrubbers are integral to future carbon capture technologies.

A future with onboard carbon capture

Committed to combating climate change, PureteQ Group continually enhances existing technologies and invests in research and development within the fields of carbon capture and power-to-x. The PureteQ scrubber system is partly carbon capture ready and may thus be upgraded later if feasible and the infrastructure for captured carbon is made available at major trading ports on a worldwide basis.

According to CEO Anders Skibdal of PureteQ, we are witnessing an increase in demand for Onboard Carbon Capture & Storage (OCCS), and hardly a day passes without discussions with shipowners and other stakeholders on OCCS. We will soon witness the first operational amine-based systems, but the value chains remain unclear, and legislation must catch up with the development of new technologies.

Energy Efficiency Design Index (EEDI), Energy Efficiency Existing Ship Index (EEXI), and Carbon Intensity Indicator (CII) still lack a 'negative C' in the formula, so that shipowners investing in OCCS will receive credit for the captured and stored CO₂. Container ships may be the first to adopt this new technology, given that they already have some infrastructure in terminals for handling ISO containers with liquid CO₂.

PureteQ Group is currently commissioning its subsidiary company ESTECH's patented technology called CAPPOW – a combined carbon capture and power-to-x plant, with plans for the grand opening in September this year. Part of this technology will be offered to ships in 2026.

Energy efficient technology

PureteQ specializes in designing and maintaining scrubber systems. With established offices in Europe and Asia and extensive expertise in exhaust gas cleaning, PureteQ is a leading service provider for all scrubber brands globally. A team of marine engineers assist shipowners and operators in safeguarding continuous operation, reliability, and MARPOL compliance of scrubbers.

While PureteQ scrubber systems are known for their high energy efficiency, even less efficient ones can be fine-tuned to lower electrical consumption caused by excessive scrubbing. To support this effort, we've introduced Pure-SPOT, a cloud-based Scrubber Performance Optimization Tool for enhancing system performance and generating reports. Interest in this free platform is growing, as it enables ship owners and operators to reduce fuel costs.

PureteQ maritime scrubbers now come as outdoor weather-proofed models for easy installation of existing superstructures and can handle loads of up to 100MW. They are equipped with a user-friendly control system allowing real-time remote access and support. The energy performance is superior due to the patented hydrodynamic fluid distribution system, which eliminates interior obstructions.

Installation of PureteQ scrubber systems will not only reduce fuel costs but also substantially reduce the emission of particulate matter and black carbon, also emitting less CO₂ well-to-wake as a side benefit.



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Who we are:

Founded in November 2014 as a Fujairah Free zone company, it now has physical offices in Fujairah, Singapore, Las Palmas, Gibraltar, Houston, Panama and Rotterdam

We provide a full range of specialized marine services to all types of vessels serving our esteemed clients from our base offices in UAE, Singapore, Gibraltar, Las Palmas, Houston, Panama and Rotterdam. These include but not limited to Bunker and Cargo Quantity Surveys, Shipping Agency services, Technical Services and Surveys, Bunker claims, Vessel Commercial Management, Marine consultancy. All services are rendered by dedicated individual teams lead by senior master mariners, chief engineers and industry experts working within the Viking Ethics of highest levels of professionalism. We also service ancillary ports from our major hubs which include entire Middle East, Indian Subcontinent, Far East including South Korea, China and Japan, UK Cont, Mediterranean ports, Americas and Africa Continent.

Our Vision:

We believe change is the only constant, without change there is no creativity and innovation

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Bunker and Cargo Quantity Surveys

Our experienced surveyors offer impartial, independent quantity measurement inspection services for marine fuels and issue detailed reports to confirm fuel quantity and quality. These reports help clients support bunker shortage and or quality disputes.

Agency Services

The entire scope of agency (husbandry and cargo services, logistics and warehousing) are being catered to our clients and the department is well equipped with various specialist operators with both sailing and shore experience along with complete in-house logistics support.

Technical Surveys

We conduct surveys on behalf of P & I clubs and H&M insurance underwriters. Through our personal intervention as unbiased mediators we convince claimants to minimize losses through segregation, re-conditioning and repair.

Commercial Vessel Management

Viking Fujairah manages Oil and Chemical tankers (MR and Panamax) and has the resource and expertise of handling Gas carriers and Bulk Carriers for various clients.

