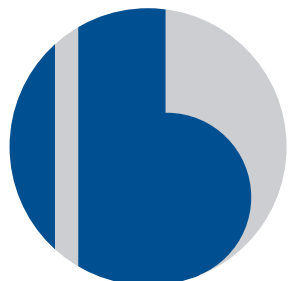


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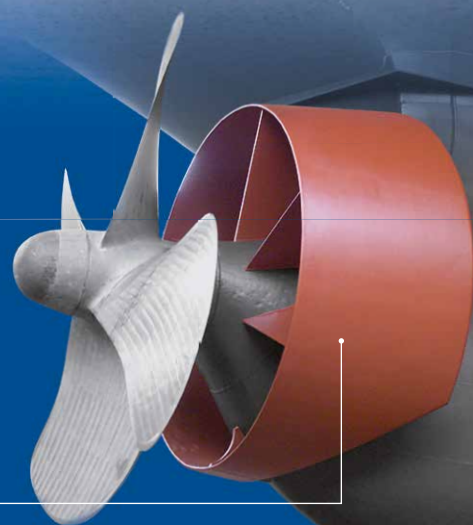


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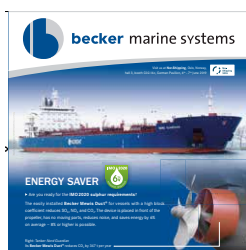


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Becker Marine Systems is celebrating the 10th anniversary of its successful energy saving device - the patented Mewis Duct. Claimed to be ideal for vessels with a high block co-efficient, such as tanker and bulkers, Becker has fitted the equipment on more than 1.050 vessels to date.

Highlighting its benefits, BMS said it saved 347 tonnes per year of CO2 when fitted on a 2011-built NORDEN MR. In total, the company claimed that the duct had saved over 7 mill tonnes of CO2 since its introduction.

Nor-Shipping - Looking into the future

Having been quoted an astronomical sum for three nights in Oslo to attend Nor-Shipping, I have reluctantly declined to go for the second time running.

Once again the organisers have gone off on a tangent by dedicating a complete area to what they call the 'Blue Economy Hall'.

When the over 30,000 people arrive for Nor-Shipping 2019 between 4th and 7th June, they will be greeted by this new feature, the organisers said.

The decision to go down this route was primarily based on OECD figures, which suggested that economic value creation from ocean activities will have doubled by 2030.

Have they taken heed of the perceived threat of global warming, which will see the oceans rise and warm up or are they in denial?

Still, it is certainly food for thought and as Silje Bareksten, Nor-Shipping's Head of Sustainability and Technology, claimed: "Sustainable operations and commercial growth in the oceans are viable but can only be achieved if everyone pulls together to decide on the way forward."

'Blue Economy' is described as any commercial activity relating to the oceans – from maritime, to offshore energy, deepsea mining, tourism, ports, logistics, aquaculture, etc.

Central to this concept at Nor-Shipping, will be the 'Blue Talks', where established companies and start-ups in their respective fields will be able to share knowledge, ideas and visions to solve challenges and create new, sustainable solutions, the organisers claimed.

Of course, Norway is known for its subsea expertise given the activity seen on the Norwegian Continental Shelf for the past 40-50 years and as the world moves away from carbon-based energy sources, this

expertise can be used to fuel other initiatives. It is just a matter of identifying the right ones.

Bareksten believed that industry is on the verge of a "paradigm shift" and that conversation to break down silos was imperative.

There will be plenty of opportunity for conversations at this year's event with several conferences and seminars to choose from, as well as the plethora of networking opportunities that this expo has excelled in down the years.

As usual, the organisers will also be giving youth the chance to shine, given that some of these people will be the leaders of tomorrow and should be encouraged to air their ideas on a large platform.

Somewhat surprisingly, tankers form three out of the four candidates for 'Ship of the Year', as the offshore sector, which saw many winners in the past, has nose dived, affecting Norway probably more than most.

As mentioned, the organisers are expecting around 30,000 visitors to Lillestrom this year, so as usual, the cafes, bars and restaurants in downtown Oslo should be full to bursting point.

It is somewhat surprising that people still flock to events like this given the parlous state the shipping industry has been in for several years. But this has been true in previous shipping recessions, as during times of hardship, it is always best to mingle with fellow sufferers rather than sit in splendid isolation waiting for something to happen - it never does.

