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TECHNOLOGY

News from OCIMF

OCIMF provided an update to SIRE 2.0, attended and ran meetings in Asia Pacific, and held interesting meetings on emissions and shore power. Our summary of its March and April newsletters

OCIMF reported in its April newsletter (sent out on May 1) that SIRE 2.0 is "on track to achieve our Critical Success Factors for transitioning to Phase 4 in Q3 this year."

All programme users are encouraged to review the SIRE 2.0 material on the OCIMF website to ensure readiness, OCIMF said.

OCIMF's SIRE 2.0 Secretariat members along with the VIP Steering Group met in March to review the progress of Phase 3 of the SIRE 2.0 transition.

This was an opportunity to review the data from the Phase 2 and Phase 3 inspections completed so far. Also to hear an update on the status of the SIRE 2.0 Training and Accreditation process, and to review the status of all Phase 3 critical success factors to establish readiness for go-live.

Asia Pacific

OCIMF is prioritising Asia Pacific and South / Central America for its "Member Participation plan" in 2024.

In April, OCIMF staff visited Singapore, Indonesia, and Malaysia, to meet with local membership and attend Singapore Maritime Week.

Over 150 people attended "OCIMF Day" in Malaysia on April 22. The event was supported by tanker operator MISC and brought together OCIMF's regional members, customers, inspectors, SIRE users, operators, ports and government representatives.

Speakers included Captain Mohamad Halim Bin Ahmed, Director General of Marine, Ministry of Transport, Malaysia and Captain Ade Gunawan from Pertamina. Presentations from the day are available on the OCIMF Events page.

OCIMF's Onshore Power Supply working group visiting Berth 121 in the Port of Long Beach, the first berth for tankers ready for onshore power supply

Also, a one-day workshop was held in Shanghai on Feb 28 to help tanker operators in China transition to SIRE 2.0.

London women event

OCIMF is sponsoring the International Women in Maritime Day in London on May 14, co-hosted jointly with Trinity House and the Women's International Shipping and Trading Association (WISTA).

Drug and alcohol

OCIMF has updated its information paper with guidance on how shipping companies can develop their policy, standards and create procedures for controlling drugs and alcohol onboard. The paper covers workplace testing, although not testing associated with the treatment and recovery of identified substance dependency cases, nor return to work testing.

It replaces the first edition published in 1995. the second edition has already been withdrawn (in 2020). It can be downloaded at https://www.ocimf.org/publications/information-papers/guidelines-for-the-control-of-drugs-and-alcohol-in-the-maritime-industry

Converting barges to "closed operations"

OCIMF has published an information paper with recommendations for converting inland tank barges from 'open' to 'closed' cargo operations, where there is no possibility for liquid or fumes to leak. it is written for the benefit of regional barge companies in South and Central America and based on industry publications and best practise.

Piracy update

OCIMF, represented by member company Ampol, attended the 18th meeting of the ReCAAP Information Sharing Centre

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Governing Council in Singapore in March. The Council noted that a total of 100 incidents of armed robbery against ships were reported from January to December 2023, representing a 19% increase on the 84 incidents reported in 2022.

Somalia piracy growth

OCIMF reported IMB data that there had been 33 incidents of piracy and armed robbery against ships off Somalia in the first three months of 2024, an increase from 27 incidents for the same period in 2023.

Of the 33 incidents reported, 24 vessels were boarded, six had attempted attacks, two were hijacked and one was fired upon. Violence towards crew continues with 35 crew members taken hostage, nine kidnapped and one threatened.

IMB Director Michael Howlett said: "We reiterate our ongoing concern on the Somali piracy incidents and urge vessel owners and Masters to follow all recommended guidelines in the latest version of the Best Management Practices (BMP 5)."

Meetings

OCIMF's Tankers, Barges and Terminal interfaces (TBT) Committee held its 8th meeting in Kuala Lumpur on 23–24 April, with the support of MISC Maritime Services. The meeting noted industry concerns regarding enclosed space entry fatalities and supported next steps to address this with industry partners.

The tenth Onshore Power Supply (OPS) Working Group meeting was held in La Palma, California, hosted by Marathon Petroleum. The group had the opportunity to visit berth 121 in the Port of Long Beach, which was the first berth for tankers ready for onshore power supply. Key points discussed included current per connection requirement, type of connectors, cable design, lifting and handling, scalable number of cables and ship's inlets and associated safety measures, cable tension and movement monitoring, and frequency conversion.

The third Emissions Capture and Control (ECC) Working Group meeting was held in La Palma, California, hosted by Marathon Petroleum. The group had the opportunity to visit two ECC barges that serve container ships in the Port of Los Angeles. During those visits, the group discussed technical and safety aspects associated with the operation of ECC systems.

Topics discussed included design and operation of the ECC barge in the proximity of hazardous atmospheres and safe positioning of ECC collector; barge's manoeuvring and position-keeping, including emergency scenarios; and tanker emergency departure from the terminal. TO

Tanker hits pier due to "bank effect" - NTSB

An investigation into a tanker hitting a pier in a river in South Carolina found it was probably due to the "bank effect"

An investigation into a 600ft (183m) tanker hitting a pier on the Cooper River, South Carolina by the US National Transportation Safety Board found that the probable cause was the pilot manoeuvring the vessel too close to a riverbank before a turn of the river.

The pilot manoeuvred the vessel closer to the left bank as approaching a left turn of the river around the bend.

The manoeuvre caused the vessel to experience what NTSB calls "bank effect". This is where the ship's bow is pushed away from the bank and the stern is pulled towards the bank, while transiting confined waters.

The pilot's subsequent rudder and engine orders could not overcome the bank effect. The tanker struck a pier on the opposite side of the bank.

"Bank effect can have an undesired effect on vessels, even for the most experienced ship handlers," the report stated.

"Hydrodynamic forces reduce rudder effectiveness (squat and shallow water effect) and yaw the bow away from the closest bank and pull the stern in," the report said.

"When manoeuvring in shallow waters such as channels, shoaling can reduce the water depth below charted or expected, and therefore exacerbate the forces on a vessel. Pilots, masters, and other vessel operators should consider the risks in areas known for shoaling when planning transits."

The pilot stated that he manoeuvred the vessel to the left side of the channel because he "expected to slide toward the outside of the bend, as the estimated 1-knot flood current would push his vessel north when the bow entered the bend."

Incident facts

The incident happened on September 5, 2022, at time 1602. The report was published on April 30, 2024.

The incident led to the collapse of a 300-foot section of pier at Joint Base Charleston's Naval Weapons Station in South Carolina.

There was $2.5m damage to the vessel's bow. Damage included a punctured bulbous bow and damage to the side shell, frames, and stringers in way of the forepeak ballast tank and the no.1 starboard ballast tank.

The cost to demolish and reconstruct the damaged portion of the pier was $27m.

There was no pollution or injuries.

The vessel was owned by Goldex Fortune Ltd, operated by Odfjell Management, and flagged in Norway. It was built in 2015.

The pier the vessel hit, pier B, was 966 feet long and at a 30-degree angle to the west bank of the river. The whole channel was 600 feet wide at pier B.

Another vessel also hit a pier after attempting the same turn in the river on January 14, 2024. This is also being investigated. TO

The full report Marine Investigation Report 24-09 is available online here **www.ntsb.gov/investigations/AccidentReports/Reports/MIR2409.pdf**

MEPC 81 and the future decarbonisation regulations

IMO's MEPC 81 meeting discussed how IMO's revised decarbonisation goals will be achieved through regulation, with separate technical and commercial elements, and some disagreement. DNV experts explained

IMO's MEPC 81 meeting in March 18-22 2024 had discussions about how IMO will actually regulate the drive for shipping to decarbonise, beyond the regulations made already (CII, EEDI, EEXI).

DNV experts Eirik Nyhus, director for environment at DNV and Tore Longva, director for decarbonisation regulatory affairs at DNV, told the story.

The discussion builds on IMO's MEPC 80 meeting in July 2023, when everybody was very pleased that consensus was reached about tightening IMO's decarbonisation targets, setting a goal for well to wake decarbonisation by 2050.

Also intermediate targets were agreed of 20 per cent reduction by 2030 and 70 per cent reduction by 2040; and a target by 2030 that 5 per cent of all vessel energy use should be from zero or near zero fuels, technologies or other energy sources.

At MEPC 80, there had been a consensus that new regulations would be needed, because CII, EEDI and EEXI were not sufficient to achieve the goal. And these new regulations would have both a technical and a commercial element.

The new technical regulations would require a gradual reduction of the greenhouse gas emissions from fuel used, either from using lower carbon fuels, or ways to capture the emissions. The commercial regulations would impose costs on emissions.

At MEPC 81, there was no effort to backtrack on previous agreements, but there was serious disagreement about how this could be achieved with practical and enforceable regulations.

Some countries dispute that IMO should get involved in the details of regulating fuel production (the 'well to tank' section), saying it is not IMO's business, and should be left to other regulatory bodies addressing fuel production.

Some countries dispute that there should be any levy which appears to be a tax on trade. They argue that the need for a "commercial element" can be satisfied by trading between shipping companies who have gone further than required to reduce emissions from their fuels.

New regulations are expected to be effective on January 1 2028, which means they "enter into force" in 2027. This requires that they are approved at MEPC 83 in Spring 2025, and adapted at an extraordinary session of MEPC in October 2025, Mr Nyhus said.

For shipping companies, it is important to recognise that the regulations will drive a shift to more expensive fuels. It will continue to be important to focus on improving efficiency.

It will be increasingly important for shipping companies to know and understand their emissions data, including to figure out where there will be additional costs, and if they can be passed onto anyone else.

The new regulations will apply to the same ships as existing decarbonisation regulations, traditionally vessels of 5,000 GT and larger. Some countries but not all would like the next series of regulations to also apply to smaller vessels.

A further challenge is that data of 'well to tank', or upstream emissions from 2008 is not available. But this is the baseline year which is used to calculate what a certain percentage reduction amounts to. This data is "likely to be produced" for the next IMO Greenhouse Gas study, Mr Nyhus said. They can also be estimated by adding 15 per cent to the tank to wake emissions.

IMO is also planning an "impact assessment" looking at social and economic impacts of different possible rules, with costs on trade, ships and nations, to be delivered before MEPC 82, to help inform its decision making.

Technical element

The "technical" element of the future regulation is based on fuel intensity. It will set a limit on how much greenhouse gas a fuel can cause to be emitted, calculated in grams CO2 equivalent per energy unit, with this limit steadily decreasing. It is similar to EU's Fuel EU regulations. It is called the Greenhouse Gas Fuel Standard (GFS).

