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Contents

OPENING

- 02** ■ **OCIMF news** - supporting mariners affected in the Middle East; issuing an information bulletin about elevated threats; running a SIRE inspector forum in Houston

- 04** ■ **Tanker management today needs agility says Harren** - making continuous, sound, pragmatic judgements, balancing cost pressure, the requirements of aging fleets, and regulatory expectations



- 07** ■ **Tanker recycling trends** - many sanctioned tankers sent for recycling as they struggle to find employment, more chemical tanker recycling expected later this year, followed by crude tankers in 2027

TANKER OPERATOR ATHENS REPORT

- 08** ■ **Martin Shaw's big themes for today's tanker industry** - increasing complexity, the need for resilience, safety and putting people first. There may be less time for climate focus.

- 11** ■ **SIRE 2.0 inspectors and defect reporting** - Michael Galanos, vetting superintendent of MM Marine shared his experiences. Defect reporting makes sense, but is it unjustly penalised by inspectors?



- 14** ■ **Making the most of wind** - sail types for ships have strengths and weaknesses, but you have the option of using a combination to utilise their individual strengths. Kongsberg explained

- 16** ■ **Seaven provides crews with stability, structure and support, as they work on short-sea trades** - this is how it attracts crew, when salaries may be higher on oceangoing vessels



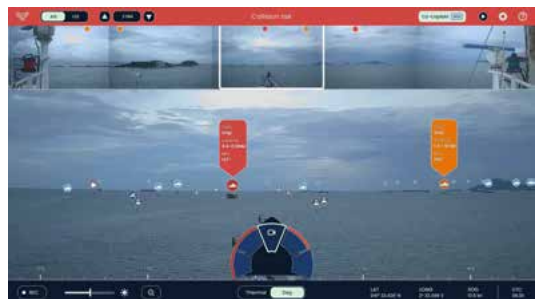
- 16** ■ **Can we really have a "no blame culture"?** How can we reduce time pressure on crew? Can we simplify reporting? What is the best approach to training? - Issues discussed at Tanker Operator Athens

TECHNOLOGY

- 19** ■ **I-Tech's "Selektope" biocide additive now used on 50 per cent of Asian newbuildings** - yet after 10 years, antifouling coatings with the substance have yet to be approved for sales in the EU

- 22** ■ **Making a plan for scrubbers** - they may now be restricted in Europe from 2027, unless you can run them closed loop to avoid water discharge. Tanker companies need to make plans

- 24** ■ **Quantifying the benefits of AI to support navigators** – services like Orca AI have been around for 8 years. Some people are sceptical. A study with North Standard proves they can work



- 26** ■ **Using more in-depth weather assessment** - how expected weather will impact a specific vessel's performance is more important as vessels are rerouted to areas with more severe weather

OCIMF news from March and April

OCIMF is supporting mariners affected in the Middle East; issuing an information bulletin about elevated threats and prolonged disruption; running a SIRE inspector forum in Houston; providing an update on HTW

As we consider how best to support mariners affected by the Middle East conflict, our focus is straightforward: keep seafarers at the centre of decision-making,” said Karen Davis, managing director of OCIMF.

“Ensuring their wellbeing and ability to operate safely remain the priority throughout this period of disruption.

“What stands out to me is the way OCIMF committees and members have come together, sharing insight, staying engaged, and working collectively to understand what this means in practice for the guidance and programmes we offer and how they may need to be adjusted in response to current challenges.

“At the centre of all of this are our seafarers, both on vessels and supporting offshore operations. Many are working under

heightened uncertainty and strain.

“We are engaging at every opportunity presented, including through the International Maritime Organization, to ensure their voices are heard and their experience is understood.

“We must ensure seafarers are properly supported and cared for, especially in conditions where fatigue and stress are real factors. Their wellbeing is critical to safe operations.

“Support is available. Special thanks to the various charities working tirelessly to assist seafarers during this time. I highlight the work of the International Seafarers’ Welfare and Assistance Network. Their Coping with Conflict guidance and moderated online sessions offer practical help, and their helpline SeafarerHelp is available, including via WhatsApp at +44 7909 470732.”

Threat information bulletin

In April, OCIMF issued an information bulletin: Prolonged Disruption, Elevated Threat and the Safe Conduct of Maritime Operations.

The bulletin reinforces good practice and highlights relevant human factors considerations. It emphasises the importance of clear ship–shore communication and shared understanding.

It recognises that sustained disruption, uncertainty and workload pressures can affect humans and their performance over time. Supporting wellbeing and listening to operational concerns are therefore fundamental to safe operations.

The bulletin encourages organisations to factor in more time for planning, preparation and additional verification before critical high-risk tasks, and to avoid unnecessary administrative burdens which may detract from safe operational focus.

It further emphasises the importance of capturing and sharing learnings from operations under sustained pressure. This includes what enables work to be done safely, and strengthens resilience and preparedness.

It is available in www.ocimf.org under news / bulletins

Houston SIRE inspector forum

OCIMF hosted a half-day inspector engagement forum for SIRE Cat-1 Inspectors in Houston on Monday 20 April, attended by 40 inspectors located in the region.



OCIMF representatives met PetroVietnam Maintenance and Repair Corporation in Ho Chi Minh in March

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Attendees were provided with presentations on the inspector training programme, as well as statistical reports on inspection reports and their quality.

Issues discussed included challenges being faced with the inspection tablet, the correct use of the response tools within the inspection programme, and updates on technical improvements to the programme and associated documents such as the Harmonised Vessel Particulars Questionnaire (HVPQ).

HTW

At the 12th session of IMO's Sub-committee on Human Element, Training and Watchkeeping (HTW 12) at IMO in February, there was a review of the International Convention of Standards on Training, Certification and Watchkeeping for Seafarers (STCW).

There is a proposal to substitute 3 months of seagoing service with simulator training for engine, deck and electro-technical officers.

Training about prevention of bullying, harassment and sexual assault at sea is to be incorporated through amendments to various Chapters of the STCW Code.

New proficiency requirements for managers for mental health and psychological safety was agreed.

There were plans for a "scoping exercise" to identify and assess gaps in IMO and other international instruments to address concerns around fatigue.

Interim guidelines on training of seafarers using methyl/ethyl alcohols and ammonia as fuel were finalised. A workplan for training guidelines for a variety of other fuels and technologies was agreed.

Mooring Equipment Guidelines

The expert review of OCIMF's Mooring Equipment Guidelines (MEG4) has now been completed, incorporating input from the Structures, Engineering, Ship to Ship and Nautical Expert Groups and the Human Factors Committee.

The project plan for the 5th edition (MEG5) is currently being drafted and a working group will soon be formed.

Drop in piracy Q1

The ICC International Maritime Bureau (IMB) – Report Q1 noted that the world saw

the lowest first-quarter maritime piracy and armed robbery figures since 1991.

Just 16 incidents were recorded worldwide, down from 45 in Q1 2025 and 33 in Q1 2024. The incidents included 14 vessels boarded, one hijacking and one attempted attack.

Meetings

OCIMF attended the Green Award Foundation Board of Experts (BoE) meeting in Rotterdam, joining specialists from port authorities, regulatory bodies, insurers, classification societies and vessel owners.

Participants made recommendations to the Green Award vessel survey schemes. Also at this meeting, Saurabh Sachdeva was introduced as the newly appointed Executive Director and Keita Shinohara as Chief Operating Officer.

Separately, OCIMF met PetroVietnam Maintenance and Repair Corporation (PVMR) to exchange practical insights on international tanker inspection programmes and maritime safety practices, in Ho Chi Minh City on 3 March.

TO

Harren – tanker management today needs agility

To survive as a tanker operator today, you need to be able to make continuous, sound, pragmatic judgements, balancing cost pressure, the requirements of aging fleets, and regulatory expectations. We spoke to Harren's director of tankers

Harren Tanker Management seeks to achieve efficient tanker operations with a focus on safety, high quality maintenance and commercial performance.

"It requires continuous agility," says Ömer Faruk Bayar, Business Unit Director, Harren Tanker Management.

Today's working environment, with aging fleets, cost pressure and increasing regulatory expectations, "does not allow for purely theoretical solutions but requires sound pragmatic actions."

"The industry does not lack concepts, we have plenty of those," he says. "What makes the difference is professional execution."

This includes execution in day-to-day decisions, how we manage vessels over time, and in how early we act.

"A vessel's performance is not defined in drydock; it's defined in the decisions taken every day onboard and ashore."

Predictive operations

Predictive operations is an important pillar of Harren's approach. It means identifying patterns early and acting before failures occur.

That comes from a combination of onboard sensor data and structured feedback from the crew. Crew feedback proves to be just as



Ömer Faruk Bayar, Business Unit Director, Harren Tanker Management

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important.