No doubt one of the more interesting conversation pieces during the week will be the regulators' desire to have a carbon neutral industry by 2050 and how this can be achieved. The first test, of course, is IMO 2020 and all that this brings with it - scrubbers, LNG or low sulfur fuel, or possibly

alternative fuels.

Being a Norwegian-centric exhibition and conference, there will no doubt be many presentations around the concept of the autonomous ship, in which Norway is probably in the lead, due to the need for ferries and other local craft along its extensive fjord-strewn coastline.

However, as mentioned many times before, the phrase 'autonomous ship' does not mean a human-free shipboard environment but rather a more efficient way of operating a vessel by making use of more shoreside involvement with that awful word 'digitalisation'.

Nor-Shipping's main conference always garners a stellar line-up and this year's is no exception. Among the speakers are Admiral Michael Rogers, the former director of the National Security Agency (NSA); Nobel Laureate (Economics) prize winner Paul Romer; IMO Secretary General Kitack Lim; Ann-Christin Andersen, TechnipFMC's Chief Digital Officer; Geir Håøy, Kongsberg CEO; DNV GL's head, Remi Eriksen; Lise Kingo, Executive Director of the United Nations Global Compact (UNGC) and Norwegian Prime Minister, Erna Solberg, among others.

The audience will include HRH Crown Prince Haakon of Norway, international government officials, delegate from the UN and Ambassadors and maritime professionals.

Perhaps a message to others is that since it first started, Nor-Shipping has always attracted the attention of the Norwegian Royal Family, who seem to take an active interest in shipping.

For such a small population, Norway has and is continuing, to punch above its weight in the shipping sector and will often make front page news in local newspapers - other countries with shipping interests please take note!

TO

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Fundamental changes in product trades forecast

Much of the recent market focus has concentrated on crude supply, as sanctions, outages and unplanned disruptions have impacted the supply.

But with IMO 2020 just around the corner, fundamental changes in the products tanker trades are afoot, with market dynamics set to drastically shift, as the end of the year gets closer, Gibson Shipbrokers said in a recent report.

The market for middle distillates - primarily gasoil, diesel and jet fuel - could be set for a seismic shock - in stark contrast to current market fundamentals.

At present, the forward structure for ICE gasoil shows backwardation until July, with a contango setting in from August onwards.

The curve's shape can be explained by short term fundamentals. Continued refinery turnarounds are likely to constrain short term supplies, with notably lower exports from the Baltic expected for May. European refinery runs may also see some impact from crude supply issues, owing to the Russian crude contamination problems, whilst colder than usual weather could support prompt demand.

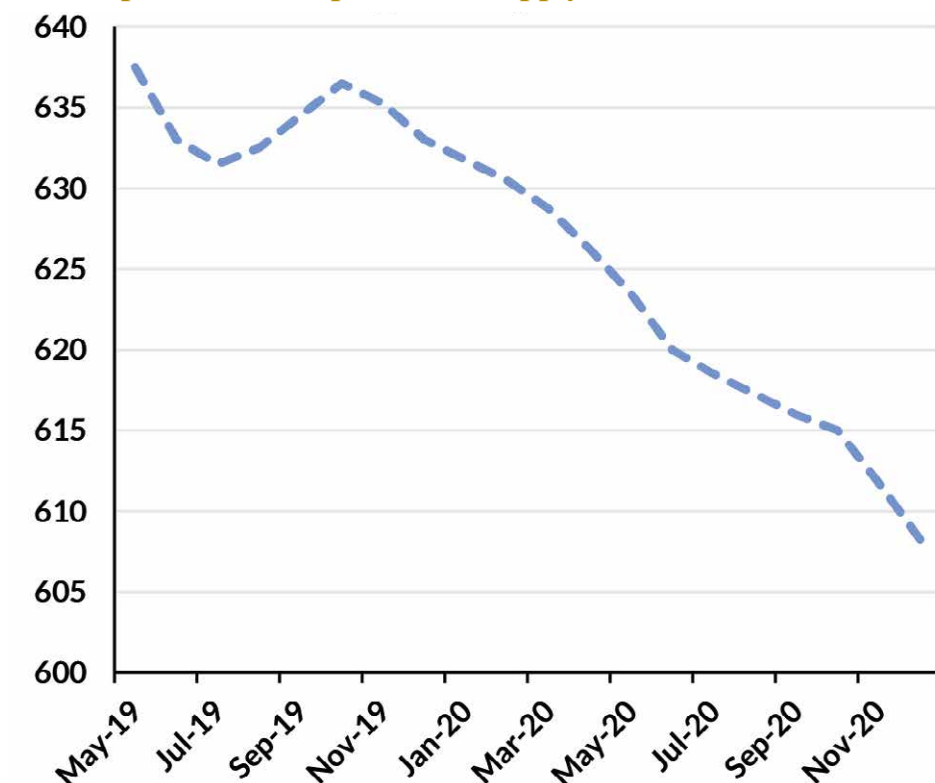
However, the European maintenance season's conclusion will soon see supplies boosted, whilst higher inflows from the US can also be expected, depressing forward pricing.