There are two core proposals on the table. (There were other proposals but most of the discussion was on these two, Mr Nyhus said).

One is to establish a criteria for calculating the well to wake footprint, applying IMO's Lifecycle Assessment (LCA) guidelines.

The other is to only calculate tank to wake emissions but then multiply them by a factor which is different for different types of fuel. This was put forward by China, with co-sponsors from Norway and Latin America.

The logic behind this proposal is that IMO should not be attempting to regulate carbon emissions from fuel production, it should focus only on maritime matters. There are plenty of other regulatory initiatives to drive production of lower carbon fuels.

Economic element

The "economic" element of the regulation has two possible components.

The first component is a system that allows trading between vessels based on the fuel intensity achieved, so that an over complying vessel can 'sell' its overcompliance to an undersupplying one through a pool mechanism.

It is possible that the IMO regulations should include the ability to purchase and sell 'compliance units'. But some countries are sceptical about that, envisaging that this flexibility "will lead to greater costs for developing countries," such as if it proves easier for developed countries to access low carbon fuels.

The EU is suggesting that there could be pooling, similar to how it works under FuelEU Maritime, where owners are free to put any number of ships into a pool and

the regulator only looks at the fuel intensity achieved by the pool overall, not individual ships.

There are also suggestions that pooling should be limited to vessels of the same ship type, owner or flag. For a shipowner, it would be useful for the pool to be as flexible as possible, Mr Nyhus said.

Low carbon fuels are unlikely to be available everywhere in the world at the same time, so pooling would enable vessels which do have low carbon fuels to 'sell' overcompliance to vessels who can't access them.

The second economic element is consideration of a direct levy shipping companies pay based on the CO2 they emit, as a completely separate system.

The European Union is "firm in its view" that this separate economic instrument is needed, Mr Nyhus said. They don't believe the fuel intensity regulation is enough by itself to get the fuel transition moving as quickly as is desired.

A number of Pacific States and Caribbean islands (not all of them) are arguing for a fixed levy of $150 per tonne of CO2, equating to $470 per tonne of conventional fuel burned.

But China, the entire South America, plus some African and Asian countries, and Russia, believe that such a levy would equate to a tax on trade, and crosses their 'red line'. They argue that the trading of compliance units described above is enough to satisfy IMO's requirements for an "economic mechanism".

IMO does not operate on votes, it operates on consensus. So the outcome will be something everybody is able to agree on, not necessarily the most popular choice.

"This is a really challenging issue," Mr Nyhus said. "We have to move fairly quickly on this. We need to have a broad framework established by the end of MEPC 82 in October. Half a year of really tough negotiations to sort out all these political issues."

"Generally IMO has been really good in the greenhouse gas space at keeping to the agreed timeline on regulatory developments," Mr Nyhus said. "I have pretty strong faith IMO will manage to stick to the timeline."

If there is to be a levy, the next question is the mechanism for collecting it, although this discussion is "a little bit premature," Mr Nyhus said, given that "it is by no means given that we will get a levy."

Regulatory overlap

There will be increasing overlap between the international IMO regulations, and non global regulations such as from the European Union. "You'll have to comply with regulations relevant to where you are trading," Mr Nyhus said.

Even though IMO's Greenhouse Gas Fuel Standard and IMO's Fuel EU maritime are "conceptually similar" they will calculate numbers differently, so you will need to calculate both.

There is unlikely to be any rush to mothball regulations, because people will want to see that any replacement regulations are doing the job first, Mr Nyhus said.

Onboard carbon capture

There was a discussion about onboard carbon capture and storage at MEPC, something which had been planned and postponed at "quite a few" previous sessions.

Various working groups will consider the method for assessing shipboard carbon capture, and making a lifecycle assessment of emission reductions. They will address how it will change a vessel's CII, EEDI and EEXI score.

The expected shortage of biofuels and other low carbon fuels means that carbon capture will be important as a way to decarbonise while working with existing fuels.

There were concerns that any carbon capture regulations should not be too specific to any technology, since in the future there may be technologies to capture carbon directly onboard, rather than capturing carbon dioxide gas from the exhaust. "The industry is looking at many different options, not just conventional amine based," Mr Nyhus said.

More data capture

MEPC discussed amendments to the required ship data collection system (DCS). There will be requirements for more granular reporting of fuel consumption, with separate data for consumption from main engines, auxiliary engines and others. The consumption data for individual consumers must add up to be the same as the vessel's total fuel consumption.

The amended regulation will require data to be gathered about 'transport work', i.e. the amount of cargo carried, as well as the vessel deadweight and miles, which is already included.

Other developments

The fuel lifecycle assessment (LCA) guidelines continue to be developed. These provide the methodology for calculating well to wake or tank to wake emissions.

The first version was released in the July 2023 MEPC meeting. There has been another revision since then, and there will be further revisions, we heard in the webinar.

The guidelines already explain how to quantify a number of factors relating to biofuels such as land use; how to evaluate emissions in generating electricity used to make e-fuels; how to calculate the actual tank to wake emissions; and some default emissions factors for certain pathways.

The correspondence group is working on a method to measure tank to wake emissions of methane and nitrous oxide.

Scientific working groups are doing a peer review of the various methods to calculate default emissions factors. They are discussing how to address onboard carbon capture, how fuels can be certified, and what criteria makes a fuel 'sustainable'.

The CII regulation is planned to be reviewed, with analysis starting at MEPC 82 in Autumn 2024, with decisions made in Spring 2025. There could be new correction factors, voyage adjustments, new metrics and new reference lines, Mr Longva said.

CII is still seen as the main tool to achieve the 20 per cent carbon intensity target by 2030, and shipping companies should not consider it as just an interim measure, he said.

Revised guidelines for the over-ridable shaft engine shaft power limitation were adopted, to be in line with what is stated in IACS regulations.

There was discussion about how a fuel would qualify as "zero or near zero" emissions, with a proposal that it should mean a 90 per cent reduction in fuel intensity from a baseline. The definition will become more important in future decades. "We'll probably be revising that one at MEPC 82," he said.

This report is from a DNV webinar about MEPC 81 held on Apr 3 2024. It can be viewed online at

www.dnv.com/maritime/webinars-and-videos/on-demand-webinars/access/mepc-81-summmary/

UK cargo ship / gas carrier collision

A cargo ship collided with a gas carrier which was stationary due to an engine fault. Neither vessel kept a proper watch, and alarms had been disabled, a UK investigation found

The UK Maritime Accident Investigation Board published its preliminary assessment of a collision between general cargo ship Scot Explorer and gas carrier Happy Falcon.

The Happy Falcon had stopped its engine to make engine repairs. It did not give out expected signals. Meanwhile the master on the Scot Explorer was not monitoring traffic. The alarms had been disabled.

The Scot Explorer master was warned by another crewmember 40 seconds before impact; the master tried to change course using autopilot. A bigger course change would have been possible with manual steering, which could have avoided the incident.

Scot Explorer's management company Intrada Ships Management has carried out an internal investigation into this collision; issued a safety bulletin to its fleet about the accident and the role of the watchkeeper in ensuring safe navigation; and written to each of its masters sharing its expectations for safe navigation.

Navigator Gas Ship Management (Denmark) ApS, the manager of Happy Falcon, has carried out an internal investigation into this collision; scheduled Bridge Resource Management refresher courses for the master and officer of the watch; updated its safety management system and bridge emergency checklists to include engine breakdown and actions to be taken when the vessel is unable to manoeuvre and keep out of the way of another vessel; updated its Bridge Resource Management procedures to ensure the bridge is appropriately manned when a vessel is not under command; issued a safety bulletin to its fleet about the accident and the lessons learned.

The story

The incident occurred about twelve nautical miles north-west of Thyborøn, Denmark, on October 24, 2023.

The vessels were bound for UK (Scot Explorer) and Netherlands (Happy Falcon).

At 10.12am, Happy Falcon began to slow down due to a technical fault on the main engine. It was five nautical miles ahead of Scot Explorer. Both vessels were proceeding south-westerly along the Danish coast.

At 10.18am, Happy Falcon came to a stop and started to drift while repairs were being made. But it did not display "vessel not under command" signals or update navigational status on the AIS. A maritime safety information message was not broadcast.

Scot Explorer maintained its course and speed. For the next 20 minutes, Scot Explorer's master was undertaking other duties on the bridge and was not monitoring nearby traffic.

At 10.42am, a crew member, who had been working on deck, ran to the bridge and alerted the master to the developing close-quarters situation. By then, Happy Falcon was about 200m away, with a CPA of 20m in just 40 seconds.

The master immediately used the autopilot to initiate a turn to starboard before switching to hand steering to increase the rudder angle, but the turn was not enough to avoid the collision 10 seconds later.

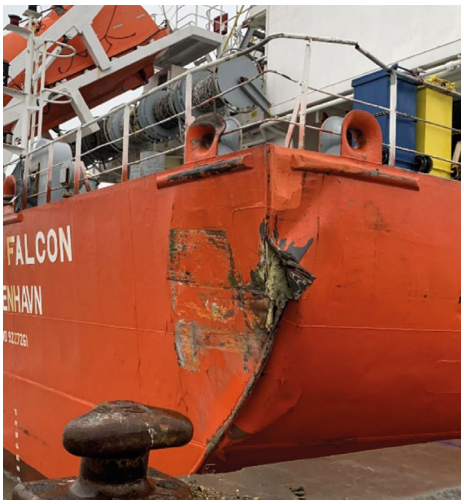
Scot Explorer's port side struck Happy Falcon's starboard quarter, resulting in hull damage to both vessels above the waterline. No injuries were sustained on either vessel and there was no pollution.

MAIB conclusions

The UK Maritime Accident Investigation Board (MAIB) assessed that on both vessels, the officer of the watch was not keeping an effective lookout. They were not using all available means to determine if a risk of collision existed.

Although Happy Falcon was unable to manoeuvre or keep out of the way of another vessel, its crew had not taken the appropriate actions to inform other vessels of the situation.

Scot Explorer's master was alone on the bridge and distracted by other duties that interfered with keeping a safe navigational watch. Scot Explorer's electronic navigation



Damage to the Happy Falcon. *Image courtesy MAIB*

aids were not being monitored, nor were they optimally set or used in accordance with the best practice.

Both Electronic Chart Display and Information System (ECDIS) units were set to silent mode, with all audible alarms deactivated while underway.