Most technical issues, whether compressors, auxiliary systems, or performance degradation, don't fail suddenly, but give advance signals, Mr. Bayar says. "The challenge is recognizing those signals over noise early enough and acting on them.

"Most failures are predictable if you listen to your vessels and crews."

"We've seen that shifting from reactive intervention to early action significantly reduces unplanned downtime."

Technical standards with cost pressure

Tanker operators have pressure from many different places to achieve high technical standards. Class expectations, charterer's requirements, shipyard scope expansion and the company's internal perception of risk.

But maintaining high standards, especially around Condition Assessment Program (CAP) or renewal surveys, means focusing on doing the right work, not necessarily doing more work, he says.

Harren focuses on making condition-based decisions. Here, discipline becomes critical. "If you're not careful, you end up over-maintaining in some areas while missing what actually matters," he says.

The company recently sold a tanker which was at a very critical phase, approaching her 20-year renewal survey. The work for the survey needed to be managed, while the vessel was prepared for delivery to the buyers.

"That period brings together technical, commercial, and contractual pressures," he says.

"What made the difference was that we didn't rely on any last-minute preparation."

"The vessel's condition at delivery was the result of consistent decisions over time, identifying issues early, managing technical scope carefully, and aligning closely with class and commercial stakeholders."

The crew maintained very high standards throughout, even though they knew the vessel was being handed over. The outcome was a controlled, predictable delivery without disruption.

It means that managing technical items requires not only technical judgment, but also coordination with stakeholders and timing.

Managing aging tankers

Managing aging tankers, while requirements and regulations are tightening at the same time, is a major challenge in the tanker



Harren's chemical tanker Patara

industry, he says.

A significant part of the global fleet is 15–20 years or older. Managing these vessels requires a very different mindset compared to newer tonnage.

"You cannot operate an older vessel with the same assumptions as a new one."

Meanwhile, charterer expectations from older vessels do not decrease at all.

The challenge involves balancing issues of safety, reliability and performance, commercial expectations and cost constraints.

The biggest tension in this is between reliability, costs and commercial pressure. Owners want to extend the life of their assets, charterers expect consistent performance, and the vessel itself has physical limitations that cannot be ignored as they could compromise safety.

A smart life-extension strategy is not about pushing the vessel as far as possible, but more about knowing where intervention still creates value, he says.

That means targeting critical systems rather than everything. Also avoiding unnecessary steel or cosmetic work and focusing on costs while never compromising on safety.

One of the most difficult decisions, and the least openly discussed, is how to decide when to stop investing. "The decision is not whether the vessel can continue, it's whether it still makes sense for it to continue."

"Extending a vessel's life only makes sense if it remains operationally reliable and commercially viable," he says. "Every vessel has a technical life and a commercial life. They are not necessarily the same."

The role of technical management is

to navigate that space realistically, not optimistically, he says.

"There is always a point where further investment does not improve reliability or commercial performance sufficiently to justify the cost."

"Recognizing that point requires experience, transparency, honesty and a realistic view of the vessel's condition, not just technical capability."

SIRE 2.0 and crew

SIRE 2.0 has increased the level of scrutiny and complexity significantly, he says. But it does also contribute to safe operations.

Compliance itself is not the biggest challenge. What is hardest is aligning the expectations of compliance with real operational conditions onboard.

The expectations of auditors, and the documentation requirements, sometimes do not make for a practical level of workload for crew on aging vessels.

"We risk measuring the system more than improving it," he says. "Managing that gap is becoming a key part of operations."

The crew is the ultimate deciding factor about how a vessel performs, he says. "Two vessels with identical specifications can perform very differently depending on the decisions taken onboard."

With crew, "what we've seen consistently is that early and transparent reporting, an ownership mindset and disciplined execution have a direct impact on technical performance, inspections, and overall reliability."

Trends in tanker recycling

Many sanctioned tankers are now being sent for recycling as they struggle to find employment. More chemical tanker recycling is expected later this year, followed by crude tankers in 2027. Wirana tells the story

Most of the tankers currently being brought for recycling (scrapping) are sanctioned vessels, previously carrying Russian and Iranian oil, which are now struggling to find employment, says Hitesh Vyas, Vice President Middle East at Wirana Shipping, a cash buyer of end-of-life vessels.

In the mainstream tanker market, freight rates have been rising since about 2023. This is due to the increase in tonne mile demand due to geopolitical events, and lower rates of newbuilding deliveries. So, owners have less incentive to recycle them, Mr Vyas says.

But many of the 1300 sanctioned or “dark fleet” vessels, carrying Russian and Iranian oil, are now struggling to find employment. The EU and US is doing increasingly strict enforcement, using their militaries to stop vessels. 632 vessels in Russia’s shadow fleet are listed by EU and have a ban on access to port and a ban on receiving any services from the EU. So sanctioned vessels are increasingly being brought for recycling.

“It is getting difficult for a lot of sanctioned vessels to operate,” he says.

Some of their owners are seeking to get rid of sanctioned vessels and acquire non sanctioned vessels.

India does not have any clear law which prohibits receiving a sanctioned vessel for recycling. Banks will always refuse to handle the payments, but recyclers can find other methods to transfer funds.

As a general point, it is important that these vessels have some kind of “exit strategy” from the seas, although it is understandable that no government wants to see their owners getting paid, he says.

Sanctioned vessels can be purchased at discounted prices by ship recyclers; it puts ship recyclers who do not want to buy sanctioned vessels at a disadvantage.

It means that sanctioned vessels may be recycled earlier than typical non sanctioned vessels, at 22-28 years rather than the typical 30-year age for recycling a clean tanker, he said.

Chemical and crude



Tanker being recycled

Meanwhile in the non-sanctioned market, there is a predicted surplus of chemical tankers, from the end of 2026 onwards. So, there is likely to be more chemical tanker recycling, he says.

There is a little “softness” showing in the product tanker market, so there could be product tankers coming in for recycling after chemical tankers, from 2027.

In crude tankers, there is no immediate surplus problem. The sector’s economics has been helped by geopolitics, with vessels routed around the Cape of Good Hope, Russian oil going to India or China rather than Europe, and Europe sourcing oil from Africa or the Middle East, rather than Russia.

If the crude tanker market continues to be strong, some owners of product tankers may convert their vessels to carry crude (from clean to dirty).

Oil majors will typically only employ vessels up to 20 years old, but then a second set of charterers come in, who are happy to take older vessels.

Another factor is that the Carbon Intensity Indicator (CII) requirements may push many tankers to be scrapped. Many are expected to receive an E rating at the end of 2026, which means they are not very employable in the clean segment, unless they reduce speed 10-20 per cent, which may not be feasible, he said.

These tankers may get absorbed into tomorrow’s dark fleet rather than be recycled. This could in turn encourage more recycling of current dark fleet tankers, he said.

Recycling yards

Ships can be recycled in India, Bangladesh, and Pakistan. In the last 2-3 months, Bangladesh has been the leader in terms of prices being offered for recycling candidates, he said. This is because the local market for buying scrap steel is stronger in Bangladesh.

Since June 2025, ship recycling facilities have required to be HKC certified (The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships).

There are 28 certified facilities in Bangladesh, 3 in Pakistan and over 110 in India.

Because Bangladesh yards can pay more, the only vessels going to India are sanctioned ships, which Indian yards may be more willing to accept, he said.

Other categories of ships going to Indian yards are those with former owners who particularly want top quality yards, beyond the HKC standard.

Some chemical tanker owners, including Odfjell and Stolt, want to set very high standards for their vessels to be recycled,

inviting offers only from pre-approved yards, he says.

Also specialised ships, such as with heavy machinery, chemical tankers with stainless steel, and offshore vessels. There are Indian yards which specialise in these vessels.

Turkey has been receiving more vessels for recycling in the past 2 years. Its big advantage is being an OECD country. The Basel Ban Convention prohibits transport of waste from an OECD country to a non-OECD country. So, if the final voyage of the vessel is from OECD waters, it can only go to Turkey or any other OECD country for recycling.

About Wirana

Wirana, based in Singapore, claims to be the oldest and one of the largest cash buyers of end-of-life vessels in the world. It buys vessels in all segments, typically with an annual average buying of 100 vessels over period of last 15 years.

Wirana jointly owns a shipyard in Alang, R.L.Kalthia Ship Breaking Private Limited. This was the first yard in the Indian Sub-continent to get HKC certification in September 2025.

Wirana team have strong business relationship built over decades of working personal relationships with the management of many other shipbreaking yards.

It offers ship recycling supervision services, for owners who want to maintain an overview of the process under their corporate social responsibility policies. It is able to give its customers good advice about which yard may be most suitable for their vessels. They can receive weekly or monthly reports, with photos and statistics.