Bunker Technical and Claims division

We can be the dedicated desk handling your bunker technical matters globally as and when needed 24/7 support service is provided to respective buyers/sellers/traders in the event of an issue such as Compatibility issues, Wrong grade of product, Sampling of product, Investigation onboard vessels, Clarification on sales terms, Clarification on product quality, Type of testing needed i.e. full test, fingerprint parameters, complex test outside ISO 8217.

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We offer a truly unique 24/7 global network of dive stations duly reviewed and audited by our hub dive stations in Singapore and UAE. We assist our clients by analysing vessel performance data with regular – in water hull inspections to ensure optimization of the hull cleaning intervals to have maximum efficiency on vessels hydrodynamic performance and fuel consumption. In addition we assist our clients in making educated decisions on the best technology and equipment available in various ports.

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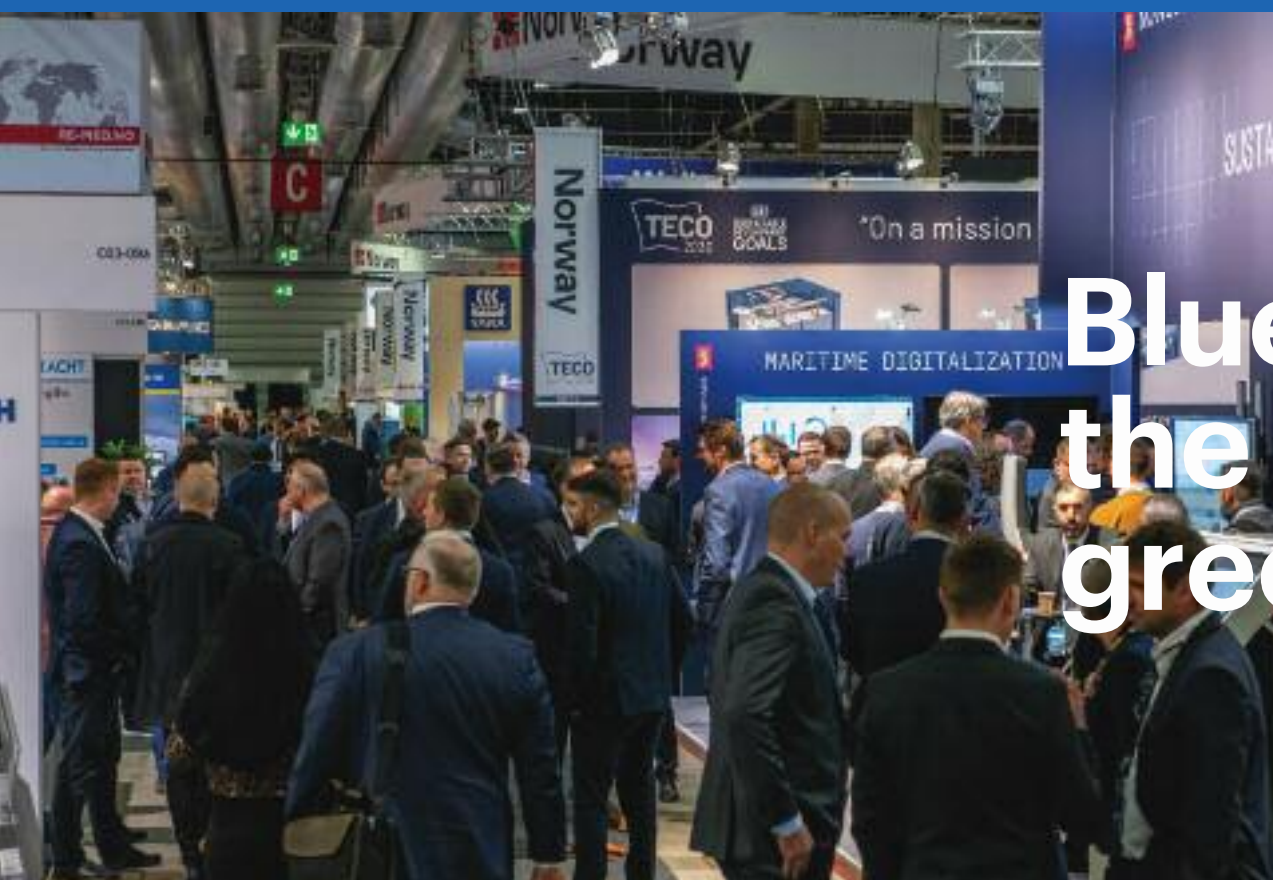
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FUTURE SUSTAINABILITY OF THE SHIPPING INDUSTRY IS VITAL