Going forward, the focus shifts to positioning for firmer demand emerging towards the end of the year, justifying the contango structure, which is forecast to emerge in the third quarter.

Of course, when talking about contango, the shipping market tends to focus on the prospects for floating storage. Given that the market structure of ICE gasoil is backwardated for the new few months, floating storage is unlikely to be a feature of the market over the next quarter, Gibson said. However, looking further ahead, the ICE gasoil spread between July and October shows a contango of \$5 per tonne.

Storage unlikely

Whilst forward storage rates are uncertain, and LR2 rates typically firm in the third quarter, even at a conservative estimate,



ICE Gasoil Futures (\$/tonne)

such a contango is unlikely to support storage economics at this stage.

Simple calculations suggest that at a daily rate of \$18,000 per day, a contango of at least \$11 per tonne over three months would be needed to justify such a play, considerably short of where the curve sat at the beginning of May.

However, the current structure is unlikely to be preserved. As refineries exit maintenance in the current quarter and runs increase into Q3, the current contango in gasoil prices may steepen, as increased supply depresses prompt prices, whilst increased focus on end of year demand supports the back end of the forward curve.

Whether or not the futures structure becomes steep enough to justify storage remains to be seen, with freight costs also expected to firm over the same period. LR2s will always be the obvious candidate for this; however more favourable economics may emerge for newbuilding

crude tankers (VLCCs and Suezmaxes), where improved economies of scale may be achievable, depending on the level of demand for fuel oil storage and crude tanker fundamentals at the time.

Outside of Europe, forward pricing in the key trading hubs of Singapore and New York Harbour show a modest contango to the end of the year, although the scale is unlikely to justify significant floating storage play in the short term.

However, just as in Europe, product supplies will increase post turnaround season, putting downwards pressure on prompt prices. With Singapore being the world's largest bunkering port, demand in the region is expected to change significantly towards the end of 2019, perhaps creating storage opportunities for product tankers to capitalise on, even if the window of opportunity proves to be short, Gibson concluded.

Tanker asset values expected to rise in 2020

VesselsValue has partnered with Oslo based shipping consultancy firm ViaMar to provide future market values for each individual vessel in the tanker and other vessel type fleets.

Future Market Values are quarterly predictions for individual vessels provided until the end of their predicted economic life.

For tankers, the fourth quarter of 2018 returned tighter markets across the tanker segments.

Asia's demand for oil continued at a strong pace through a combination of consumer demand, strategic storage requirements and planned start up of new refineries. Once again, China emerged as the greatest driver for demand.

Continuously evolving trading patterns caused by OPEC+ production cuts and Iran sanctions, as well as the ongoing decline in Venezuelan production and exports, have further boosted crude and product flows out of the US Gulf. The tonne/mile intensive trade from the US to Asia, combined with typical winter seasonality, culminated in strong spot markets.

Values strengthened during 4Q18 and into 1Q19, although product tankers lagged behind the larger crude carriers. An asset

value upside is still present during the projection period for both newbuildings and secondhand tankers

On the supply side, scrapping activity has come down from a 2Q18 high, but the busiest fourth quarter was recorded since 2013. Ordering activity fell in 4Q18 at 3 mill dwt, compared to 7 mill dwt in 3Q18.