Although Happy Falcon was visible on both of Scot Explorer's radars, the target had not been acquired by an automatic radar plotting aid (ARPA).

Happy Falcon's slowdown was not observed on board Scot Explorer, despite being readily apparent on the AIS.

The absence of a dedicated lookout on Scot Explorer's bridge meant there was no one immediately available on the bridge to assist the master as the situation developed by activating hand steering and taking the helm.

UK government's Marine Guidance Note (MGN) 315 (M) states, "when the vessel is in automatic steering it is highly dangerous to allow a situation to develop to the point where the Officer on Watch (OOW) is without assistance and has to break the continuity of the look-out in order to take emergency action."

Scot Explorer's general emergency alarm was not sounded to alert the crew about the collision or activate the ship's emergency response.

TO

How the VLCC market is evolving

Charlie Grey, CEO of Tankers International, shares his perspective on how the VLCC market is impacted by oil production growth, longer voyages around the Cape, sanctions on Russia and increase in newbuilds

By Charlie Grey, CEO of Tankers International

As we wrap up the first quarter of 2024, the VLCC freight market continues its upward trend.

This is amid rising tension in the Bab-el-Mandeb [the Strait between Yemen and Eritrea];, tightening of sanctions on companies involved in Russian oil trade; and the OPEC+ group announcing an extension of the supply curbs that were put in place at the start of the year.

Baltic freight assessments and sentiment is improving.

Oil production growth

The International Energy Agency (IEA) is forecasting 1.3 million barrels of oil production growth in 2024. This matches the average growth between 2000-2019.

The fast-paced demand growth we experienced in the last couple of years was the market playing 'catch up' following the demand destruction of the Covid years.

Demand growth will be driven by economies in the Far East, with China and India leading the way.

The OPEC+ alliance is announcing a voluntary tightening of supply going into 2024. And a further declaration to extend the production curbs into the second quarter.

There have been reports of lax quota compliance from some alliance members, and the voluntary nature of the production cuts supports this theory.

Charlie Grey, CEO of Tankers International

Meanwhile, producers in the Atlantic basin are set to continue to add incremental supply. This will compensate for some of the tightening of supply from the OPEC+ alliance, and will satisfy the demand gap in the Far East.

Preliminary data from our VLCC fixture database, does not show any significant drop in fixture volume, and this is across all the major load regions.

Going around the Cape

The escalation of the tension in the Bab-el-Mandeb strait through the first quarter, with further attacks on oil tankers, has led to a significant decline in international tonnage of all types transiting the strait and the Suez Canal.

The alternative trade route via the Cape of Good Hope adds considerable tonne-miles to the oil trade.

There is no sign that this will change in the near future.

Looking specifically at the VLCC segment, and the 6-8 monthly liftings from the Middle East to Europe that historically have passed the conflict area, the majority of owners and charterers are now opting for the longer, safer transit route via the Cape.

This adds around 15 days to the laden leg of the voyage, and apart from delaying crude supplies reaching Europe, it also increases tonne-mile demand for the VLCC segment.

Russian sanctions

The start of this year has seen tighter enforcement of Russian sanctions.

This threatens to once again transform the commercial framework around the trading of Russian oil.

The Russian market is becoming increasingly difficult for mainstream industry players to get involved with. Russia continues to rely on the dark fleet to move its barrels. Only a few VLCCs are involved in lifting Russian cargo.

The commercial implication for our segments remains with the shift in general trade flows whereby Europe is taking more crude from the Atlantic Basin, and from the Middle East.

VLCC ordering

One of the biggest stories from this quarter has been a resurgence in VLCC tonnage ordering.

The first three months of the year saw the orderbook double in size. Historically an expansion of this scale would pose a huge disruption to the freight market outlook.

However, the orderbook-to-fleet ratio remains historically low even with the addition to the orderbook.

The full orderbook holds 51 orders to be delivered over the next five years, equivalent to 6% of the fleet. But this compares to an ageing fleet profile of more than 200 vessels that will reach the age of 20 or older within the same time period. This means the potential for fleet exits by far exceeds additions.

Q2 and beyond

Looking ahead into Q2 and beyond, the VLCC freight market looks set to continue to build on the solid foundation of cargo volumes that has persisted from last year and into this year.

Recent headlines also point to both China and the US, the world's biggest oil consuming nations, signalling the need for more oil than expected this year, driven by rising manufacturing activity and stronger-than-expected economic conditions.

There is further upside ahead if the OPEC+ alliance begins to unwind production cuts, which many analysts and forecasting agencies see as a likely scenario going into the latter part of the year.

Until then, the geographical mismatch between where oil demand is growing and where new supply will arise will continue to add to the tonne-mile equation and to the demand for VLCC tonnage. TO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NAPA Studios to support collaborative VP projects

NAPA has launched "NAPA Studios" to support collaboration between different parties involved in vessel design and operations to find new ways to improve vessel performance, drawing on its shipbuilding design technology expertise

We have all heard about sails on ships, we have all heard about voyage optimisation software. But what happens when you use them together? It is a difficult question to answer, because it requires understanding of sails, ship hull performance, weather and voyage optimisation. The voyage would be optimised so that it makes the best use of the sails.

Shipping companies often say they are confused about the options available to them for decarbonisation, and want a better understanding about the returns any investment will give them. So, it would be a useful answer to have.

NAPA, a Finnish company which develops software and data services for both ship design and vessel operation, led a collaborative project to find the answer, which was between 10 and 30 per cent fuel savings.

NAPA believes there could be many other possible collaborative projects to find new ways to improve vessel performance.

Another is being able to provide feedback to shipyards about how their hull designs are performing, using data from the vessel in operation. Shipyards rarely get a good understanding of how vessels with their designs operate in practice.

NAPA has expertise in hydrodynamics, stability, hull design and structural design, from its work providing software for shipbuilding. This can be useful input into finding ways to improve performance.

To nurture such collaborative projects, it has formed a venture "NAPA Studios." It is led by Naoki Mizutani, who is also executive vice president of NAPA group.

NAPA Studios could be defined as a "framework for collaboration to solve difficult challenges," Mr Mizutani said.

The name 'studio' has been used to convey the idea that it will work like a music studio, gathering people together to create something new.

NAPA hopes that shipowners, charterers, shipyards, class, financiers, and insurers will be encouraged to join projects.

The projects will explore practical implications of deploying new technologies and help develop new technologies and operational frameworks.

Naoki Mizutani, EVP of NAPA, and leader of the NAPA Studios project

There could also be projects organised for individual shipyards, shipowners, charterers, and others. The projects can explore how performance models, digital twins and simulation tools, combined with hydrodynamic models, can help.

There can be projects to better understand the impact of technologies such as weather routing, wind propulsion and other energy saving devices.

Another example of a possible project could be to explore how much vessel performance data is improved by installing expensive fuel flowmeters, rather than just working with noon day reports and AIS data.

NAPA has a great deal of reach in today's shipbuilding world, with 90 per cent of newbuilds designed with companies that use NAPA software, the company claims.

"We want to respond to shipping's growing demand for data-based evidence and proven solutions for every aspect of the huge transformation ahead," Mr Mizutani said.

"We are eager to work with companies from across the industry to share knowledge and experience and create innovative solutions together."

Norsepower / Sumitomo project

The collaboration project looking at sails plus voyage optimisation involved Norsepower, a rotor sails company, and Sumitomo, a general trading and shipping company.

This project explored the potential emissions reduction on Panamax tankers from combining four rotor sails installed onboard and voyage optimisation software, to find the best possible route to get the most out of the sails.

It found that the benefits from the sails combined with the software resulted in up to 28 per cent average fuel savings, depending on the routes.

The project team created a digital twin simulation tool and performance model, with the vessel placed on different routes around the world, such as Japan to Australia.

The project explored the aerodynamic performance of the vessel, as well as the hydrodynamic performance.

This research project was presented at the 9th Hull Performance & Insight Conference (HullPIC) 2024 in Tullamore, central Ireland, in March 2024.

Other collaborative projects

Another project was with shipping company MOL and ClassNK to develop a navigational risk monitoring system, predicting the risk of grounding in advance. The project brought together the expertise of companies involved in ship operations, safe routing, and navigational risk analysis.

It developed a tool which has been adopted on MOL's fleet of over 700 vessels.

This includes vessels which MOL charters in, which it does not operate itself, and so has less oversight over.

Separately, maritime electronics equipment provider FURUNO incorporates NAPA's

Voyage Optimization software into its shipboard Planning Station. This is a shipboard voyage planning, monitoring, and briefing system that is currently under development. It does this by connecting to NAPA software via API.

In a further project, trading company and shipowner Marubeni worked with NAPA to understand the impact of EEXI and CII on the bulk carriers in its fleet and find ways to optimise voyages and reduce CO2 emissions. It managed to reduce fuel bills by 7 per cent and improve CII by 5 per cent.

ClassNK, NAPA's parent company, has a tool called "Zero Emission Transition Accelerator" or ZETA, to support its customers in managing greenhouse gas emissions from ships. It stores data about fuel consumption, emissions, and CII ratings, and simulates how emissions and CII data will change if different methods are adopted.

It links to vessel performance data provided by NAPA software, how ship speed varies with fuel consumption for different weather and sea conditions and loading conditions.

Sharing ship designs

One challenge to collaborative projects involving ship designs is that these designs are traditionally the property of the design company or the shipyard. To date, there has not been any framework to enable those designs to be shared more widely due to intellectual property concerns, in case the design files get stolen and used without the designer's permission or compensation.

But there are ways around this problem. The detailed design data file itself does not need to be shared, but a "digital twin" can be hosted on a cloud system in a secure way. This can be used for several applications, including simulation models which other companies (such as the shipyard's customer) can then access.

Another possibility is that a less granular version of the model is used for simulation, not the full structural model which is used to build the ship.

TO

Martin Shaw on autonomy, decarbonisation, and crew

IMarEST president Martin Shaw shared perspectives on why most tanker companies are not looking at autonomous vessels, the risks, and economics of decarbonisation, and why the term human element is misunderstood

The past few years have been very difficult for tanker operators, with Covid, challenges with Ukrainian and Russian seafarers. Now we have the threat of vessel attacks in the Red Sea and Strait of Hormuz, while decarbonisation requirements grow, said Martin Shaw, president of the Institute of Marine Engineering, Science and Technology (IMarEST), speaking at the Tanker Operator Athens forum on Apr 16.