THE BMA EXPLAINS HOW THE FLAG IS WORKING TO MAINTAIN THE MARITIME SECTOR'S FOCUS ON ENVIRONMENTAL AND SUSTAINABILITY ISSUES.



Capt. Ghulam Hussain, Deputy Director, Maritime Affairs, The Bahamas Maritime Authority

With recent data showing that the world has experienced its warmest March ever and with sea surface temperatures also at record highs, the need for us all to act has never been clearer. As a Small Island Developing State (SIDS) whose very existence is dependent on the maintenance of sea levels at their current level, The Bahamas has a deep commitment to the IMO Green House Gas (GHG) Strategy. The country is represented at the IMO by Ambassador Rolle and The BMA's Maritime Affairs team headed up by Capt Ghulam Hussain.

IMO GHG Strategy

The IMO strategy was revised in 2023, and now includes an enhanced common ambition to reach net-zero GHG emissions from international shipping by or around, i.e. close to, 2050, and also states a commitment to the uptake by the maritime sector of alternative zero and near-zero GHG fuels by 2030. The strategy outlines indicative checkpoints in both 2030 and 2040.

At the 16th Session of the Intersessional Working Group on Greenhouse Gas, ISWG 16, The Bahamas was co-sponsor to document ISWG-GHG 16/2/3 which explores the technicalities and economic elements of implementing the strategy. The Bahamas was particularly involved in the development of the Annex to the document which sets out the suggested draft regulations for a contribution system, including the establishment of an IMO Maritime (GHG) Sustainability Fund (IMSF) with the specific purpose of supporting developing countries, especially Least Developed Countries (LDC) and SIDS, with significant funding.

MEPC 81

The Bahamas was also present at MEPC 81 (the 81st Session of the Marine Environment Protection Committee), where a basket of candidate measures, comprising of a combination of both the technical element and the economic element, was being developed as set out in the 2023 IMO GHG Strategy. Various measures were proposed such as: in terms of the technical element, a goal-based marine fuel standard regulating the phased reduction of GHG intensity (in other words a GHG Fuel Standard); and for the economic element, posing a levy against GHG emissions (a Universal Mandatory GHG Levy) and a combination of placing a tariff on ships operating on fossil fuels and rebating revenues to ships operating on zero-emission fuels (feebate). It is hoped that through a combination of incentives and disincentives, it will be possible to speed up the transitional process towards greener fuels.

MEPC 81 also approved new guidance for the temporary storage of treated sewage and grey water in ballast tanks as well examining how the impact of shipping's Black Carbon emissions on the Arctic could be reduced in the future.

As one of the world's leading ship registries as well as a SIDS, The Bahamas is in a strong position to promote the needs of LDCs and similarly situated island states on the global stage. It will continue to proactively engage in developments leading to meeting the benchmarks agreed upon by the revised Strategy of 2023.

Protecting our oceans

Although The Bahamas is primarily involved in the GHG strategy, it is also keen to ensure that the marine environment is also protected. The pristine waters surrounding the country's many cays and islands are renowned throughout the world and attract visitors from all five continents. The Bahamas is therefore a supporter of a number of organisations working to preserve our oceans and marine life including NAMEPA (North American Marine Environment Protection Association) which works with stakeholders including industry, governments and educational establishments to raise awareness among the public about the importance of protecting our oceans, and Eyesea, a non-profit organisation which is mapping marine pollution in order to protect the ocean.

The importance of the Greek shipowners

Of course, making up 21% of the world deadweight capacity, the Greek maritime sector will be playing a vital role in the sustainability of the industry as we move towards 2050. The Union of Greek Shipowners has led a number of initiatives that are designed to ensure a sustainable future for the shipping sector whilst simultaneously protecting the marine environment and HELMEPA (the Hellenic Marine Environment Protection Association) has been encouraging the industry, from ship owner to seafarer, to acquire environmental consciousness for more than four decades.