Wirana has been mentioned twice in the Guinness Book of World Records for the purchase of the largest vessels sold for recycling. This was for the 516,000 dwt ULCC Kapetan Michalis in 2002, a record beaten by its purchase of the 555,000 dwt Sea Giant in 2003.

TU

Martin Shaw – complexity, resilience and safety

Big themes for today's industry are managing increasing complexity, need for resilience, safety, putting people first. With so many worries, there is less time for climate change. Martin Shaw shared his perspective

Over the past 25 years, life in tanker operations has become more complex, resiliency is more important, and there is less time for concerns about climate change, said Martin Shaw, a past president of marine engineering association IMAREST and a past head of vetting with BP. Safety continues to be a major concern, and shipping companies who put people first may do best.

Looking back over the past 25 years, we can see the first decade of the 2000s was a time of optimism and relative peace. People had time and energy to think about environmental issues, he said.

That decade ended with the financial crisis. Then in the 2010s we had more political turbulence. People realised that they could no longer rely on just-in-time supply chains. We had the Arab Spring in 2011, the growth in social media, the 2016 Brexit vote in the UK. People talked more about climate change,

although the rules weren't very clear. "Things were getting more twitchy in the world," he said.

In the 2020s we saw economies in a desperate state after Covid, with governments running out of money. We have the Ukraine invasion, issues with freedom of navigation in the South China Sea and Straits of Hormuz, something previously seen as established fact. "We've moved to a different world," he said.

In the tanker sector, there have been problems in Hormuz, freight rates have been very volatile, there are now concerns about availability of fuel.

It has all given people many things to worry about, and it may not be surprising if climate change is going down the list of concerns, he said. People can only worry about so many things at once.

Working with complexity

Tanker operations are working with increasing complexity. It means we see events and incidents happening in different ways, even if the root causes are familiar.

The state of the world can be defined as "complex" where we don't know what is going to happen next. This is different to "complicated", where things are difficult, but you can work out roughly what is going to happen, and "simple", where things are easy to understand and predictable.

We see complexity with events in Iran, with multiple factors linked together. Behind everything there are complex adaptive systems competing for scarce resources. There are many different interactions going on, with people trying to make things happen for themselves.

A complex system can seem organised, and then suddenly disorganised, with things emerging which aren't predictable, although to some degree explainable afterwards.

In the tanker industry, complexity can be driven by traders, who "thrive in complexity," finding ways to sell oil cargoes to different buyers. Meanwhile seafarers wonder about what is going on.

The shipping industry itself has enormous complexity, with different kinds of cargo owners, regulators, different companies involved in running ships, ports, insurance, and industry organisations.

We have regulatory complexity. Governments set up Port State Control to protect their ports, mainly due to tanker incidents. They joined up to form "Memorandums of Understanding", created blacklists, and pushed IMO to change its behaviour.

Then the tanker industry has a complex vetting system designed to protect charterers from substandard tankers, involving independent ship inspectors.

Vessel traders find it confusing to work in an environment where they do not know if a ship is



Martin Shaw, former president of IMAREST



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accepted, so they ask that shipowners get about four oil companies to agree that their vessels are acceptable, to make their lives easier.

So, we have multiple factors driving each other in tanker shipping.

Resilience

With so much change happening, resilience is a survival strategy. Resilience can be defined as the ability to succeed under varying circumstances or conditions, he said.

When operations move outside normal boundaries, stress starts to build. Initially the organisation can stretch to adapt to it, but then there are stronger warnings that something needs to be done, or you are heading towards failure. Then you get to the point of no return.

You might see “brittle failure”, where everything collapses, or “graceful failure,” where something fails more slowly.

An example of brittle failure is a class of UK Navy Type 45 destroyers which have gas turbine engines which immediately fail when the seawater rises above 30 degrees C. “You end up with a billion-pound destroyer sitting in the middle of the ocean with missiles heading towards it and no way to respond.”

With graceful failure, systems gradually slow down, giving you time to adapt. “You should be reorganising the system to put more resources in it. Anyone who’s been involved in a real emergency crisis involving a ship will recognise this.”

A fully resilient company will have resilience in its strategy, in its operational and commercial management, in how it manages its resources, and in day-to-day operations, “at the sharp end”. These things happen at different time scales.

Organisations can be described to have “downward resilience”, how they are set up to be resilient, and “upward resilience”, mainly linked to people’s skills.

In the middle, resilience is linked to how well organisations learn from things, respond to things, monitor what to look for, and anticipate things.

Resilience is managed in the company using people’s knowledge and the company’s systems. This includes knowledge about the company, knowledge about the ship, technical skills of

the staff. Examples of systems are the company management systems, maintenance systems, ship systems, risk management systems, and decision making systems.

Climate change

Meanwhile, climate change is getting less and less attention. And when regulators decided the maritime industry would be unable to meet 2050 targets, the response was to introduce 2030 targets, to try to force people to pay attention, he said.

Climate change involves many new technologies, and tanker operators should remember that the shipping industry has a background of introducing environmental technologies where the initial versions did not work.

For example, the first oil-water separators introduced on ships needed to be replaced after 5 years. The first garbage incinerators introduced on ships were shore technology, which turned out not to work well on ships. Some of the first scrubbers introduced on big ships saw failures, with vessels needing to go to dry dock 6 months later to fix them.

Another challenge with future fuels is the “chicken and egg”, where no shipowner wants a ship that relies on a unique fuel without a supply network, and no supplier is going to build a global network without customers.

LNG fuel could get around this problem with supply and demand both being initially concentrated in Northwest Europe. Green corridors are a pragmatic solution to this problem, although many of them rely on the Suez Canal, which has been unavailable to shipping in recent years.

Meanwhile everyone expects the industry to still be reliant on at least some oil in the 2050s, he said.

Safety management

The maritime industry often says that “most” accidents are caused by human error by seafarers. Mr Shaw’s view is that every accident on a ship is caused by human error, but not usually the error of seafarers, more likely errors by ship managers, designers or regulators.

It would be more appropriate to see seafarers as a source of resilience, preventing many problems getting more serious. “You don’t hear about 99 per cent of time when they are sorting out problems that other people created. You only hear about everything going wrong,” he said.

Meanwhile there is a movement from OCIMF and others to move shipping company management from being orientated around procedures to being orientated around the human element. “But we don’t quite get there because we can’t get away from this ‘seafarers

are the cause of human error,’” he said.

Rather than address faults in the management systems, it is easier to say that accidents are a seafarer’s fault. It avoids saying that the problem is with the management system, which could enable a charterer to claim that the vessel is unseaworthy, he said.

Automation systems onboard ships can increase risk when they mean seafarers have no experience of certain adverse events, until they get too bad for the automation system to cope with, and the person has to take over.

“The irony of automation is that it hides the problem until the very last minute. Then throws it at the seafarer, ‘you deal with it now, I can’t cope anymore.’”

Mr Shaw once worked on a ship built in 1950 which had no automation onboard at all, it was designed to run manually. This forced crews to understand the cause and effect of different factors, and how it was designed.

Who puts people first?

The best way to improve safety is to put people first. But it is hard for inspectors and the charterers behind them to discriminate between companies which are putting people first, working towards improvement, and companies that are trying to game the vetting system.

There can be some ‘tells’, such as the shipping company which told the inspector that staff used its manual every day, but inspection of this manual found pages that could not be opened due to printing errors. The text also contained references to a non-related shipping company, which suggested the text had been taken from this company.

If a company seems keen to point the blame in the event of an accident, that indicates they are less interested in continuous improvement.

Mr Shaw once had a discussion with a company at TMSA level 0, who wanted assistance reaching TMSA level 4 within 3 years, because they thought oil companies required it.

Mr Shaw recommended that rather than spend enormous amounts of money doing that, they should focus on achieving level 2, but build in solid management systems behind it, which people can easily follow. This means the level 2 status can be easily maintained.

Level 2 is the highest level that most oil companies require today, and that is only for time charter.

After achieving level 2, the tanker company could then select specific aspects of level 4 requirements which it wanted to get better at for its own benefit.

Inspectors can see the signs that a company is aiming for a specific TMSA score, rather than seeking to continuously improve, he said.



Michael Galanos – vetting, SIRE 2.0, inspectors, defects

Captain Michael Galanos, head of vetting and marine with MM Marine, and a former VLCC master mariner, shared his experiences with SIRE 2.0 inspections, including experience with oil majors, local peculiarities and defect reporting

MM Marine of Athens operates suezmaxes, LRIs and bunker barges, all subject to the SIRE 2.0 inspections.

SIRE 2.0 has been in place for almost 2.5 years now and has led to dramatic changes in how companies address human factors, how they report defects, how they manage hardware, and communication between office and vessel, said Michael Galanos, head of vetting and marine with MM Marine, speaking at the Tanker Operator Athens conference.

SIRE 2.0 needs to be looked at as a framework for continual improvement. Not a one-off task which is considered completed if you have a vetting inspection with a low number of observations, he said.