The implementation of IMO 2020 is expected, through reduced speed and inefficiencies, to shave off supply capacity.

Limited ordering

Limited tanker ordering activity over the past three years has proved a welcome development for owners, Gibson Shipbrokers said in a report.

The only exception was for new VLCCs in 2017 and to a lesser extent in 2018. This year also saw strong VLCC contracting, with 12 orders placed in January only to completely dry up since then.

MRs have also seen stronger investment this year, with 40 orders placed since January, compared to just 59 MR orders

for 2018. However, thus far this year, no Panamax/LR1 orders were placed, while just six firm Suezmax orders and eight firm Aframax/LR2s orders were recorded.

While ordering has been restricted, the pace of new deliveries has accelerated. Since the beginning of this year, 30 VLCCs, 22 Suezmaxes, 31 Aframax/LR2s, six Panamax/LR1s and 30 MRs were delivered, Gibson said.



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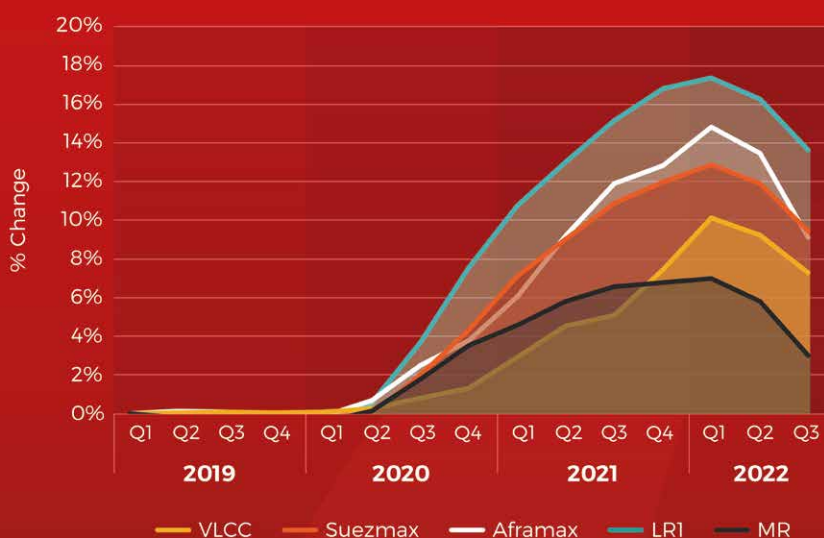


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FORECAST TANKER ASSET VALUES



Source: VesselsValue as of April 2019

VesselsValue

Expanding technology calls for greater comms hardware and software

KVH Industries recently introduced what it claims is the world's fastest 1 m Ku/C-band maritime VSAT antenna.

TracPhone V11-HTS has been designed to deliver data speeds as fast as 20 Mbps down/3 Mbps up to commercial vessels worldwide.

The company said that these fast data speeds support the critical needs of commercial ships today for operations, Internet of Things (IoT) applications, and crew connectivity.

"With the TracPhone V11-HTS, we continue to bring innovative solutions to the maritime market, enabling commercial vessel operators to take advantage of the many benefits of VSAT, such as IoT applications and business efficiency," said Martin Kits van Heyningen, KVH CEO on announcing the new antenna. "From our advanced mini-VSAT Broadband HTS network to our 24/7 tech support, our superior connectivity solution makes broadband at sea seamless."

The TracPhone V11-HTS features a dual Ku/C-band design with automatic switching to deliver expanded global coverage, including Northern and Southern latitudes, and reliable connectivity, even in extreme weather conditions.

In addition, the antenna system features the integrated commBox modem (ICM), a below decks unit, including high-throughput modem, Voice over IP (VoIP) adapter, commBox network management software, and built-in Wi-Fi and Ethernet. The ICM also receives on board news, entertainment, and operations content sent via KVH's IP-MobileCast content delivery service.

Another feature is its two-channel configuration, enabling users to experience both a high-speed data channel and an unlimited-use data channel from a single maritime VSAT antenna. With data speeds as fast as 20/3 Mbps down/up, the high-speed channel is suitable for video-conferencing, video chat, telemedicine, web browsing, and allocated crew usage.