The Bahamas remains keen to support its Greek clients as they make challenging decisions about the future of their fleet. Many Greek ship owners seem set to opt for a hybrid energy model incorporating a combination of new and current technology. There is a feeling that the infrastructure from the shipyards, engine makers nor fuel suppliers is not yet in place for any one new fuel to take precedence. The Bahamas will provide assistance throughout this period of change while crews, owners and managers alike adjust to alternative energy sources. Whether searching for personnel training or ensuring compliance with regulatory requirements, we will be with our clients every step of the way as they move towards to 2050 IMO GHG deadline.



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Jan Fransen, Executive Director at Green Award Foundation

2024 holds significant importance for us at the Green Award Foundation as we celebrate a milestone year in upholding the highest standards of environmental performance and safety in the shipping industry.

Throughout the past 30 years, we have diligently identified, recognized, and motivated shipping companies and ports to enhance their environmental, social, and governance performance through our non-profit certification scheme.

"Recognizing our efforts, the European Union extended an invitation earlier this year to collaborate with them in ensuring that shipping companies and ports adhere to the new EU waste shipments regulation.

We are truly humbled to partner with the EU to scale one of the things we have been doing over the past three decades to regulate the shipment of waste within and beyond EU borders, to protect the environment and public health," said Jan Fransen, Executive Director at Green Award Foundation.

In the first quarter of this year, the forward-thinking Port of Rotterdam and the Port of Amsterdam adopted our sustainability incentives and ship waste module in compliance with EU regulations. This commendable step is truly significant, not only for the ports, but because of the influential role that they play in the region, and industry at large.

We also certified and welcomed eight new Japanese ports, expanding our footprint in Asian space.

"Dozens of ship operating companies and ports have already made the strategic choice to fly the Green Award flag from their masts, not only to gain economic value but also to demonstrate their commitment to environmental stewardship.

We extend an invitation to more shipping companies and ports in Europe and beyond to join us in flying the Green Award flag," Jan added.

As we raise our glasses in a toast to the last 30 years, one thing is for sure - we are not resting on our laurels.

THE ORKNEY HARBOUR AUTHORITY

Ever since the commencement of the Flotta Oil terminal project in 1974, the Orkney Harbour Authority has been challenged with balancing the protection of the marine environment with the arrival of volume oil and gas related shipping, and this is a challenge that the Harbour Authority, owned and operated by Orkney Islands Council has met.

Fast forward 47 years and the Flotta Oil Terminal continues to see tanker uplifts of North Sea product leaving Scapa Flow, the arrival of semi-submersible rigs and regular ship to ship transfer operations of both crude oil and gas, the monitoring of Orkney waters continues to be an integral element of the Harbour Authority's daily activity.

The Marine Environmental Unit (MEU), based at the Harbour Authority building in Scapa, has been monitoring the marine environment of Scapa Flow and the wider Orkney island archipelago since the Authority's inception in 1974, when the unit was set up in response to an Environmental Impact Assessment that was carried out prior to the development of the Flotta Oil Terminal.

Head of the MEU is Dr Jenni Kakkonen who, with her team of technicians, conducts a range of monitoring programmes in the Orkney waters. The sandy beach monitoring programme includes 13 sites around Scapa Flow with the rocky shore monitoring programme covering 21 sites across Orkney. As part of her PhD marine biologist Jenni analysed data from the sandy beach sites between 1974 to 2016.

The Orkney Islands Council ballast Water Management Policy was approved by the council in December 2013 and contains 2 environmental programmes;

- The Ballast Water Monitoring Programme
- The marine non-native species monitoring programme.

Since then, when the first ballast water sampling event was carried out on a vessel moored in Scapa Flow, the MEU has gained several years of experience in ballast water sample collection and analysis. From 2013, when a comprehensive baseline survey of the Scapa Flow harbour area was conducted, data has been collected and reported on with a follow on of an annual marine and brackish water non-native species monitoring.

We are proud of our marine heritage and environment and take the stewardship of our waters very seriously, something that is shown by being the only UK port that has an in house marine environmental team headed by a marine biologist.



Orkney Harbours Masterplan

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