It is possible to see crew on 20-year-old vessels getting more optimal results than a newbuilding. Not because the newbuilding crew do not know their job, but because the crew on the 20-year-old vessel have better adaptation with the vessel's hardware and machinery and can reflect in a better manner on the safety and maintenance system instructions, he said.

MM Marine data

Captain Galanos presented MM Marine's own SIRE 2.0 data. In September 2024, when SIRE 2.0 started, there were 6.5 average observations per inspection. This reduced to 5.3 in 2025 and 4.6 for the first 3 months of 2026.

While this trend is in the right direction, it doesn't mean the company is perfect, he noted. It is possible another inspector could make 1000 observations.

25% of its findings in 2025 are for "process", reduced from 42% in 2024. But there were a growing number of observations for "hardware", now 42%.

33% of its observations in 2025 are for "human element", compared to an industry average of 37% for INTERTANKO members. The 25% observations for process compare to an industry average of 31%.

There is still plenty of room for improvement in both process and human element categories, he said.

There have been some observations allocated to Chapter 5 (safety management) which perhaps belong to a different category, such as for machinery. Safety observations may rank of the highest concern for oil majors when assessing fitness for charter.

You can get multiple observations for the same thing, such as a gas detector not working, first because it was not reported, and second because the defect reporting system is not working.

It does not seem right that crew operating bunker barges are subject to the same SIRE 2.0 requirements as crew on a vessel on a 10-day voyage, including to do regular risk assessments, he said.



Michael Galanos, head of vetting and marine, MM Marine

Bunker crew may load the vessel every 2 days and have 3 discharges a day. With so much activity, there is more potential for error, he said.

Defect reporting

SIRE 2.0 forces more focus on defect reports. Companies have been getting observations because defects were found by an inspector which had not been previously reported. So seafarers are asked to make sure they are all reported in advance.

Previously, it was common for officers to just fix many defects, but not to report them, he said.

Captain Galanos believes that inspectors may look more positively on a vessel if they see it has some defects reported. If you don't have any, they may distrust you and try harder to

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find defects as they look around the vessel, he said.

Good defect reporting can also help with port state control inspection. If your ballast water treatment system is not working and this is reported in your ballast record book, you are unlikely to be detained. Port state control detentions can be much more costly to a tanker operator than multiple observations in a vetting inspection, he said.

But reporting defects can work against you. In one case, Captain Galanos' company reported two defects related to safety equipment. "I don't believe they were major [defects]," he said.

But as a result, the vessel was rejected by a big charterer while underway from Venezuela to the US Gulf, and could not berth at the receiving terminal. This also meant that the spare parts needed to fix the defects could not be delivered to the vessel.

So, while Captain Galanos supports the idea of reporting defects in general, oil companies should take care that they don't penalise defects just because they were reported, particularly if the inspector probably would not have found them.

The 42% of MM Marine's observations which are related to hardware could be largely due to its thorough defect reporting, he said.

It would be good if more problems could be fixed onboard so they don't need to be reported as a defect, which could perhaps be done with more supply of spare parts onboard, he said. But this could be very expensive.

Shipping companies can make defect reporting easier. Defect reporting forms can be 6 pages long, so take a lot of time to fill in. That is a long time to spend on a problem which may be already resolved by that time.

Another discentive to defect reporting is that you may get into an argument with someone in the office, asking how it is possible that something is not working, when it was fine in dry dock. "I have heard this conversation too many times," he said.

Issues with inspectors

Captain Galanos has seen inspectors record observations where a crewmember is said to be "familiar, but unprepared". This can happen when someone seems to get stuck answering questions. The person may know the answer but be lost for words in the stress of the interview. "At the end of the day, he knows."

Someone can get an observation "did not practically demonstrate the required procedure." This may happen because the person was tired and forgot something, he said.

SIRE inspectors appear to be bringing their own personal style to the vetting process, he said.

It sometimes appears that inspectors working for the major oil companies are being more lenient, he said. This is the opposite of what was seen on the previous version of SIRE.

This means it can be a clever move for a tanker operator to request an inspection on behalf of a large oil company, "if you think you have a vessel that's capable to do it."

Another challenge with inspections is that they can only be done easily in certain ports. "The vessel is in Saudi Arabia; Saudi Arabia doesn't have inspectors. There are no Greek inspectors with a valid Saudi Arabia visa to go there."

There are many parts of the world where it is not possible to be inspected, such as West Africa.

So you may want to start planning the next inspection 5 months before the current inspection expires, he said.

Captain Galanos has had experiences of inspectors cancelling at the last minute, because they had an opportunity to inspect a vessel which was closer to their home. A vessel without a recent inspection cannot be chartered, so this has commercial implications.

When it comes to reviewing the inspection report, different oil majors have different priorities. For example some prioritise rest hours, others prioritise the quality of the passage plan, he said.

Approval appears to depend on how badly the oil company needs the vessel, "If there is a war, if they need carriers. Today you are approved, tomorrow you are not approved, that's the reality."

The company had many observations in the early days of SIRE 2.0 in the "process management" category. Captain Galanos believes many inspectors have a flawed understanding of what "process" is.

It is not just the text in the safety management system. It also includes the instructions placed next to the relevant instrument or put on a poster on the wall, he said.

The vetting inspections are stressful for crew. To try to reduce the stress level, MM Marine emphasises to crewmembers that they know their vessel much better than the inspector does. The inspector knows how things should be on a ship, "but he doesn't know your vessel."

Crew should have the confidence to tell an inspector if they don't understand the question.

Another issue is that some charter party contracts with oil companies state which inspector a vessel should use, Captain Galanos said.

Martin Shaw, former president of IMAREST, noted that one of the original purposes of SIRE was to create a standardised system so oil companies could use reports

from any inspection company. This was to avoid a problem of vessels getting too many inspections. If oil majors are now asking for certain inspectors, this is "totally against the original idea of SIRE."

One audience member said he suspects some inspectors are seeking to increase the number of observations, just so it demonstrates that the system is working. "I don't believe the number of observations reflects the actual risk status of the vessel," he said.

Internal vetting

Internal vetting is not something which can be done by someone onboard a vessel in 5 hours during a port call, completing a checklist and sending an e-mail with a list of observations to the chief engineer, he said.

To get a full understanding of how a vessel operates, you need to visit the vessel at least once a year and see the crew at work at different activities. You should do personal interviews, look at hardware and see how safety is managed.

"5 days is the minimum to stay onboard and for people to start speaking to you, especially if you don't know them. You need to be an active listener," he said.

While doing this, the company should check crewmembers are OK, eating well, and not fatigued. The company needs to support crewmembers to be motivated, and give them reasons to feel loyalty to their company.

Simplifying procedures and forms

Shipping companies could help crew greatly by simplifying the procedures and forms, only to what is needed for the specific vessel, he said.

For example, filling in a risk assessment form can require asking other people for information, making calculations about the potential cost of damage, or making comparisons. It would take a working group to do it properly. Yet crew are asked to do it in a few minutes by pressing buttons on a tablet.

By having forms too complicated, people may be inclined to copy text from other documents, such as having the same 'mitigation actions' for different activities.

Perhaps some risk assessment processes could be reduced to a simple checklist, he suggested.

If you ask crew what they think of your forms, "2 out of 10 people will provide something valuable for the company," he said.

It would also help if crew were given uninterrupted time to do their work, rather than being asked to stop to escort a superintendent on the gangway, or provide an immediate reply to an e-mail from a charterer.

TO

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Making the most of wind

The sail types for ships have strengths and weaknesses, but you have the option of using a combination to utilise their individual strengths. Manufacturers may not tell you this. Kongsberg explained

Rotor sails may be best for going downwind (with the wind behind you).

Wing sails or suction sails may be best for going upwind (into the wind).

With a combination of sail types on your deck, you can make good utilisation of the wind whichever direction it is.

This is not something any sail manufacturer is likely to tell you, because they all only sell one type of device.

But Kongsberg can, as an independent vessel designer and automation / software system supplier which does not make sails itself, said Oskar Levander, senior VP business development, Kongsberg Maritime, speaking at the Tanker Operator Athens forum in April.

Kongsberg's modelling shows that wind assisted propulsion is one of the most effective energy saving devices, much better than air lubrication. For an 80,000-dwt bulkier, advanced air lubrication solutions (with a special sloping hull form) may save up to 11% of fuel cost, and wind may save 18%, he said.

It can make buying and running the ship less expensive overall. Kongsberg has calculated the "levelized" annual cost of running a vessel with these devices, considering both capital and operational costs, and CO2 benefits. It found that a vessel can have 84 per cent of the levelized costs of a typical vessel if it uses wind, and also goes at a slower speed, and uses a shaft generator.