With data speeds as fast as 8/2 Mbps down/up, the unlimited-use channel is suitable for

IoT data transfer, email, software updates, automated file transmission, weather updates, and unallocated crew usage. To help vessels manage their data usage, KVH also provides the mini-VSAT manager suite of tools to set usage alerts, provide data consumption reports, and assign data allowances all via a secure online portal.

Intelsat tie-up

TracPhone V11-HTS has been designed for KVH's mini-VSAT Broadband HTS network, which uses Intelsat's Flex Maritime service to deliver multi-layered Ku-band coverage, enabling vessels to see multiple HTS and wide beam satellites for maximum availability of broadband service; the network also uses additional capacity from SKY Perfect JSAT. In addition, the TracPhone V11-HTS also uses Intelsat's global C-band capacity for expanded maritime coverage.

For commercial fleets, the TracPhone V11-HTS is also available as part of the company's AgilePlans initiative, a subscription-based 'connectivity as a service' programme that includes, for a standard monthly fee: global connectivity; VSAT antenna with free installation in select ports; training and daily news content delivered via satellite; and delivery of chart and weather content.

The new antenna adds to KVH's HTS family of maritime VSAT antennas, which include the 60 cm diameter, Ku-band TracPhone V7-HTS and the 37 cm diameter, Ku-band TracPhone V3-HTS. By offering a variety of antennas, this means there is a system suitable for nearly any size of ship.

At a presentation in London recently, Mark Woodhead, KVH's executive vice president of mobile connectivity, said that in five years time, there will be very few ships operating on L-Band systems in favour of Ku-band and C-band.

He stressed that coverage and speed was an important consideration for owners and



KVH's Mark Woodhead

operators investing in satcoms, as was dealing with an end-to-end service provider. With an increasing number of ships today being fitted with sensors and having algorithms on board or onshore, there is a need for extra coverage and speed. "Even charterers are getting involved in reports," he said.

Tankers were one of the first to migrate to the new satcoms offerings and pushed the industry into developing new communications tools around 10 years ago, he said.

He claimed that KVH's 60 cm Ku-band antenna could be installed as a carry on piece of equipment by just two people. He also claimed that 62% of commercial maritime sales now include the company's AgilePlans programme, which has helped to drive double digit growth in sales.

Customers have a choice of opting for a high speed channel and a limited volume channel and every client receives a free KVH Videotel cyber-security video, which was put together in co-operation with BIMCO.

He warned that people should regard cyber-security as the same as wearing a hard hat - a big cultural change.

Woodhead also explained that by getting into bed with Intelsat, KVH had joined the largest satellite network offering worldwide.

TO

Norways' owners optimistic going forward

At the end of last year there were 1,447 vessels flying the Norwegian flag, according to the annual report compiled by Statistics Norway and published on 1st February each year.

The total comprises 873 vessels in the Norwegian Ordinary Register (NOR) and 574 registered in the Norwegian International Register (NIS).

As for tankers, in NOR there were 12 oil tankers and four chemical tankers registered, while for NIS, there were 53 Norwegian owned oil tankers and 60 Norwegian owned chemical tankers. Added to this are another 18 foreign owned oil tankers and 33 foreign owned chemical tankers registered with NIS.

In the Norwegian Shipowners' Association's Outlook Report 2019, the message was - 'faith in the future, despite tough markets'.

Shipowner members said that they anticipated increased profitability and more new employees in 2019. Despite highly challenging markets in recent years, both the transport segments and the offshore segments expect better profitability in 2019, the report said.

Norwegian shipping companies in foreign trade reported a total turnover of NOK229 bill in 2018, an increase of 11% from the previous year. International deepsea shipping companies in particular showed strong growth last year, driven by an increase in freight rates during the second half of the year.

Around 60% of shipowners expected increased revenue in 2019, while 20% forecast reduced revenue, and the remaining 20% said it would be unchanged.

Deepsea shipping companies again make up the largest group in the Norwegian foreign-going fleet. In this sector, revenue increased notably in 2018 and is expected to total NOK120 bill in 2019.

The results of the association's member survey showed that Norwegian shipping companies'



Norwegian Shipowners' Association CEO Harald Solberg

revenue from markets outside Norway made up 61% of total turnover in 2018, or NOK139 bill.