Amid all of these difficult issues, some areas of the shipping industry continue to pursue the idea of autonomous ships, even though there is no sign any long-haul tanker company is looking at them, he said.

Martin Shaw, president of IMAREST, at the Tanker Operator Athens conference

Autonomous, uncrewed, ships are useful in warfare where you reduce the exposure of humans, useful for ocean research, where a vessel can spend months at sea doing a careful survey. These scenarios work operationally, on a prepare-deploy-operate-recover maintain cycle. Substantial maintenance and overhaul is needed between deployments

Tankers which are generally 'tramp' traders, in comparison, keep continuously moving around the world, with crew living onboard. The bulk of onboard effort from departing port to arrival at the next is maintenance and to build all that maintenance into a port visit using local contractors is a risk.

Most tankers, other than LNG and some shuttles are 'tramp' ships so a wide port network would be required to support this. So, autonomy is unlikely in the short term. And with the risks lower than for naval ships, and the length of voyages shorter than for research ships, the value to autonomy is less.

"To me, marine uncrewed autonomous ships are not something we need to spend too much time on at the moment on long haul tramp shipping," he said.

"Maybe it will be influencing the next generation of ships but probably not fitted to your current ships," he said.

Yet there continues to be much discussion in IMO about it, despite it being far from the most important issue in shipping, he said. IMO might be better focussing its attention on matters which really impact seafarer safety, such as time pressure.

The big changes in ship automation probably happened in the 1960s to the 1980s, when a typical vessel crew reduced from 50-60 people to 20. It will be very hard for any automation to reduce crewing further on international ships like tankers. Saying otherwise "shows ignorance about ship operations," he said. "Reducing the number is not a sensible objective from a maintenance point of view."

Meanwhile, Mr Shaw has observed that many suppliers of autonomous ship technology are now focussing on their products being designed to help the people onboard rather than replace them. To be truly helpful it is essential that technology is robust and properly tested, and people are trained to use it, he said.

And the more autonomous this equipment becomes, the more the manufacturer of the equipment needs to take responsibility for any problems it causes, he said.

It is possible for faults in automation systems to be hidden for some time, as may have been seen with Boeing 737 Max automation problems.

Any fault is compounded by the fact that the user may not have experience of operating the equipment with the automation not being there.

"What we need is better automation and automation which is better integrated," he said.

Decarbonisation

There is no doubt that the biggest issue facing

the planet is climate change, even with all the issues mentioned above, Mr Shaw said. There is a need for everyone ashore and afloat to buy into this. It is important that we face the issues and deal with them. IMO has been talking about having a greater ambition on climate change.

But we should be wary of the fact that the people creating the regulations are not necessarily the people who have to deliver these ambitious goals.

Someone is going to have to design build and pay for this equipment and for the supply chain required to support them," Mr Shaw said. "At the end of the day it is them that will be held responsible for ambition not being met."

Shipowners recognise that if they buy a low carbon ship today, they will be buying the first generation of the technology, and like the first generation of any other technology, it may not be as good or robust as what follows, he said.

This was seen with the first generation of scrubbers, he said.

Mr Shaw supports the green corridors concept, which he defines as taking 'narrow strips of sea' and putting decarbonisation infrastructure and dedicated ships on it, such as vessels running on ammonia fuel. Over time, the corridors get bigger and eventually join up.

This is a pragmatic solution and illustrates the importance of a step-by-step approach, he said. More and more green corridors will generate more and more infrastructure that spot ships may 'piggyback' on.

But until that happens, it could only work for scheduled shipping services, such as in containers. It does not help tanker owners very much, with vessels going anywhere in the world at short notice. "It is probably not going to change the tanker business immediately other than when aiming to reduce fuel consumption which a lot of owners are working on," he said.

Are green corridors resilient? For example, if you are using a green corridor through the Red Sea, and it is suddenly closed off, you need to re-route vessels around South Africa, where the supplies of low carbon fuel may not be available, he said.

None of this is to say that climate change is not the biggest issue facing the shipping industry and one that needs to be acted on rapidly, he stressed. But you can only progress this when you fully understand the issues.

Ultimately decarbonisation is a cost of staying in business. So, it is something shipowners need to plan for, rather than calculate whether specific investments give them a return, he said.

So perhaps we should not be trying to calculate the return on investment of decarbonisation, but rather recognising that it will be a requirement if they wish to continue in business, he said. We see this ashore where governments often suggest that low carbon will be cheaper. We need to accept that it will cost huge sums of money that will not be justified by conventional economics

For example, an owner justifies a ship based on residual value often with an assume 18-year write-down to scrap value or a sale price for an earlier sale for trading. Conventional ships built today may not have 18 years of operational life or a resale value for further trading as we near 2050.

To mitigate the risks of shortages of new fuels, vessels will probably be dual fuel for some time to come, just as a century ago we had ships with both sails and steam engines powered by coal. This will continue "until you can go to any port and have hydrogen, LNG or ammonia," he said.

Methanol dual fuel is popular because it is one of the easiest fuels to convert to, he said. It means a shipping company can be ready for the future without having to do any major change.

Mr Shaw also has concerns that the speed of change required to meet 2030 targets could lead to risks. To illustrate the risks, he noted that ammonia has been considered too dangerous in the past to use as a refrigerant in refrigeration plants onboard ships. Now companies are planning to use it as a fuel.

Developing crew

On the question of whether to train your own crew up the ranks or recruit on the market, Mr Shaw noted that the direct costs associated with both options, training, and recruiting, can be quantified.

Then there are less quantifiable costs to recruiting new crew each time, such as the time it takes a person to develop and understand company safety culture.

There are less quantifiable benefits from developing your own crew, such as the improvement in safety from having crew who know the ships and the company.

Defining 'human element'

Mr Shaw defines 'human element' in shipping as the interface between the human and the ship and how it works to improve safety.

Procedures are an important part of the human element because they define how people should work with the ship.

Some take a broader definition of the term, saying that it includes issues such as gender diversity and seafarer welfare, he said.

While we can all agree gender diversity and seafarer welfare are important, these issues need to be identified and actioned in their own right not lost under another heading, he said.

IMarEST

Mr Shaw has been a member of IMAREST for 52 years, and at the time of the event was completing his year as president. "IMarEST has been a central part of my education. My career has grown out of it," he said.

IMarEST was originally founded in 1889 with one of its goals as "improving the social standing for engineers". Today it has branches in maritime centres around the world, including Athens, Cyprus, Singapore, and Hong Kong.

IMarEST has published some very useful technical papers over the years. Mr Shaw cited a paper written by Shell engineers in 1970 about how to remove sulphur from ship exhaust gas with a scrubber. It described problems which might be encountered such as formation of sulphuric acid, and materials which might be most suitable. Some of this knowledge has been discovered a second time in recent years, from engineers who had not known of the paper, he said.

IMarEST has also done much work to raise awareness on important topics relating to seafarer safety, including challenges of time pressure, distraction on bridges, and risks of enclosed spaces. It has supported IMO to develop new regulations.

IMarEST is considering developing a "chartered superintendent" qualification, which seafarers can train for, to prepare for work in the office. The training could be provided through distance learning.

Coffee break at Tanker Operator Athens conference

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How ESMH manages crewing

Alexandros Serpanos, Fleet Personnel Manager for Euronav Ship Management Hellas (ESMH) presented the major challenges with crewing today, and how the company recruits, trains and retains, with a focus on in-house development

Euronav Ship Management Hellas provides its services to two major clients/owners, Euronav NV and Frontline AS, and also vessels owned by smaller ship owners.

Alexandros Serpanos, Fleet Personnel Manager, has the manning supervision for fifty-nine oil tankers. He is coordinating a crewing team of twenty-eight people including staff in Athens, Belgium, France, Singapore, and Panama. He told the story of how it is done, speaking at the Tanker Operator Athens forum in April.

Alexandros Serpanos, Fleet Personnel Manager, Euronav Ship Management Hellas TO Athens audience

ESMH aims to develop senior officers and shore staff from within its crew roster, with cadets eventually becoming senior officers, a process which can take 10-12 years. This is somewhat unusual among tanker operators.

This approach requires recruiting seafarers with potential for high performance, supporting them to develop their skills, and working hard to make them want to stay with the company, so that the investment in recruiting and development is not lost. "It is a bet that we put on the people. There is a lot of investment into that," Mr Serpanos said.

Mr Serpanos took the same pathway himself. He joined the industry as a deck cadet with Ceres Hellenic Shipping Enterprises, a company which was later integrated to ESMH, eventually reaching the rank of master at the same company. He subsequently worked at Dynacom Tankers Management as marine superintendent and crew head of department, before returning to ESMH to undertake the current role.

Today ESMH has vessels under multiple flags, including Belgium, France, Greece, Liberia, Marshall Islands and Vietnam. For each flag, there is appointed a separate crew manager. Mr Serpanos' role is to co-ordinate with the crew managers and develop a uniform approach for the manning of all vessels.

Prior joining crewing operations, Mr Serpanos' had been largely involved with managing procedures. He admits to formerly believing crewing was much easier than it actually is.

Crewing absorbs 60 per cent of the vessels' operational expenses, including the cost of crew wages, insurance, traveling, provisions, and training. This also means that there needs to be a great focus on managing the costs, he said.

Major challenges

One of the biggest challenges in tanker crewing today is ensuring that the crew on a ship meet industry and customer requirements, as expressed through TMSA and SIRE.

There is also the challenge of the uncertainty of the spot market, where 90 per cent of the Company's vessels are chartered. Schedules for port calls are constantly changing. This means nine out of ten crew air tickets are amended after initially being booked, such as to bring the date forward or back one day, he said.

Another challenge is getting the balance between having too many or too few crew in its roster. The Company keeps more Seafarers in its roster than it needs at any time, to cover the risk of Seafarers choosing not to work as many months a year as the company expects, and to avoid having to recruit from the open market.

But this means that the progress seafarers make through the ranks is slower. Sometimes Seafarers leave the Company because they feel they are not being promoted fast enough, he said. Some Seafarers do not get as many months of work every year as they would like.

Crewing steps

The crewing process has twenty-five steps, most of them put in place to meet charterer (OCIMF) requirements, he said.

Seafarers initially make an online application. Seafarers can apply for employment through the ESMH crewing software platform from any country. They are then asked to complete a rank-specific competency test and a personality test. Then there is the interview process.

Documentation is checked, to see if there are any further training courses the Seafarer needs to complete. The seafarer needs to do a pre-employment examination. He or she must be familiar with the company safety management system and other tools. Online courses are available to support this.