But it may take 5-6 years to pay back the investment. The investment is high – Euro 5m for a bulkier or tanker with 5 devices, he said. This means wind devices can be the most

expensive part of the ship after the steel in the hull, more expensive than the main engine for many ship types.

But it shows that there is still financial payback without incentives from future regulations, which are currently uncertain.

Oil companies have been taking

an interest in the technology, particularly after seeing claims from shipowners about the benefit that wind propulsion will provide on vessels they charter.

An oil company once asked Kongsberg to provide independent evaluation of claims made by a shipowner and was able to confirm the claims were feasible, he said.

And if you have a vessel operating to or from Europe, wind propulsion will help you comply with FuelEU Maritime.

This requires a gradual reduction of carbon content in the fuel or "energy sources" a ship uses. Wind propulsion can count as an energy source here.

Sail types

There are many options for sails and other wind devices, just as there are many options for propulsion systems, such as different types of propellers, thrusters, and pods, he said.

The four main wind devices are rotor sails, suction wings, wing sails, and kites.

Rotor sails and suction wings provide good lift per area of deck space they use and use a similar amount of deck space. They both consume electricity.

Rotor sails are not so good when you have headwinds (the wind direction opposite to the vessel direction).

Rotor sails work according to the Magnus Effect. There is a vertical cylinder spinning with an electric motor. As wind passes across the cylinder, the rotation speeds up the wind on one side and slows it down on the other side. This creates a differential in pressure, which gives the vessel lift.

The lift direction is then perpendicular to the wind direction. But it is not so sensitive. If the wind angle changes a little, it can still push the vessel in roughly the same direction.

A suction wing does not rotate. It has more of a traditional sail shape. There is a mechanical fan sucking in air, reducing the pressure on one side of the wing. The pressure differential between both sides of the wing creates lift. It can create lift in a wide variety of wind directions.

Both rotor sails and suction wings also create drag (air resistance to vessel movement). The rotor sail creates more drag than a suction wing, having a wider profile facing the wind. So, if

you expect a vessel to see a lot of headwind, a suction wing may be a better option.

But a rotor sail is better than a suction wing if you have side winds.

The wing sail, the third option, does not spin or have any electric motor, but its angle of attack can be adjusted. It can work in headwinds. It is not as good at low wind speeds. It takes a larger amount of deck area, and you don't get the same amount of lift per area of device.

Wing sails provide better performance and are better going upwind. They are bigger and more expensive.

Kites, which fly in the air attached by a rope, could "potentially be very good" but there are uncertainties with the technology. "They are not really mature enough," he said.

The best solution may be to have different devices on the same ship, so between them you can get good performance with the wind direction upwind (facing headwinds), sideward and downwind.

When you are choosing your device, the best choice depends on which part of the world you operate in, the typical winds and their most common direction. For tankers, the deck layout and piping needs to be considered.

You need to ensure the vessel has the structural strength to hold them, and they will affect stability. This is not usually a problem with a tanker or bulkier, he said.

Wind devices can also create complications. Wind devices can also create complications with the steering balance of the vessel. The rudder may need to be turned at a high angle to make the ship go straight.. This creates extra drag.

Wind and the engine

There are complexities in how you combine wind power with engine power.

The thrust provided by the sail will vary with the wind power. When you have more wind thrust, you do not need so much power from the propeller, so it is "running light."

Ideally, you should have a controllable pitch propeller, to adjust the power provided by the propeller. It would be easier for crew if this adjustment can be made automatically in response to the wind speed.

After adjusting the propeller to run light, your



Oskar Levander,
senior VP business
development, Kongsberg
Maritime

engine is also running light. Ideally you would then use surplus engine power to drive a shaft generator, so you don't need to use auxiliary engines.

If you have surplus power onboard, you could use it to charge batteries, if you have them. If the batteries are full, maybe you would like to use the extra power to make the vessel go faster, which means you arrive earlier. So, you need a refuel the voyage plan.

Other devices

A further issue to consider is what devices to have together with wind propulsion.

A shaft generator can be beneficial, generating power to run the rotor sails or suction wings.

When you have more wind, you have less need of the engine for propulsion, and so there is more power available from the engine which can be used by the shaft generator.

A frequency converter is useful, to adjust the frequency of the electricity to match the desired frequency on the switchboard despite changes in the shaft rpm.



Conceptual image of wing sails (left), suction wings (centre) and rotor sail (right) on one tanker. The wing sail improves sailing performance at higher speed and during upwind legs; the suction wings improve general performance on a small deck footprint; the rotor sail enhances sidewind and downwind performance

A controllable pitch propeller makes it easier to control the propulsion power. You can have one day with strong wings providing 50-80 per cent of the vessel's thrust, and another day getting nothing.

It is possible that wind devices may obstruct the view from the bridge in certain directions, which can be a problem with navigation. You can get around this using cameras and screens, he said. It is a bigger problem with wing sails, which are the biggest devices.

desired time, and what speed to go at different stages of the voyage.

Kongsberg has a solution "K-Sail" to do this. It is a system which sits on the machinery control system, communicating with multiple automation systems, including power management / energy management systems, and communicating with propulsion control to adjust the pitch of the propeller, and also connecting with vessel steering and autopilot.

K-Sail also communicates with digital systems onboard, including the voyage plan and emissions reporting.

The crew should not be expected to develop deep sailing competency, because much of the decision making can be done with digital tools such as this, including decisions of when sails should be used, and the angle of attack.

Mr Levander presented some examples of the additional benefits K-Sail can provide.

A 12,500-dwt general cargo vessel running on the West coast of Europe / Mediterranean, with a 28m rotor sail and a 36m suction wing, could see full savings of 4-29 per cent with wind. But with K-Sail in addition, savings are 5-38 per cent.

A 82,500-dwt dry bulk carrier operating in North Atlantic with 3 x 35m rotor sails and 2 x 36m suction wings could see savings of 20 to 36 per cent from the wind, and with K-sail in addition, could see savings of 25 to 48 per cent. So, the automation system drives an increase of 5 to 12 per cent.

A 15,000-dwt chemical tanker operating in the Baltic Sea / North Europe with 4 x 16m suction wings could get 9 per cent savings from wind, but with K-Sail in addition, could get 15 per cent.

The first vessel designed by Kongsberg for wind propulsion, and with K-Sail onboard, is "Tern Vik," operated by Termtank. It has 4 suction wings onboard. Tests so far have shown that real performance provided what was expected by the software. "We are very happy the owners are willing to let us test and adjust the system," he said.

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There is a possibility of using dagger boards to stop the vessel from drifting due to side winds. There are some "real" sailing vessels using daggerboards, so they are used. But, daggerboards are not common on ships using wind assist for fuel savings.

A deep and long hull will avoid the impact of side force, but a wide hull will be better for stability.

K-Sail

It can be impossible for a person to work out the best way to set everything, including taking weather predictions into account.

So, a digital system will be a big help, working out the most efficient way to arrive at the

Seaven crewing: stability, structure and support

Seaven provides crews with stability, structure and support, as they work on short-sea trades, explained Nikos Chanos of Seaven. This is how it attracts crew, when salaries may be higher on oceangoing vessels

Seaven is a shortsea shipping company operating mainly in Europe, Mediterranean and the Black Sea, with a mixed fleet of oil / chemical carriers and cement carriers.

This shortsea trade can be toughest for crews, with much more port calls than on oceangoing vessels, and frequent tank cleaning.

Salaries may be higher on oceangoing vessels. But Seaven manages to attract competent crew, in particular by offering them stability, structure and support, explained Nikos Chanos, crewing manager of Seaven, speaking at Tanker Operator Athens forum.

For stability, it aims to keep the same crew on the same vessels, so people always work with the same colleagues.

It aims to provide ships with strong communication and support from shore.

The structure means providing proper training for crew, and giving them a realistic workload, with predictable rotations.

Today's generation of seafarers care a lot

about work-life balance, he said. They want their workload onboard to be realistic (although there are times when workload is high). They want to see a career development structure, starting at cadet level. It would be ideal if a young seafarer knew how long it would take them to become a senior officer.

Crew members typically spend shorter periods onboard than on oceangoing vessels, usually around three to four months.

This shorter rotation cycle creates increased demands on the crewing department, requiring more frequent crew changes and careful planning to maintain continuity and operational standards, he said.

For support, today's seafarers typically want to see a master who provides clear instructions, and acts as a mentor.

They want office staff, particularly managers and superintendents, to work as a team.

Many crew prefer working in Europe, seeing it as a more stable region of the world, he said. It means the Greek crew are closer to their homes.



Nikos Chanos, crewing manager of Seaven

The oil and chemicals sector maintains exceptionally high standards, with demanding vetting requirements, intensive workloads, and the handling of complex cargoes.

This means that crew are continuously developing their expertise, and stay fully engaged with the profession, he said.