For short sea shipping, Germany is still the largest market, followed by the UK. Looking at the deepsea segment, shipowners said that the US and China were the most important markets, while Norway and the UK were most important for offshore and rig companies.

Challenging markets

As for the offshore segments, continued challenging markets were anticipated with a high number of ships in layup, prolonged low rates, and relatively short contract horizons.

Several years of major cost reductions and efficiency improvements, combined with extensive consolidation in the supplier industry, have significantly increased profitability on the Norwegian shelf. The combination of large cost reductions and a more stable oil price, which is considerably higher than at the lowest levels, led to very good margins for the oil companies.

"When activity levels pick up and the markets tighten on the capacity side, the oil companies must also expect a significant increase in the rates for ship operations," warned Harald Solberg, Norwegian Shipowners' Association CEO.

In this year's member survey, half the shipping companies said that they will renew the fleet through newbuildings over the next five years.

Shipowners estimated that they will contract a total of 137 ships and five rigs during that period.

Most of the orders are expected to come in the transport segments, ie, deepsea and short sea shipping. More than 40% of shipping companies, primarily short sea shipowners, considered Norwegian shipyards as relevant for the construction of new vessels.

"The short sea sector is poised for extensive fleet renewal. This is a tremendous opportunity to develop and implement new technology that will give us a more environmentally friendly and competitive short sea shipping fleet, at the same time as we develop technology for export to larger markets," Solberg explained in the report.

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Odfjell discovers the benefits of Graco's EcoQuip 2 EQp

Frustrated with the drawbacks of dry blasting its ships, Odfjell looked for a cleaner and more productive surface preparation solution.

Norwegian ship owning company Odfjell SE offers complete in-house ship management services including crewing, QHSSE, technology support, digital innovation, newbuilds, energy efficiency solutions, and overall fleet management.

However, when it came to on board maintenance work, the company expressed dissatisfaction about the efficiency of its surface treatment methods.

For on board maintenance, Odfjell was using a combination of dry blasting and mechanical tools. On-the-spot repair with mechanical tools was taking time and effort, and was also unhealthy and unpleasant for the crew, due to the heavy tool vibrations. Moreover, dry blasting requires a huge amount of grit, and the dust was having a negative impact on the crew, the ships and the surrounding environment.

To overcome these problems, Odfjell decided to look for alternative methods for the on board maintenance work. The company was already aware of abrasive methods and their

usefulness to prepare surfaces. But Odfjell not only needed good surface preparation, it also wanted a technique that was easy to use and not dangerous for the crew.

Discussions with Odfjell's local Graco distributor led to the solution. JS Cock recommended the Graco EcoQuip 2 EQp vapour abrasive blast equipment and installed it on Odfjell's 'Bow Atlantic'. The unit was upgraded with a 1 in hose for incoming air. An extra compressor wasn't necessary as the 'Atlantic Bow' was fitted with a large 55 kW compressor capable of providing sufficient air.

One obvious advantage of the EQp is that it's small and easy to move around a ship. To reach all the ship's areas, 30 m of hose is used. Odfjell uses quartz sand with a thickness of 0.3 mm as abrasive media, at a rate of 60-70 kg per hour.

Many benefits

With the EcoQuip 2 EQp, Odfjell noted that the surface preparation was as good as with dry blasting. The benefit of using the EQp

over dry blasting is an incremental reduction of used grit and generated dust. EQp also de-salts the surface, so it's immediately ready to be painted, eliminating the need to clean it first. The feathered edges around the prepared area are smooth so no rust will occur around the prepared area.

"We are using 75% less grit volume compared to dry blasting," said Torleif Solheim, Odfjell's senior technical superintendent. "When blasting, we fill two bags which last for 35-40 minutes before we have to refill again. And that's not the only benefit, the maintenance crew find the EQp very easy to handle and operate."

Dan Törnqvist, Graco's Business Development Specialist HPCF, added some advice. "If you want to use the 1 in inch blasting hose, you need a 1 in hose for incoming air. Keep in mind that your compressor has to be at least 30-37 kW. For smaller compressors, the EQp should be used with a ½ in blasting hose and incoming air hose."

Graco's EcoQuip vapour abrasive blast equipment provides a performance equivalent to sandblasting but with 92% less dust, thus minimising the need for PPE, tenting and containment, and decreasing environmental impact, the company claimed.