The next stage is the briefing process, Pre-Employment Medical Examinations, D&A testing, signing a contract of employment, and finally receiving the air tickets.

ESMH uses a software platform called Compas, now owned by Ocean Technologies Group, to liaise with crewmembers. With this platform, the Seafarer can install an app on their mobile phone or computer. This app can be used to declare next availability date for employment, see information about the next assignment, receive air tickets, communicate with Euronav staff, and access own evaluation reports and payroll data.

Training and promotion

ESMH's training team has a "training matrix" showing the training each seafarer should complete, with courses required by regulations (STCW), the industry (SIRE/TMSA) and the company.

When seafarers request a promotion, they are asked to complete an online competency assessment for the desired rank. They also complete another personality test and a set of interviews.

In addition, candidates for Master's position undertake a Bridge Simulator Assessment,


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often in a training centre in Athens, under the observation of an ESMH Marine Superintendent. The candidate Master is assessed under particularly difficult scenarios, such as transiting the Suez Canal, Singapore Strait, or the English Channel. Following the assessment, the decision can be to accept the candidate, or accept the candidate subject to further training.

Offers to Crew

ESMH seeks to provide its crew roster a "well-structured, well-mapped offer," to encourage them to stay with the company and not be tempted away by competitors.

ESMH wants crew to have a "clear understanding of how we operate and what is to be expected by having a career onboard our ships," he said.

Seafarers' wages are benchmarked per rank against the average of the industry, by Spinnaker Global and adjusted every year in order to remain at the upper quartile of the market's average.

Seafarers' payroll process is done electronically and can be accessed using a VISA physical card. Monthly wages are paid within the first week of the following month. Seafarers often report that being paid on time, is more important than the actual amount, Mr Serpanos said.

Senior officers receive a "seniority allowance," and an annual bonus based on last year's personal performance.

ESMH offers senior officers the option of shore assignment in its office, so they can better understand how ship management works. This helps prepare them for the next step, working in the office, if they wish to do so.

Employment contracts duration is 3-4 months for officers and 6 months for ratings. ESMH considers the short employment contracts "one of the most important physical well-being initiatives for our Seafarers." The top-4 officers are also able to invite their spouses to sail with them.

ESMH utilizes the services of three different catering providers for the provisions required for the Seafarers and provides bottled mineral water free of charge.

ESMH allocates a monthly $200 welfare budget. Seafarers form an onboard committee to decide how it should be spent. Some ships opt for karaoke systems, others have bought gaming equipment.

ESMH utilizes an onboard software platform for keeping records of work and rest hours. If planned working hours are exceeded, extra compensatory rest time is provided.

Accommodation items on vessels, such as sheets and mattresses, are assessed and if needed replaced every five years.

Seafarers have internet access onboard. Almost half of ESMH vessels have Starlink as primary communication system and VSAT as backup. "Feedback is very positive," he said.

Seafarers have an internet allowance of 9 GB per month per person, and no limits to text messages sent via WhatsApp.

The high-speed satellite communications are used to integrate vessels' top four officers to company's management review meetings via video call. "It is very impressive how in the last 10 years the [communications] technology has progressed, being able to have live connection with the management team onboard," he said.

ESMH offers crews physical and mental wellbeing support. Counselling services are available to support mental health issues, either via the vessels' master or directly. In public areas of the ship and in the company's quarterly magazine, the seafarers can find contacts to access the support directly.

Crew do not necessarily need to mention any concerns to other crewmembers. Discussions are confidential, unless the specialized counsellor has concerns about self-harm, and will advise the company that the seafarer should be relieved at the next port.

ESMH organizes annual seafarers' conferences/safety seminars in different areas of the world, with a focus on safety. In addition, a Senior Officers Conference is organized in Athens every two years, for the top-4 officers ranks, which is more for people to get to know each other.

ESMH retention rate for 2023 was 94 per cent both for ratings and for the top-4 officers ranks. "We believe this is proof our strategy works," he said.

ESMH also has one of the highest percentage of female Seafarers in the industry, at over 2 per cent of its crew roster for 2023, he said.

Why develop internally

Mr Serpanos was asked how the extra cost of developing crew internally is justified in a business sense, or are company's senior management so sure that it is a better option they do not need convincing?

"The argument is that when you have Seafarers with loyalty you can expect a better performance on safety and quality. This is not directly measurable, but through the company's KPIs," he replied.

It can typically take 2-3 months for a new hire to adapt to the company culture, he said. Although after this period, there is no significant difference between a new hire and someone who has been with the company for a long period.

Nationalities

ESMH has a crew roster from over thirty different nationalities. Approximate 50 per cent of the ratings are Filipino. There are also a few ratings from Honduras and El Salvador. The officers' major nationalities are Belgian, French, Greek, Panamanian, Ukrainian, Russian, Bulgarian, Romanian, Indian, Pakistani, and Filipino.

There is no indication in any of the crew evaluations that any nationality is better than any other. "We don't care about the nationality, we care about the competency," he said.

The company still avoids placing Ukrainian and Russian together onboard the same vessel, he said.

In the few cases where there are personal frictions between seafarers, it is usually observed between the same nationality, perhaps because they bring cultural issues from their home countries onboard, he said.

Crewmembers typically talk to each other onboard in English, as the "official working language."

Too much time online?

Mr Serpanos was asked if there was any negative impact of providing crew with better communications, such as people spending less time socialising with other crewmembers, a temptation to use social media while working, or being concerned by events happening at home, which previously they would not have known about.

Mr Serpanos replied that people may be spending more time in their cabins now, and it may affect team building. The company aims to have at least one social event every week on each ship, to encourage people out of their cabins.

Onboard the internet wi-fi connectivity is not provided on the Bridge, the Engine Control Room, and the Cargo Control Room, to prevent the risk that staff being distracted by home communications or social media, he said.

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Challenges with training and how to solve them

Crew training is often not given enough priority, the quality can be poor. It does not help that training schedules are impractically big. Konstantinos Agas explained how the industry could do better

Everybody says training is "one of the top three issues we need to tackle onboard." But when it comes to actual operational practise, it can easily be forgotten amid commercial pressures, said Konstantinos Agas, training manager and "instructional designer" at Dynacom Tankers, Sea Traders and Dynagas.

These three companies are all owned by George Prokopiou, and operate tankers, LNG, and dry bulk vessels.

Training costs money and does not generate any direct revenues. It is very hard to calculate the return on investment in training. "If someone tells you they can do that, most probably they are mistaken," he said.

Unfortunately, the best way to see the value of training is when we identify what happens when it is not planned and conducted properly, he said. But that is not something you want to see happening.

Training can be defined as activities which enable crew members to develop the required capability. It includes knowledge, skills, and attitude.

Technical skills are easy to identify, such as for an engineer to have the skills to do maintenance on an engine. "If you don't have it, you are forced to develop it or get out of the industry," he said.

Harder to identify are non-technical skills such as having situational awareness, being able to manage workload, and being able to deal with problems. Then there are the so-called 'soft' or people skills, such as communication, the ability to lead and be led by others.

Konstantinos Agas, training manager and "instructional designer" at Dynacom Tankers

Coffee break at Tanker Operator Athens conference

When organising training, more attention is usually given to technical skills, and not enough to the soft skills, he said.

Onboard vessels, crew are expected to do practical training, such as abandon ship drills, firefighting, how to use equipment. They are expected to do theoretical training, such as about the human element, mental wellbeing, and soft skills.

Training onboard can only be provided by other seafarers, and most seafarers are not professional educators. They can be sent on "train the trainer courses" but this does not necessarily make them educators, he said.

Can we do it all?

Is it practical for seafarers to do all the training expected of them?

A shipping company typically creates a training schedule covering the whole year.

According to most training matrices, crew members are expected to do training for approximately one hour every working day, Mr Agas calculates.

Consider that any safety drill, such as for firefighting, can take an hour to conduct. Similarly practical and theoretical training sessions typically last approximately 45 minutes. The full training schedule can add up to more than 20 hours of training per month, or more than one hour of training in each working day.

"Is it feasible to do more than 1 hour training per working day? Not really," he said.

This is happening because we have a lot of training requirements from different sources. Some training requirements come from customers (charterers) and regulators. Other come from the internal training program, which includes customised training based on serious near misses or accidents. There may also be video / online courses crewmembers are expected to work through.

One way to make it manageable is to allow theoretical training to be done while crew are at home.

"We put out a cybersecurity session, and we had two hundred people joining in [from home]. We did a Behavioural Competency Assessment course and had seventy people joining in. You would be surprised how many people would prefer to do this at home at their own pace instead of doing all of this onboard."

For people to be motivated to do training during their time at home, it is important to see it as useful, he said.

How good is your training?

The focus by outside assessors, such as oil company auditors, is typically on the number

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of topics being covered, not the actual quality of the training, he said.

They usually request to see a training "matrix" showing the topics crew are being trained on, but they rarely ask to see the actual training material.

An audit of training is of course a moment of tension for the company training manager. "I am always afraid they will say, 'very good, but how are you conducting the training. And how can you fit all these topics in their daily routine?' [But] no-one asks about this," he said.

"In most cases, the training department audit is completed in 30 minutes."

"A complicated training matrix full of topics is useful to show to the auditors, but not so beneficial for the actual seafarers," he said.

In a comment on this, Patrick Joseph, a maritime consultant, and former oil company head of vetting, noted that SIRE 2.0 is aiming to assess the results of training.

Doing good training

Many shipping company training managers are appointed based on their backgrounds as seafarers, not their competency as educators. At smaller shipping companies, training is provided by the crewing or safety departments.

Shipping people often wrongly perceive that someone who can do something well is automatically good at training others, he said.

Good trainers know how to make training interesting. "There is nothing worse for crew members than to put them through a procedure they consider boring," he said.

Consider what would be necessary for crewmembers to learn from an incident which happened on another ship, such as a failure of a filter.

Typically, companies send a communication to all vessels about the incident, which might get read. This is better than nothing, "but it's not exactly a training session," he said.

A training session requires having learning objectives training materials and training activities, something which people onboard often do not have time or inclination to create by themselves.

Maritime companies should put big effort into creating training material, including ensuring company lessons learnt about safety incidents, he said.

Also, any "Train the trainers" program, should include practical "microteaching" (mini lessons) sessions for the participants to conduct. Furthermore, on board trainers should be supported from the company by providing training objectives, and lesson plans (specific instructions on how to conduct the training).