As crewing manager, Mr Chanos supports the captain and chief officer on the vessels to be more supportive to their crew and be clear with the instructions they give.

TO

No blame culture, time pressure, reporting, training

Can we really have a "no blame culture"? How can we reduce time pressure on crew causing accidents? Can we simplify reporting? What is the best approach to training? Issues discussed at Tanker Operator Athens forum

Many shipping companies say they have a "no blame" culture. No-one wants to be blamed for anything.

But as the amounts of money increase, and charterers and insurers get involved with their lawyers, can it be done?

Seaven tankers seeks to have a no blame culture on board, to encourage open discussion after any incident to find out how it could have been prevented. "When we discuss things I believe we find a solution in the end," crewing manager Nikos Chanos said.

There are times when not everybody seems to welcome an open exchange of ideas

however, he said.

When incidents involve large amounts of money, it gets harder to avoid blame, MM Marine's Captain Galanos said. "Someone can lose \$2m in one day for a mistake, for the wrong approach."

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Discussion panel at Tanker Operator Athens. Martin Shaw; Michael Galanos, head of vetting and marine, MM Marine; Dimitris Lyras, director, Paralos Maritime; Nikos Chanos, crewing manager, Seaven; Konstantinos Kyrrou, Deputy DPA/CSO, HSQEE Officer, Capital Ship Management

with open style conversations, to be aware of what is going on.”

Martin Shaw, former president of IMAREST, noted that in his experience the “no blame culture” can only work with incidents below a certain cost level. If there is more money involved, or the charterer has to get involved, it may become a legal issue, with one party seeking compensation.

Under maritime law developed in the 19th century onwards, a shipowner can be insured against actions of crew, but to make a claim, they need to confess to something a crewmember has done wrong. In other words, to blame a seafarer, he said.

“You’ve got the person onboard the ship feeling he’s being unjustifiably blamed for something.”

Sometimes this goes to the extreme where people discuss seafarer’s actions as though someone wanted to have an accident. Ship management expert Kuba Szymanski once said, “you do realise that people onboard ships do not get up in the morning and decide to die.”

Conversely, if the fault is found to be with the vessel’s management systems, this can be considered part of the “seaworthiness” of the vessel, which the owner promised to the charterer. So the owner can be sued for this. So the owner has two incentives to blame a seafarer.

At the same time, the ISM code, introduced in 1993, has a clear aim of supporting shipping companies to learn from any incident. It requires an analysis of the incident and changes to the processes if necessary.

Dimitris Lyras of Paralos Maritime said that in his experience of managing ships, you get more information about any incident if you tell seafarers that the company is ultimately to blame for whatever happens, and it is a shared problem.

If a shipping company has an incentive to put the blame on a seafarer in order to make an insurance claim, shipping companies can separate the external and internal discussions.

External discussions are with insurance companies, while internal discussions seek to understand the true cause.

Internally, a shipping company can tell staff that the investor is ultimately to blame. The true cause may be manning levels which were limited to what the investor would accept, for example.

In one situation Mr Lyras bought a “lousy ship” which was very difficult to get to work properly and get chartered. Instead of pushing crew to make things work, he had to admit, “I bought this piece of junk”.

More typically, shipping companies have investors who don’t know what is going on and don’t want to know.

Time pressure

Seafarers often feel strong time pressure, which can lead them to do things they know are unsafe.

People can be put under explicit time pressure, when they are told to do something quickly. Or they can feel implicit time pressure, where the management system indirectly makes people feel under pressure to do things. Such as by giving them bonuses if they do something by a certain time, or extra money for doing more work, Mr Shaw explained.

Enclosed space incidents have been caused by both explicit and implicit time pressure. An example of explicit pressure is when people are asked to finish cleaning tanks by a certain time.

When one person puts pressure on others to cut corners to get the job done, you have a situation of moral hazard, one person gets the reward while the others take the risks.

There’s enough evidence now, particularly in tankers, that not enough time is being built into the plan to do tank cleaning properly, he said.

The Human Element Study Group has produced four documents on time pressure

which are available on the Nautical Institute website. One provides an overall explanation, one provides guidance for shipowners, one provides guidance about time pressure onboard, and one provides guidance for people in ports and terminals. IMO is developing guidance on time pressure, building on this work.

Seafarers will very rarely challenge their instructions, saying that they can’t do something because it is too difficult, Mr Lyras added. “People take on things they have no idea they are taking on.”

For example, they say, “I’ll take care of this for you”, without knowing that there is no way of doing the task, because heating coils don’t work.

By pushing people, “you’re going to create exactly the wrong culture,” he said.

Unhelpful reporting

Vessels today can have five different software platforms, for capturing crew reports, Captain Galanos said.

The more reporting crew need to do, the more likely they are to make mistakes.

The problem is that adding more questions and more software is much easier than taking it away, Mr Lyras added. “Anybody can put a checklist in front of a crewmember, and then another one.”

You can end up with checklists with enormous numbers of questions, including many that the respondent is unlikely to know the answer to.

Companies try to use these systems to make sure a list of tasks get done, to manage compliance, he said.

But people don’t yet use software to co-ordinate all the steps of a complex task, or to identify problems earlier, he said. This could be where software could add most value to the maritime industry.

Checklists become a problem if people see the actual work as completing the checklist, in

which case there is no incentive to make sure they understand the question or do the tasks properly, Mr Shaw said.

In one example, there was a fire in a storeroom caused by a chemical, and it turned out that the employees did not know which chemicals they had. Yet they had completed a checklist to say they had checked the chemical safety data sheet (SDS).

A positive example of using checklists is when aeroplane pilots use checklists in their minds to make sure they have done everything before bringing a plane into land, Mr Shaw said. Similarly, there are many steps which need to be completed before taking a ship to sea. People understand the logic behind the questions.

An example of where use of a checklist could have helped is a collision between two Scottish ferries in 2004, when captain turned on the bow thruster but did not follow the procedure to check the motor was running (which would have been in a checklist).

Onboard and classroom training

Senior officers onboard don't have as much time to support younger crew as in the past, Captain Galanos said. They do not have time to show people correct procedures, or how to complete different checklists. They may have to spend most of their time responding to e-mail.

Some senior officers are very helpful with training, however. You can see one junior officer getting very bad appraisals working with one team and then seems to be the greatest when working with another team,



because they train him properly, he said.

"If you spent 10-15 minutes with each of these things, you may have a different person."

Junior officers will rarely admit to being unable to do a certain task, in case they are seen to be incompetent overall, he said.

Someone who has done 7 contracts onboard as a second officer may still miss some basic skill, because it was never explained, and the person was not able to work out how to do it otherwise.

You cannot usually fix competency gaps just by sending someone on a training course, he said. For example, someone who had an

observation for their ECDIS skills in a SIRE inspection.

Training centres are geared around getting people to pass courses, and giving you a certificate, but that does not necessarily mean they give you the skill.

Also, many training academies have not updated their syllabuses for many years, he said.

To do proper training of Filipino seafarers, someone from the shipping company needs to go to Manilla and spend two weeks there. They should talk to groups of seafarers, ideally with fewer than seven people in the group. **TO**

I-Tech – EU should make biocide product approvals faster

Despite I-Tech's "Selektope" biocide additive used on 50 per cent of Asian newbuildings, antifouling coatings with the substance have yet to be approved for sales in the EU, after a 10-year wait. This is hindering European environmental performance

I-Tech's "Selektope" coatings additive to reduce hard fouling is now applied to 50 per cent of vessel newbuildings from Asian shipyards, I-Tech says.

Yet, 9 years after EU approved the substance under the new biocide regulations, products containing Selektope is still not approved for sale or application in the European Union. This is hindering European shipbuilding, vessel environmental performance and I-Tech's business, the company says.

EU regulators accept that a vessel coated in Asia with the biocide can sail in EU waters, but coatings with the biocide cannot be reapplied in the EU.

The EU legislation for biocides was first introduced in 1998 and revised 2012, requiring both biocidal substances and products containing them to be approved before they can be sold in the EU.

So far, only two biocide products intended for large vessels are approved under that

legislation, and 3 biocidal substances targeting hard fouling such as barnacles., said Cecilia Ohlauson, Director Regulatory Affairs & Sustainability at I-Tech AB.

Meanwhile, 6 of the world's largest maritime paint makers have products containing Selektope, providing 50 different paint products.

Approval of Selektope containing products is currently being determined by a Dutch authority, Dutch Board for the Authorisation



Cecilia Ohlsson, Director Regulatory Affairs & Sustainability, I-Tech

of Plant Protection Products and Biocides, which needs to determine that the antifouling coating is safe to use for humans and the environment.

Biocides remain essential in marine coatings because they are the only proven, scalable way to prevent biofouling, which otherwise drives up fuel use, CO₂ emissions, and the spread of invasive species, I-Tech says.