It uses up to 75% less blast media and far less water than wet blasting, and creates little run-off, thus there is no large slurry mess to clean-up and dispose of. It's effective in rain and high humidity, and efficiently removes coatings without damaging the sub-surface.

EcoQuip 2 Portable (EQp) is lightweight (99 kg) and therefore easy to take from one surface preparation job to another. It still packs the necessary power for any small to medium sized job. It can blast up to 10.5 bar and can handle most of what a 10.5 cu m per min compressor delivers. It's also optimised to work well with a 5.2 cu m per min compressor and blasts for up to 90 minutes between refills.



Surface preparation is as good as dry blasting

Discussing the fuels of the future

Unlocking greater efficiency and environmental performance will be centre stage at Nor-Shipping 2019. Yaskawa Environmental Energy/The Switch believes hydrogen could fuel the way forward.

Renewables and alternative fuels are attracting increasing interest, driven by greater environmental awareness, tighter regulations and an industry-wide need to optimise energy use and manage costs,” said Asbjørn Halsebakke, product manager of marine drives, Yaskawa Environmental Energy/The Switch Norway.

“We’re fielding more and more enquiries about how our drive train and energy-efficient technology can be utilised to embrace new fuels. And, in those conversations, hydrogen is a recurring theme,” he added.

Halsebakke believed that, as a carbon-neutral fuel, hydrogen could be the key to unlocking truly sustainable shipping. He noted that when produced using electricity from renewables, such as wind, solar or hydro power, it is effectively emissions-free. In its liquid form, it can be used to charge batteries for electrical propulsion via fuel cells, for example.

“There are challenges,” he said, “such as bunkering and establishing infrastructure. But I believe demand will provide a powerful incentive for industry to tackle these. We expect developments to move quickly, particularly in China.”

However, Halsebakke’s company, which has delivered more than 1,000 marine power drives to the industry over the past decade, said flexibility is vital.

Tailoring technology

The company is currently tailoring its technology to ensure that shipping can make the transition to clean energy in an easy, efficient and future-proof manner.

“Fossil fuels will remain part of the mix for the foreseeable future, but their role will diminish,” he said. “Batteries will flourish, particularly for short sea, while hybrid solutions will gain ground, delivering benefits across the board. But there’s no ‘one size fits all solution’, so it’s vital to remain open to new approaches, fuel mixes and technology.”

Yaskawa Environmental Energy/The Switch believes it has an answer.

“Our revolutionary DC-Hub effectively future-proofs vessels for whatever fuel options

they decide to utilise. It allows for any power source – be that hydrogen, wind generators, or solar panels – to be easily connected to a vessel’s DC grid. In that way, owners can

create the best fuel mix to satisfy operational, economic and environmental needs, adding new sources as they became viable,” he said.

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OSM ramps up Cyprus operation to offer full shipmanagement

Full shipmanagement services in Cyprus offer new opportunities for the Central European and Middle East markets and strengthen OSM's global digital network.

A rental-based OSM Ship Management has opened a shipmanagement office in Cyprus.

The European island state has a business-friendly maritime cluster and as OSM has seen its client base grow it makes sense to offer full shipmanagement, including technical management out of Cyprus, according to OSM founder, chairman and CEO, Bjørn Tore Larsen.

"We have full shipmanagement out of offices in Norway, Singapore and Helsinki. Now with Cyprus fully compliant to offer technical management we are ensuring we remain a shipmanagement company for owners and their charterers to work closely with," he said. "We chose Cyprus 12 years ago to run some of our shipmanagement and back office services, but now we have expanded it into a full shipmanagement centre."



OSM Founder Bjørn Tore Larsen

Ship Management Services in Cyprus will focus on the Middle East and Central European shipowner markets.

Larsen added that OSM, which was formed in 1989, has a full global network to offer shipowners, as well as an ability to offer future-proof digital solutions to a growing range of clients seeking modern services that meet their evolving challenges head on.

Today, the company delivers shipmanagement, crew management and other services to over 500 vessels, and employs more than 11,000 seafarers.

OSM has also positioned itself to become a digital shipmanager, focusing on technology solutions that will help create technical ability, security, resilience and efficiency gains for clients.