"We don't expect people to do the training on their own," he said.

Better practical training

For the practical training, which has to be done onboard, it should be structured to provide the maximum benefit, so people feel that it is a worthwhile use of time.

Briefing and de-briefing is very important, so people know what they are going to do in the actual drill, and afterwards they know what went wrong and right.

Drills should simulate reality as much as possible. It would be easy to do a fire drill with an empty hose. "Get the hose connected to the fire main then we'll see how difficult it is," he said.

Many things happen at once during a drill. Mr Agas recommends asking one crewmember to make a simple video recording, which everybody watches afterwards, so they understand what was actually happening.

It is not always obvious what is important to rehearse in a drill. Mr Agas learned this in a former role as chief engineer on a Hellenic Navy vessel which was powered by steam. He could see that one of the biggest risks was a loss of air pressure into the engine. So, Mr Agas designed drills so people could practise what they would do if this happened.

"The first three or four drills were a disaster, we couldn't do it," he said. "Afterwards we got better."

Near miss reporting

It is important to foster an organisational culture of training, where everybody understands that learning is important.

This training culture will mean that people are far more willing to report genuine near misses and know they will not be punished for doing so, he said.

Near miss reporting is important for safety because serious accidents sometimes follow many near misses. From the lack of reporting of near misses, "We're missing a lot of opportunity to learn from these incidents," he said.

But crewmembers can be reluctant to report near misses because it may mean telling others what they have done wrong. When asked to do it, crewmembers often report relatively safe near misses, such as that they left the stove in the galley switched on.

"Most of the near miss reporting we get is not realistic. It is not real problems."

Just asking people to report more near-misses does not help, because you can get more reports of near misses which people feel safe declaring.

"In order for training to be effective, companies need to create a training-oriented organization," he concluded. "This presupposes trust between trainers and trainees, interaction, and proper scheduling of training sessions in times that are convenient for the crew members.

TO

Decarbonisation decision challenges

For the shipping community, making the right decision about what sort of vessels with certain fuel to build to meet decarbonisation requirements is extremely difficult, said Leonidas Polemis, CEO of Empire Chemical Tankers

"I think it's the one of the few times I've seen the shipping community so challenged and confused about what strategy to take, what specification on propulsion for which fuel type to order," said Leonidas Polemis, CEO of Empire Chemical Tankers, a company which manages chemical tanker vessels and is part of a family group that has been in shipping over 100 years.

He was speaking at the Tanker Operator Athens forum in April.

Leonidas Polemis, CEO, Empire Chemical Tankers

"We all know we are facing huge changes in the regulatory environment for shipping, in terms of looking at ways to reduce fuel consumption and emissions," he said.

"It is difficult to see how today you will get back the investment for the newbuildings with new propulsion systems based on lower carbon fuels."

"For me, none of the fuel solutions that have been offered are the silver bullet."

"LNG, as we know, is something that can be a solution for the interim period. For the long term 2050 goal it is not the solution."

"You see there's quite a bit of ordering going on for methanol fuelled ships. The important part is they are 'methanol ready.' It doesn't mean they will necessarily be fuelling up with methanol in most of their voyages, especially in West Africa. The cost and higher consumption of methanol is hugely significant."

An interim solution for most ships may be carbon capture onboard, which could avoid the need to use more expensive lower carbon fuels. "I believe it is a reasonable cost, at this time, compared to the savings you get from the fuel you use."

"We are still in the early days of this very difficult challenge."

With energy saving devices on ships, the striking point is how few vessels have installed them so far as a proportion of the total world fleet, he said. For example, air lubrication, bow enhancement, hull coatings, propeller boss cap fins, propeller ducts, stator fins, sails, waste heat recovery and solar panels have been installed on a very small percentage of the fleet.

Mr Polemis asked the audience if anyone had experience operating vessels with such energy saving devices, and no-one had.

"Most companies are waiting to see the outcome of various strategies before making a decision," Mr Polemis concluded.

Perspectives on SIRE 2.0

Gregory Spourdalakis, managing director of CSM Greece; Nikolaos Katechos, Vetting/Marine Manager, Samos Steamship; and Patrick Joseph of Uirtus Marine Services shared perspectives on SIRE 2.0 at Tanker Operator Athens forum

The Phase 3 roll-out of SIRE 2.0, the Ship Inspection Report programme from the Oil Companies International Marine Forum (OCIMF), started in January 2024. In this phase, all tanker companies can do full trial inspections, but the reports are not available to OCIMF members to screen vessels for charter.

It follows Phase 2, starting in August 2023, with trial inspections for invited parties only, and a Phase 1, with initial testing of the system. Phase 4, now expected to start in Q3 of 2024, is where the reports will be used to screen vessels, so there will be commercial implications to the outcome. SIRE inspections under VIQ 7 will be terminated at this time.

At the Tanker Operator Athens forum in April, Gregory Spourdalakis, managing director of Columbia Ship Management Greece, and Captain Nikolaos Katechos, Vetting/Marine Manager, Samos Steamship, shared their perspectives on SIRE 2.0, based on what they have seen so far.

Capt Nikolaos Katechos of Samos Steamship

Captain Patrick Joseph of Uirtus Marine Services, an independent consultant, and former head of vetting and operational compliance for an oil major, also shared perspectives.

Why SIRE 2.0 is better

Patrick Joseph, an independent consultant with Uirtus Marine Services Ltd, and former global vetting and clearance manager with an oil major, stated that he had been chair of OCIMF's General Purpose Committee in 2017 which had made the decision to replace SIRE.

"That decision was taken because of many things going on in industry, and there was no indication of improvements in the tanker industry.," he said.

Today, Capt. Joseph provides support for tanker operators in transitioning to SIRE 2.0 as a consultant. "I have given a lot of time and effort to help tanker operators understand the various components of SIRE 2.0," he said.

A benefit of SIRE 2.0 to tanker operators is that it should provide them with better understanding about their own vessels. Many

Patrick Joseph, independent consultant with Uirtus Marine Services

tanker operators could perform better if they have a better understanding of how their own ships are operated, he said.

The granular details entered into reports, such as "subject of concern," "nature of concern," give companies a much better sense of where they really are, and helps companies better choose which areas to focus on as part of their continuous improvement initiatives.

These were all factors considered when deciding to upgrade the SIRE system, he said.

Mr Joseph added that a large amount of work went into designing SIRE 2.0, including writing questions, providing material for inspectors, and training inspectors. It is still new for many inspectors.

"We shouldn't get distracted from the main purpose of SIRE 2.0, to help tanker operators understand what is happening onboard vs what they think is happening on board," he said. "So, [having] much more granular detail helps you [the tanker operator]."

CSM's Mr Spourdalakis agreed. There are benefits from staff being better at their jobs, as well as from having a better inspection, he said.

Martin Shaw of IMAREST noted that the rigid structure of an inspection should help keep the focus on the highest risk matters.

In the early days of SIRE, inspections typically started with a tour around accommodation. Consequently, and many SIRE reports began by noting issues seen in the accommodation.

Many reports noted issues which did not affect risk in a meaningful way. As an oil company vetting manager, "I got tired of talking to shipowners about cockroaches in the galley and bubbles in the magnetic compass," he said. "I thought, 'that's not important.'"

At the oil major, Mr Shaw introduced a scheme where observations were given a risk ranking, with cockroaches ranked as low risk. "Cockroaches are your pets, you can deal with them yourself," he joked.

Mr Shaw also noted that SIRE 2.0 seeks to bring the human element into the screening process. Until now, the only 'people' issues addressed were training.

Tanker operators should use SIRE 2.0 to find better ways to run their ships, rather than working on getting a better inspection 'result', he said.

More 'observations'

Gregory Spourdalakis of CSM Greece has concerns that a SIRE 2.0 inspection generates far more negative 'observations' than in the previous version of SIRE, as the inspector looks at many aspects of vessel operations in more depth.

With the original version of SIRE there might typically be between 1 and 3 'observations' in a typical inspection, he said. He has heard that in twenty-five trial SIRE 2.0 inspections by multiple companies, there were 194 negative observations and fifteen positive ones. So about eight per inspection.

While this will be fine when SIRE 2.0 is fully underway, since both good and bad vessels will see more observations, it is a concern for tanker operators when SIRE 2.0 starts, because a vessel inspected under SIRE 2.0 may be compared to a vessel inspected under the original version of SIRE.

Oil company staff may see a vessel has gone from two observations with the original system to 10 or 12 now, and then declare that the vessel is not good enough.

Capt Nikolaos Katechos, Vetting/Marine Manager, Samos Steamship said he had also seen that the "observations increased dramatically," three times more than under the original SIRE system.

Most observations related to human element issues, he said.

Also, a single issue, such as seeing drops of oil on a pump, can lead to three separate observations. A problem with the pump itself, the procedure for fixing defective equipment, and how people deal with the issue.

Captain Katechos was also concerned that if the screening department of an oil company suddenly see the number of observations triple, they may believe the vessel is substandard, rather than recognise that the new SIRE generated about three times more observations, he said.

However, Martin Shaw, president of IMAREST, and a former oil company vetting manager, said he thought it was very unlikely that the additional information generated by the SIRE 2.0 inspection will affect the ultimate screening decision.

The new information may give more insight about areas where management could be improved, rather than information showing a vessel is unsuitable for charter, he said. "My assumption is that oil companies will be showing some pragmatism."

And whatever happens, oil companies will still need tankers, he said, they are just seeking better ways to assess the risks of them. However, oil companies have not yet shared much about how they will deal with the observations, he added.

Patrick Joseph of Uirtus Marine noted that one of the reasons for the additional detail in SIRE 2.0 was specifically to stop oil companies simply counting the number of observations to make their assessment of a ship, as some companies do with the current SIRE system.

"OCIMF has mentioned at various conferences that they recommend that their members do not use the number of observations as a criteria for screening tankers,' he said. Each OCIMF member has a unique screening process that they do not necessarily divulge, and it is not productive for tanker operators to spend resources in attempting to understand each of these screening process.

Workload for inspections

The trial inspections took 9-10 hours onboard the vessel compared to an initial estimate of 8 hours, Mr Spourdalakis said. The work uploading photos and certificates is additional.

The additional number of observations adds to the workload, because shipping company management need to address each one, following up on them and stating what it is

The SIRE 2.0 discussion panel. Dimitris Lyras, Lyras Shipping / Ulysses Systems; Capt Nikolaos Katechos, Samos Steamship; Gregory Spourdalakis of CSM Greece

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doing to resolve them, he said.