The few biocides approved for use today are among the most rigorously assessed substances in coatings, backed by extensive regulatory testing to ensure safety and efficacy.

Removing them would force ships to rely heavily on frequent hull cleaning and operate with higher drag, leading to greater emissions, higher costs, and increased environmental risk.

Not killing anything

Selektepe does not kill anything when used in antifouling coatings. It works by making barnacles' legs move more quickly so they cannot attach to anything, including the ship's hull. The effect lasts for a few hours, then the barnacles return to normal.

The product has been undergoing extensive assessment to prove that it is safe to use for humans and environment.

Its mode of action as an antifouling biocide is unique in the sense that it's not killing the target organism but works as a repellent instead, I-Tech says. The definition of the word "biocide" does not necessarily mean something which kills something biological, it can include something which with an non-physical effect hinders or deters target organisms (pests) such as fouling organisms.

Energy performance and biofouling

If barnacle's legs are moving at a normal

speed, they will attach to the hull with a strength like superglue. They add friction to the vessel's movement through water, increasing fuel consumption by as much as 55 per cent. And they cannot be removed without damaging the coating.

I-Tech estimates that 20 per cent of total maritime greenhouse gas emissions are due to overcoming the effects of biofouling. Light slime will increase fuel consumption by up to 25%; heavy slime 25% to 35%; and small barnacles increase it 35 to 55%.

So, shipping companies which do not pay attention to fouling could lose all the gains they make from optimising propulsion – for example gaining 15 per cent from optimising propulsion and losing 25 per cent in bad biofouling management.

The barnacles will also settle faster if the vessel is moving slower through the water, such as under 6 knots. This means that slower vessels such as tankers and chemical carriers are twice as likely to face fouling, she said. The risk is also increased if vessels have idle time, are in warm waters and if the coating is damaged.

I-Tech contracted marine coating consultants Safinah Group to look at a sample of 685 ships in dry dock. It found that 33 per cent of ships with flat bottoms had over 10% hard fouling, which can raise fuel use 36%.

When Safinah studied the 11 vessels in its sample group which had Selektepe antifouling, it found that none of them had fouling levels above 10 per cent.

Three environmental concerns

Energy performance is one of three completely independent environmental concerns relating to biocides.

A second concern is the transport of invasive species attached to the hull.

Hull fouling is thought to be the biggest source of spreading invasive species now that vessels have ballast water treatment systems fitted, according to a study by the European Environment Agency.

Some of the invasive species are moved on the hulls of leisure boats, including when these vessels go to areas visited by international ships. The leisure boats going between harbours act as carriers of the alien invasive species brought in by the big commercial ships.

A third concern is that the biocide can cause danger to the water. This is why the European Union does not want to approve biocides unless this has been conclusively tested.

Biofouling management approaches

There are different technical approaches to managing biofouling.

You can use a slow-release biocidal coating, as with coatings containing Selektepe. The biocidal component is slowly released into the water around the hull over the lifetime of the coating, such as 5 years. The biocide coating is considered "self-polishing." This means the outer layer of the coating slowly falls off into the water as it is depleted of the biocidal component, so there is always biocide in the outer layer.

Then there are non-biocidal coatings which do not allow slime or barnacles to stick to them, like a non-stick coating on a saucepan.

These coatings have not been studied as much as biocides and may come with some risks, Ms Ohlsson said.

Any coating needs to last as long as the interval between scheduled dry docks, normally 5 years.

Then there are non-coating technologies, including ultrasound (high pitch noise), air lubrication, and use of tiny ultraviolet lights, which inhibit slime and barnacles. These are not applicable for entire ship hulls but can be used in niche areas.

Companies can also do reactive cleaning (such as with divers) when the hull is fouled. Or they can use automated "proactive cleaning" solutions like the Jotun HullSkater robotic hull cleaning system, which continuously keep the hull clean.

If the hull is cleaned, that leads to the challenge of what to do with the slime or the barnacles. If it is collected, it needs to be treated as potentially hazardous waste, which is very expensive.

If it is released to the ocean, it may continue to live there. It is a bigger problem if the cleaning is done in a port.

The cleaning can also evolve degradation of the paint, with potential release of paint particles, she said, as well as reducing the antifouling performance of the coating.

There are some areas of the ship which are difficult to cover with the coating, including the sea chest or grating where the vessel takes in seawater. These areas are still a problem for fouling when the hull has a biocidal antifouling coating.

There is no antifouling yet invented which can keep all hulls clean in all conditions, she said. "The perfect paint hasn't been launched yet. It is vital to analyse and select coating system depending on each ship's estimated operation and purpose."

TO



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Making a plan for scrubbers

Scrubbers were implemented to remove sulphur from exhaust, as an alternative to using low sulphur fuel. They may now be restricted in Europe from 2027, unless you can run them closed loop to avoid water discharge. Tanker companies need to make plans

By Kashif Javaid, Director of Sales, Exhaust Treatment, Wärtsilä Marine

In 2019 and 2020, Exhaust Gas Cleaning Systems (EGCS) were largely discussed through one lens: fuel economics.

Owners assessed the capital cost of installation against the expected savings from continuing to burn high sulphur fuel oil (HSFO) after the IMO 2020 sulphur cap, rather than switching permanently to very low sulphur fuel oil (VLSFO) or marine gasoil.

Many concluded the investment made sense, and a sizeable installed base followed.

But five years later, the conversation is shifting again. Not because the global sulphur requirements have changed, but because regional discharge policy is tightening in a way that tests the operational assumptions behind many open loop installations.

The immediate trigger is North West Europe.

16 parties which co-operate under the Convention for the Protection of the Marine Environment of the North-East Atlantic (known as the OSPAR Convention) have agreed on a roadmap to phase out discharge from EGCS in the inland waters and port areas of OSPAR member states.

The roadmap sets 1 July 2027 for a ban on open loop discharge, and 1 July 2029 for a ban on all discharge in those areas, with the option for contracting parties to delay implementation by three years.

Re-opening the question

For tanker operators trading regularly into North Sea and Baltic ports, this reopens a strategic question that many believed was settled when



Kashif Javaid, Director of Sales, Exhaust Treatment, Wärtsilä Marine

IMO 2020 took effect.

IMO 2020 was a global, fuel focused regulation. Compliance pathways then were clear: burn compliant fuel, or operate an EGCS approved under IMO guidelines and continue using HSFO.

Owners are

assessing whether their specific configuration still fits the regulatory geography of the trades they serve.

How robust is an open loop only compliance strategy in a world of tightening regional discharge restrictions?

So far, washwater discharge has been regulated through monitoring requirements, but in practice the industry experienced a patchwork of local port restrictions rather than a coordinated regional policy.

OSPAR's roadmap signals a more structured approach. It reflects a broader reality, that environmental scrutiny has moved beyond air emissions alone.

Where discharge is restricted, an open loop system loses its primary operating mode during the periods that matter most operationally: port calls, approaches, and time in inland waters.

It means the compliance value of any system depends on where and how a vessel trades.

And Northwest Europe remains a commercially important trading area across crude, product and chemical segments. Even operators without a European focus can find exposure through triangulated voyages, charterer requirements, or seasonal market shifts.

Switch to low sulphur fuel?

If discharge is prohibited, owners are left with practical choices.

One option is to switch to compliant fuel while operating in restricted waters and port areas.

This remains an entirely viable route. It avoids additional capital expenditure. It can be implemented through operational procedures and fuel management, provided the vessel's tank arrangement and fuel segregation support it.

However, it does introduce operational complexity.

Fuel changeover is not a paperwork exercise. It has implications for tank planning, compatibility management, and the discipline of execution across repeated port calls.

For vessels calling frequently in the region, the cumulative operational burden is not trivial,

and neither is the commercial impact if a vessel's fuel strategy becomes more constrained.

Switch to closed loop?

The other option is a closed loop or hybrid operation, which allows an EGCS to operate without overboard discharge by retaining effluent onboard and managing it differently.

Where installed, this capability can preserve operational continuity in restricted areas.

Many installations delivered during the first wave were open loop only, reflecting the regulatory environment and economic assumptions of that period.

In principle, conversion from open loop to hybrid or zero discharge capability can be technically feasible.

In practice, modification raises questions of engineering integration, documentation, statutory approval, and timing.

Future planning

If an owner's future compliance strategy depends on conversion, it is better treated as planned work, not reactive work.

It is tempting to view 1 July 2027 as a long way off. But you need to consider dry dock cycles, budget cycles, charter renewals, and engineering lead times.

Also, OSPAR's roadmap is also not uniform in its final impact. Contracting parties can delay implementation by three years.

OSPAR recommends extending the ban to territorial waters (12nm) more generally, with a working group tasked with reviewing whether that recommendation should become mandatory.