CSM has been training masters, chief engineers and second engineers in advance of inspections. For its fourth trial inspection, it will also train oilers and other more junior staff.

Capt Nikolaos Katechos of Samos Steamship said that the company did one trial SIRE inspection in phase 1 and has done two trials in phase 3. These inspections took 8-12 hours.

Patrick Joseph noted that SIRE guidance is that when inspectors are experienced with the system, an inspection should not take more than 8 hours.

Photographs

Tanker operators are required to submit photographs of different elements of the ship before the inspection. There is no fixed rule about when new photographs need to be taken, only a note that new photographs should be made whenever something has changed.

Captain Katechos noted that it is very hard to assess seaworthiness from a photograph.

Captain Patrick Joseph of Uirtus Marine explained the reasoning behind the use of photographs in SIRE 2.0. In the current version of SIRE, the condition of a vessel was only described in subjective written comments from an inspector. This would often lead to extensive argument between inspector and tanker operator about whether the hull had "hard rust" or "pitting," for example.

Now, the inspector takes a photograph to pass to the oil company screening department, who can make their decision based on that. No written comment from the inspector about the cosmetic condition is required, and therefore prevents further discussion with the tanker operator.

From an oil company perspective, the importance of cosmetic condition depends on where the vessel is trading. "Cosmetic conditions are the least of your worries in when operating in West Africa, but for Long Beach (California), this is something they may consider as part of their screening," he said.

Photographs can also indicate more than a written comment. If a water purifier is dripping, the ship crew may say it is because they forgot to tighten the valve. But the photo evidence can show that the purifier is actually leaking.

For the age of photographs, the guidance is that photos should be no longer than 6 months old.,

Screening criteria

Shipping companies would prefer to have a clearer idea of the impact of the multiple observations that have appeared so far during SIRE 2.0 inspections, CSM's Mr Spourdalakis said. They would like an understanding of how charterers will use them to weigh the decision to accept the vessel. They need to know what is most important.

Uirtus Marine's Patrick Joseph replied that OCIMF does not itself determine how the data should be used to screen vessels, individual companies do this. It follows that it will never be standardised.

Procedures too long

Nikolaos Katechos of Samos Steamship said that in the past years many oil companies have been encouraging tanker operators to reduce the number of pages in safety management systems and simplify them. But SIRE 2.0 may push things in the other direction, encouraging companies to make their procedures longer.

"We are very good at adding paragraphs to the procedures. We are not very good at taking paragraphs out of the procedures," added Konstantinos Agas of Dynacom. "That's how we end up with 10,000 pages."

Dimitris Lyras, event chair, added that some company procedures are long because they have added more pages every time they were asked to by an inspector. But more pages of procedures may be unlikely to impact safety since they may not even be read.

Mr Shaw added that many company procedures are designed to help a company defend itself in court, rather than as something to use onboard.

Inspection technology

One new issue with SIRE 2.0 is that the inspection is closely guided by instructions on the inspector's tablet computer.

The inspector takes a specific route around the ship, guided by the tablet, including the deck, engine and bridge, Mr Spourdalakis said.

One audience delegate recalled a time in a trial inspection when an inspector was asking a question to the cook in the galley. The cook assumed they would need to find something which had been required in inspections under the first version of SIRE. The inspector had replied, 'no need, it is not asking this on the tablet.'

There is also a need to have a wi-fi printer onboard which the tablet can connect to.

Are we ready?

"The million-dollar question is, is the industry ready for SIRE 2.0," said Captain Katechos of Samos Steamship. The answer today is no, he said. But the industry might never be ready for it. TO

Lunch on the rooftop after the Tanker Operator Athens forum

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Voyage routing developments

The Blue Visby initiative tackling 'sail fast then wait', cheaper official charts for office use, and studies combining sails with voyage optimisation – some developments with voyage routing relevant to tanker operators

The Blue Visby Consortium is a project to develop a combined technical and legal means to combat "sail fast then wait" practises.

Ships may be able to make their voyages at reduced speeds, but will have a promise that they will not need to wait longer for the berth when they arrive, as a result of doing this. They will maintain their place in the vessel 'berthing order'.

Through doing this, it could be possible to reduce maritime carbon emissions by as much as 15 per cent, with average speed reductions of 1 knot, the consortium believes. Savings will be shared between owner and charterer.

Additional benefits are that there could be less hull fouling, due to ships spending less time waiting in anchorage in warm waters.

Tanker operating members include Tankers International, Mitsui OSK Lines, TORM, Teekay, and Wah Kwong.

The consortium has 32 members, also including insurers such as Lloyds, associations such as BIMCO, academics such as the University of Manchester, class societies such as ClassNK, and ports, dry bulk shipping companies and industry suppliers. it is led by Helsinki vessel performance and shipbuilding software company Napa Oy and London law firm Stephenson Harwood.

In December 2023, Australia's Port Authority of New South Wales joined the Blue Visby Consortium, agreeing to participate in a pilot program for ships visiting the Port of Newcastle, Australia.

Verification of the program was conducted by Marubeni Corporation in August 2022, based on its fleet of gas and chemical tankers. It confirmed that over 625 voyages with 68 vessels operated / chartered by Marubeni, CO2 savings of around 15 per cent could be achieved.

How it works

Participating ships would be issued with a target time to arrive at their destination, and suggestions for the route and speed, made using a ship hydrodynamic model, taking weather and congestion into account.

Any fuel savings from using the system are shared between charterers and owners. The sharing scheme is created similarly to the "General Average" system, when all stakeholders in a maritime venture share the losses from sacrificing some of the cargo of a ship, if it needed to be thrown overboard to lighten the ship in a storm.

Participants include a set of clauses into the vessel charter party, stating that the Blue Visby system will be used, and how fuel savings will be distributed.

They also become members of a mutual association modelled on Protection & Indemnity Clubs called the "Blue Visby Mutual Association". This regulates the relationships amongst participants and administrates the Blue General Average.

There could be multiple versions of the system developed for different segments of the maritime market.

Method

The system is applied to a group of vessels approaching the same destination as a system. It applies "Theory of Constraint" optimisation principles. This means identifying where constaints exist, and then optimising the rest of the system around it. The algorithm then assigns an optimal arrival time for each vessel going to this destination.

There have been other suggested methods to get rid of Sail Fast then Wait by using a 'Just in Time' system, where each ship plans its voyage in order to arrive at the exact time the berth will be available. Blue Visby calculates that this method would achieve comparable results, and may be more practical to achieve.

Blue Visby analysis shows that the method could potentially save 14.9 per cent of fuel for product tankers, 10.4 per cent of fuel for crude oil tankers, 15 per cent for small bulkers and 13.8 per cent for large bulkers. TO

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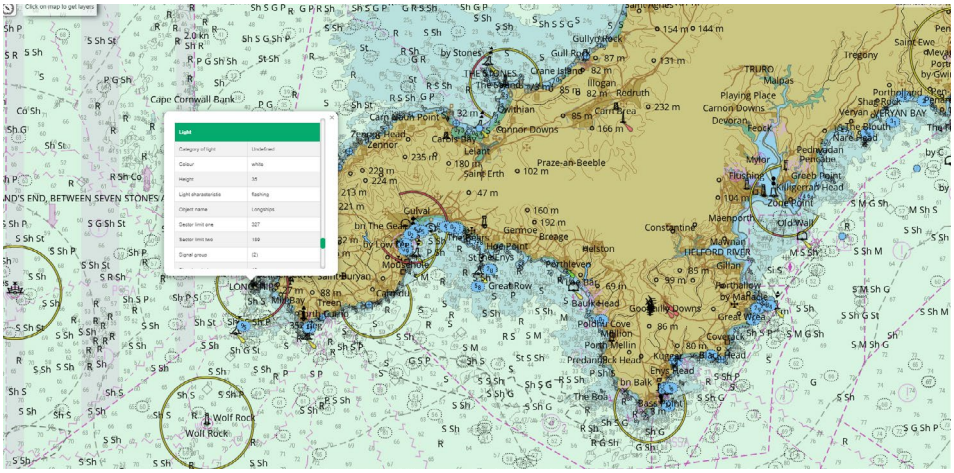
Cheaper ENCs for office use

Many hydrographic offices around the world are supporting the idea of providing official electronic navigation charts (ENCs) for use in offices at a cost much lower than the price for their use onboard ships

ENCs are expensive, to cover the costs of making charts reliable and thorough enough to be used for ship navigation. Office staff do not use them for navigation. But they would benefit from having the same charts that the ship uses, when planning and optimising routes.

Office staff would probably want a folio of charts covering any part of the world their ship might visit. Without any price reduction, a world folio would cost "many hundreds of thousands of dollars a year", said Paul Elgar, OEM business relationship manager with vessel navigation products supplier NAVTOR. This is probably prohibitively high.

Paul Elgar, manager of OEM business relations, NAVTOR



It would be useful to have official ENCs in the office as well as on the ship - but only if their pricing is affordable

The International Centre for Electronic Navigational Charts (IC-ENC), a body for co-ordinating distribution of ENCs co-located with the UK Hydrographic Office, is supporting the idea of lower cost ENCs for office use. It recommended this to its 50 member hydrographic offices and all agreed, Mr Elgar said.

Another ENC co-ordination body, Primar, is also seeking to persuade its 15 full members to agree reduced pricing, and they are expected to agree, Mr Elgar said.

Reduced pricing has not been agreed by Japan, China, South Korea, and India, he said.

NAVTOR is already launching a service to provide ENCs for office use, called ENC Online by NAVTOR. Customers will initially only be able to view charts online, not download them. A system of access which does not require live internet connection is being planned. TO

Voyage optimisation on IINO VLGC

Japanese shipowner IINO Lines has worked together with voyage optimisation software company NAPA to work out how to optimise voyages on vessels with Norsepower Rotor Sails

The study looked at one Very Large Gas Carrier (VLGC) and one Panamax coal carrier. It started in Q2 of 2024.

IINO lines is based in Tokyo and owns / operates 4 VLCCs, 36 chemical tankers, 20 dry bulk carriers, 8 large gas carriers, and 24 small gas carriers.

The study uses NAPA's Voyage Optimization software for simulation, evaluation and route / speed optimisation.

Initial studies showed that both vessels would achieve about 3-4 per cent reduction in fuel consumption using the rotor sales alone. But when used together with the voyage optimisation software, to take routes which could better take advantage of the sails, emission reductions of a further 3-10 per cent could be achieved.