Some owners will take comfort in the possibility of delay. Others will recognise that regulatory direction is tightening, even if the exact footprint evolves.

In either case, uncertainty does not remove the need to assess exposure.

For tanker operators, the most practical question is not what the regulation may become. It is what the vessel needs to do, operationally, if open loop discharge is unavailable in the waters and ports it must call at.

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AI to support navigators – quantifying the benefits

AI tools to support navigation, like Orca AI, have been around for 8 years. They show navigators which vessels they may collide with. Some people are sceptical. A study with North Standard proves they can work

For some years now, we have had AI tools which analyse thermal and optical video images of waters around the vessel. They provide additional insights into which vessels we might be on a collision course with.

The systems require sophisticated camera systems and data analytics. So it is not something shipping companies will want to invest in without reasonable evidence that it works.

To try to prove the safety benefits, system provider Orca AI, together with P&I Club North Standard, undertook a study to look at the data.

They wanted to find out whether a ship with the system installed, and crew familiar with using it, would have fewer close encounters, and fewer “high rate of turn” incidents.

Comparing ships which have the system with ships which don’t may be unhelpful, because there can be many reasons for a ship to have better navigation performance.

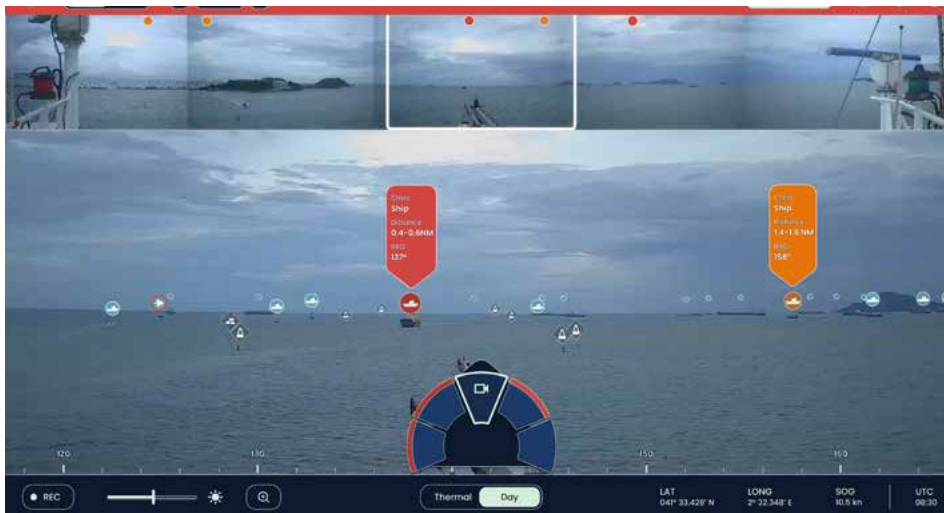
Instead, the comparison studied the same ship at different times. It compared performance in the 3 months after first installing the system, with performance from months 9 to 12 after installing the system, when crew had become more familiar with it.

The first 3 months are considered the “education phase”. It takes time for crew to know how and when to use the system to support navigation, says Yarden Gross, CEO and co-founder of Orca AI.

Although there will be several crew changeovers during this 12 months, some of the knowledge developed by the departing crew will be passed to the incoming crew. Also, some navigators with competency with the system will use this competency on a subsequent vessel.

The analysis looked at 139 ships trading globally who had used the Orca AI system for 12 months.

It found the average reduction in “high-



What you see on the Orca display: explanations of everything in front of you, including which vessels which may pose a collision risk

severity close encounters” in the months 9-12 of using the system, compared to months 1-3, was 52 per cent. There was an average 22 per cent reduction achieved in months 4-6.

A “close encounter” was defined based on how close the vessels got to each other, how much time elapsed before they would have been close to each other, if the vessel crews interacted according to collision regulations, and the traffic density.

Looking at specific highly congested areas, it found the reduction in close encounters in the North and Baltic Seas was 36% and the reduction in China and Japan Sea was 18%.

High rate of turn events were down 12.7 per cent in months 4-6 compared to months 1-3, and down 31 per cent in months 9-12 compared to months 1-3.

This reduction happened in different vessel types, ages and regions. This showed that the benefits can be seen with bridge navigation systems of different ages.

It studied 10.8m nautical miles of voyages, so an average of 200 miles per vessel per day for 139 vessels.

The analysis also found that crews used the system much more in areas with the highest navigational complexity, with dense traffic,

limited decision time, and contact made with multiple other vessels.

AI for navigation

Normally, seafarers avoid collisions with other vessels using radar and AIS, to see exactly where the vessels are in relation to them. They have computer tools which use position, speed and direction to work out if you are on a collision path.

Radar will be more accurate about vessel positions than video analysis, particularly vessels further away. But the video AI systems can spot vessels too small to pick out on radar.

Video AI can classify if a vessel is a fishing boat or cargo vessel, which is useful to navigators assessing how the vessel is likely to be moving. They can assess speed based on the moving image, which can be more accurate than changes to a radar image between rotations of the radar antenna. They are less likely to miss targets.

Orca AI is headquartered in London. Customers include Maran Tankers, Cardiff Gas, Eastern Pacific Shipping, MSC, Seaspan, and NYK. The system is installed on more than 1,000 vessels worldwide.

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Using more in-depth weather assessment

More sophisticated weather assessment services can determine how expected weather will impact a specific vessel's performance. This becomes more important as vessels are rerouted to areas with more severe weather

By Jacob Iversen, Head of Maritime Partnerships EMEA, Weathernews

Geopolitical disruption is forcing tankers onto longer, less familiar routes. A new route creates a new risk profile.

Rerouting is not just a question of distance or fuel cost.

It changes exposure to heavy weather, vessel stress and operational risk in ways that established planning assumptions cannot accommodate.

For tanker operators, route resilience depends on understanding how weather and trade disruption interact.

A geopolitical flashpoint closes a familiar route, vessels are diverted onto longer alternatives, and what begins as a logistics problem quickly becomes a weather decision.

The tanker industry has navigated this twice in quick succession: first the Red Sea, then the Strait of Hormuz.

The consequential question that the industry has been slower to address is what conditions these new routes expose vessels to.

Weather around the Cape

Diversion to the Cape adds approximately 6,000 to 8,000 nautical miles.

But distance is not the primary challenge. The waters south of Africa present materially more severe operating conditions than those in the Persian Gulf or the Red Sea.

The route is subject to sustained gale-force winds, heavy swells and dense fog, with limited options for safe refuge across vast stretches.

Tankers with relatively low freeboards face prolonged exposure to conditions that significantly increase the risk of damage and reduce operational flexibility in ways that shorter Gulf transits do not.

Weathernews analysis of the June to August 2024 period in the Cape of Good Hope corridor shows this was the most severe austral winter season since 1986 as measured by Accumulated

Wave Energy, reaching a 20.3% anomaly above the long-term mean.

This was precisely the period when Red Sea diversions had already pushed significant tanker volumes onto the Cape route.

Those vessels encountered a historically extreme sea state. Sustained weeks of elevated wave energy create compounding constraints on speed management, structural stress and schedule reliability that a single storm event does not.

Stresses in Persian Gulf

Weather intelligence also matters for vessels waiting in conditions they were not scheduled to encounter.

As of early April 2026, over 600 large vessels had been confined within the Persian Gulf, unable to transit.

Weathernews AIS positional analysis found behaviour consistent with swinging on anchor. The vessels were rotating through a cumulative heading change of approximately 5,000 degrees per week, the equivalent of 14 full rotations, as tides and winds shifted around them.

The region was entering a season where winds can exceed 30 knots, raising real risks of anchor dragging, grounding or collision.

Bad weather and charter parties

Under conventional Charter Party logic, relatively brief periods of immoderate weather are excluded from the charter party performance measurement requirements.

For example, wave heights exceeding 1.25 metres for as little as three hours, or a short-duration adverse current effect, can trigger exclusion from performance measurement requirements.

As vessels spend more time on weather-exposed routes, a larger proportion of each voyage falls outside formal assessment.

For an operator who has invested



Jacob Iversen, Head of Maritime Partnerships EMEA, Weathernews

substantially in efficiency technology, this is a commercial blind spot.

Weather interference masks true vessel performance precisely where it most needs to be visible.

Voyage / vessel specific assessment

Weathernews offers a service to assess how exposed a specific vessel is to weather expected on a voyage.

The service translates forecasted conditions into an assessment of actual cargo and structural risk for a given vessel on a given route.

Post-voyage, the same analytical approach isolates factors driving the variance between projected and actual performance. That analysis helps determine which investment or operational change will make a difference.

For example, with a storm probability linked to a vessel-specific route scenario provided days in advance, operators can negotiate with charterers and plan alternatives, rather than having hours to react once conditions have already deteriorated.

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