A separate study found an average of 19 per cent emissions reduction from 6 major worldwide routes, when using both sails and voyage optimisation, while sails alone could achieve 9 per cent reduction.

It shows that optimal weather routing is particularly important for vessels with wind propulsion. TO

MEPC and challenging waters

IMO's MEPC agreed on what ships should do if ballast water is difficult to treat because UV light on their treatment systems cannot penetrate it, or challenges with filters. Andrew Marshall of Ecochlor explains

This spring, the IMO Marine Environment Protection Committee (MEPC) met for its 81st session where important discussions around ballast water management took place.

One of the key topics addressed was the challenges faced by ships operating in areas with dirty or difficult-to-treat water, often referred to as "challenging waters."

While ballast water management systems (BWMS) have proven effective in most situations, some ports present unique challenges due to their water quality. These ports, known as ports with challenging water quality (PCWQ), often have high levels of suspended solids, turbidity, or other factors that can get in the way of the effectiveness of certain BWMS, particularly those relying on UV treatment.

Operators report that BWMS using filtration as part of the treatment process can experience difficulties with repeated clogging of filter units leading to excessively long ballasting operations.

In other cases treatment may be incomplete or ineffective due to turbidity or high organic loads.

For example, UV-based BWMSs work by exposing the water to UV light, which disrupts the DNA or organisms and prevents them from reproducing. However, the presence of suspended solids, dissolved organic matter or other substances in the water can absorb or scatter the UV light, reducing its effectiveness in inactivating organisms.

As a result, ship's operating in these challenging waters using UV based BMWS may struggle to meet the required discharge standards.

During MEPC 81, the Committee continued working on the challenges faced by ships operating in dirty waters and discussed potential solutions. One of the key outcomes was the adoption of the Interim Guidance on the Application of the BWM Convention to Ships Operating in Ports with Challenging Water Quality (Resolution MEPC.387(81). It has taken years of work for all the stakeholders to reach a consensus.

The PCWQ guidance provides procedures for ships to follow when operating in challenging waters and offers guidance to Administrations, port States and BWMS manufacturers on how to support and oversee ships in these situations. One goal of the guidance is to have standardized steps for crew and port States to follow, and reduce administrative burden when a PCWQ presents BWMS operational issues.

Importantly, the PCWQ guidance is built on the principle that bypassing the BWMS should be the last resort in all cases. This approach emphasizes the need for ships to exhaust all available options before considering a bypass, ensuring that the environmental objectives of the BWM Convention are supported. Further, should a bypass be deemed necessary, the guidance includes procedures that are implemented to decontaminate the vessels ballast tanks and piping system to support returning to D-2 compliance.

Or replace it

Ecochlor [my company] recently completed a project on an articulated tug barge (ATB) that required the replacement retrofit of an installed UV BWMS.

The vessel's frequent operations in shallow, muddy water conditions presented significant technical challenges for their existing UV-based system.

We addressed these challenges by installing our EcoOne® hybrid BWMS, utilizing ClO2 treatment, which offers the option of automatically disengaging the filter when not in a PCWQ and reengaging it when the water conditions improve. This feature allows the system to adapt to the ship's trade route, which includes ports with varying water types, without compromising performance.

Our BWMS met these requirements, ensuring that the crew could operate the system effectively without adding unnecessary complexity to their workload. TO

Harren Group on BWTS

Wolfgang Volkens, fleet manager of Harren Group shared his experience with ballast water systems. Harren operates 26 heavy lifts, 23 multipurpose vessels, 4 semisubmersible carriers, 9 bulk carriers, 7 tankers, 2 jack-ups

In 2018 we decided to sign an agreement with the Greek maker ERMA FIRST to supply Ballast Water Treatment Systems (BWTS) to our fleet.

This agreement included our bulkers, heavy lifters and also our tankers.

The decision in favour of ERMA FIRST was taken after a long and thorough process during which different systems and technologies were carefully evaluated.

Some of the parameters we looked at were OPEX, footprint, power consumption, holding time, sustainability, lifetime of the system and key components, filter technology and maker, and unlimited capacity in turbid waters.

However, for our tankers another strong argument supported our decision for ERMA FIRST.

With the ERMA FIRST BWTS we only need to treat the ballast water when taking up ballast. During de-ballast the system can be bypassed.

Together with the Greek engineering company Naval DME a solution was found to

Wolfgang Volkens, fleet manager of Harren Group

install the system in the engine room.

That would not have been possible with other systems that would have required that the ballast water is also treated during de-ballast, since we would have to pump the ballast water from the hazardous area to the safe area. That is not allowed on a tanker.

The alternative installation location would have been the pump rooms.

But since the space in our pump rooms is very limited that was not possible and we would have been forced to install the BWTS in a container on deck.

That would have created a considerably high cost in extra piping, cabling, and the container itself.

On top of that, we could avoid installing an ex-proof system.

All systems today are in operation.

Not all systems have been trouble-free at all times. The reason is a combination of different matters.

BWTS are rather complex and include many sensors.

Some of these were not designed for the harsh environment and we are working jointly with the maker on better alternatives and solutions.

Another important task is training our crews to ensure the proper operation of the systems.

ERMA FIRST has several training centres. Our crews were trained and certified by ERMA FIRST training centre in the Philippines. Remote e-training is also available for our crew.

TO

Ballast water news

Many vessels are non-compliant says Australia; Optimarin acquires Hyde Marine; INTERTANKO's water quality database; IACS testing recommendations

Australia published a document in advance of the MEPC 81 meeting with the outcome of its study into how many systems are found to be failing the required D-2 performance standard. The answer was 36 per cent.

The document, MEPC 81/INF.6, can be downloaded at docs.imo.org (free registration needed).

The studies were made on nineteen vessels on a voluntary basis between 2021 and 2022. A further 20 ships were attended by a sampling team in 2023 with no prior notification given. Forty-four samples of ballast water were taken from the ships (some vessels sampled more than once). The forty-four samples were mainly bulk carriers, but there was 1 LNG carrier and one gas carrier.

Sixteen of the vessels (36 per cent) did not comply as shown in detailed tests.

The non-compliances were nearly all seen for the largest class of organisms (>50 micrometre diameter).

The root cause of the failure could not always be determined. Sometimes it was operational issues, such as bringing in untreated ballast water through an open valve, or cleaning an air lock in the ballast line. Other causes of failure included biological regrowth due to tank contamination, or ineffective maintenance and calibration.

The regrowth could happen if organisms are able to enter the ballast tanks, due to insufficient filtration or insufficient dosing with biocides.

Further, there were problems with the structure of the system and the sampling ports, with only eight vessels (18 per cent) found to comply with the ISO 11711-1:2019 standard.

The most common reason was inline obstructions such as elbows, T-intersections, and probes closer to the discharge line than allowed or having a probe in a vertical section of the ballast line with a descending flow.

Ten of the ships were using ballast water exchange mid ocean in addition to using a ballast water management system.

Optimarin

Ballast water treatment specialist Optimarin of Norway is acquiring the "Hyde Marine" ballast water technology brand from De Nora of Italy. It will also provide service / support for six hundred Hyde Marine systems installed on vessels. Optimarin has 1400 of its own systems installed on ships.

De Nora sold Hyde Marine due to its decision to leave the marine technologies business.

Optimarin is targeting both retrofit and newbuild orders for ballast treatment systems. It has a manufacturing base in China, so close to Southeast Asian yards.

Optimarin has service partners in the US, Brazil, the UK, Norway, Germany, Spain, the Netherlands, Romania, United Arab Emirates, China, Japan, South Korea, Singapore, and Taiwan. It has a cloud offering for remote monitoring of its systems called OptiLink. It has a centralised service centre in Stavanger, Norway, which also manages distribution of spare parts to warehouses in a number of locations around the world.

INTERTANKO water quality database

INTERTANKO has developed a database of ports with challenging water quality for ballast water systems. It can be accessed free online here

http://intertanko-pbi.norwayeast.azurecontainer.io/

Shipping companies can use it to identify locations where they should not take in ballast water, and so plan their voyages accordingly.

IACS recommendations

IACS has published its Recommendation 180, on how to conduct commissioning testing of ballast water management systems, setting out a uniform approach for testing systems, ensuring it meets the "D-2" standard.

Commissioning tests are carried out during the initial survey, and subsequent surveys which may be needed due to changes, replacements or repairs to the system.

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First chemical tanker with wind propulsion

16 metre aluminium wind sails have been installed on a 134m chemical tanker MT Chemical Challenger, which sails between the US East Coast and the Mediterranean.

16 metre high aluminium wind sails have been installed onboard the MT Chemical Challenger, operated by Chemship, based just outside Rotterdam.

It is the first chemical tanker in the world to be equipped with wind technology.

The vessel will operate between the US East Coast and the Mediterranean. Chemship anticipates a reduction in fuel consumption and CO2 emissions of 10 per cent through using these sails, leading to a reduction in CO2 emissions from the vessel of 850 tonnes.

The sails chosen are "VentoFoils", made by Econowind of Groningen, Netherlands. It works like an aeroplane wing, with a longer pathway for the air on one side than the other, leading to reduced pressure and a 'pull' force from the longer side.

Air is also sucked into the wing on the longer side, accentuating this pressure difference, so a 16m high wing has the same 'pull' force as if it was sized 30m by 30m.

Niels Grotz, CEO of Chemship, says he is personally a keen sailor, and so "I know the power of wind".

The vessel did not require additional reinforcements to install the sail, and they do not obstruct crew line of sight, said Michiel Marelis, operations director of Chemship. They were "easy" to install, he said.

They can also be folded using an automation system. They will fold automatically in wind forces above wind force seven for safety reasons.

Another reason Mr Marelis likes the sails is that they are very easy to demonstrate to customers. "They immediately capture everyone's imagination," he says. "We hope this will inspire others to choose wind assisted propulsion too."

Chemship is reducing its emissions by a further 5 per cent using coatings and improved lubricating oils, he said..

Chemship operates 15 chemical tankers according to its website, with stainless steel tanks, all between 120m and 134m. It focuses on routes between the Eastern Mediterranean to Northwestern Europe, and between the Eastern Mediterranean to the US. The Chemical Challenger is 134m, built in 2015, and classed by NYK and flagged in Singapore.

MT Chemical Challenger visits Saltend Chemicals Park, Humber, UK, to collect ethyl acetate produced by INEOS Acetyls in Saltend

The 16m sail on deck

Sails being installed in Rotterdam

Niels Grotz, CEO of Chemship, next to a sail

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