Singapore centre

All OSM offices are fully connected and linked to the company's 24/7 operations centre in Singapore, the heart of the company's digital transformation where the technical decisions are made and where it can monitor and manage the company's global fleet 24/7.

However, the other shipmanagement centres, including the new Cyprus centre, all act as back up to Singapore if needed.

OSM Maritime's Operations Centre and network is transforming decision-making, efficiency and performance for its global customer base, while highlighting a new, sustainable path forward for the industry, the company claimed. OSM's aim is to become a highly-predictive analytical, artificial intelligence and machine learning-based organisation in 2020.

OSM can provide bespoke solutions for all its partners regardless of their size and needs. As well as the technologically advanced operations centres, it also runs

ship to shore programmes that promote behavioural safety amongst crews, as well as developing best practice leadership skills.

Larsen said that shipmanagement has become a much bigger industry in recent years and leading companies such as OSM have to be able to provide the right level of services to shipowners to succeed.

"To reap the rewards you need to offer products that customers are happy with," he said, adding that this is not just a question of cost.

"As charter requirements, regulations both regional and international, public opinion and social pressure, increasingly influence maritime operations, it requires a much higher level of competence and expertise across many different fields. This is an expertise level that may be hard to find in a smaller or under-priced shipmanagement firm," he explained.

The expanded Cyprus office has already taken in some tankers under management, and has more coming in. The Limassol office will also serve as the Central European hub for the company's OSERV supply chain and procurement services.

By targeting Cypriot, Greek and Middle East owners from Limassol, the expanded OSM Cyprus office will be able to offer the high level of quality expected of the company.

"It is always exciting to see where it will take us," concluded Larsen.

OSM provides one point of contact and acts as a one-stop shop for shipmanagement, crew management, offshore management, newbuilding management and offers a complete range of products and services through its Value-Added Services catalogue, the company claimed.

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Examining the ‘Blue Economy’

When over 30,000 people arrive for Nor-Shipping 2019 between 4th and 7th June they will be greeted by a new feature - the Blue Economy Hall.

Silje Bareksten, Nor-Shipping’s Head of Sustainability and Technology, explained the motivation behind this initiative and what it contains.

Taking on the sceptics, she said. “The combination of sustainable operations and commercial growth in the ocean economy is viable. But it won’t happen on its own. To enable that – and we must, for both the future of our industry and society itself – we have to get together, discuss opportunities, share knowledge, skills and technology, and define strategic directions.”

Bareksten joined Nor-Shipping in October, 2018 as Nor-Shipping’s first Head of Sustainability and Technology. Her past experience includes Head of Smart City in Oslo and Innovation Manager at Inven2.

She explained; “Many in the industry are well aware that, according to OECD, economic value creation from ocean activities will have doubled by 2030, creating huge opportunity for those businesses that already have operations, assets and expertise within the ocean environment.

“However, not quite so many are sure of how they can access that and realise some of this value for their businesses. But you can bet someone else does – someone else needs their unique competency or asset infrastructure to bring their own ideas to life. We just have to connect those parties. Get them talking to one another and sow seeds for collaboration,” she said.



Nor-Shipping’s Silje Bareksten

The ‘Blue Economy’ is described as any kind of commercial activity relating to the ocean space – from maritime, to offshore energy, deepsea mining, tourism, ports, logistics, aquaculture... if it’s connected to the sea, or can be used by those doing business within that space, then its ‘blue’, Nor-Shipping’s organisers explained.

Industry interest

Nor-Shipping’s has devoted Hall A’s 1,300 sq m space at Lillestrøm to the Blue Economy. Despite only launching the concept last year, Bareksten claimed that the interest from industry has been “terrific” with only a small number of stands remaining available by the end of April.

Confirmed exhibitors range from maritime communications giant Inmarsat to cyber security

firm NTT Security, and from energy storage leader Corvus Energy to weather data specialist Meteogroup.

Advocate groups, such as International Windship Association, plus players representing the fields of research, operational optimisation, IoT, tourism, 3d printing, shipping, and public institutions, will be represented among others.

“This innovative, interactive and intimate space is about breaking down silos and fostering communication,” Bareksten continued “Everyone that can contribute to the sustainable use of resources and commercial growth is invited, meaning we have a broad spectrum of exhibitors.”

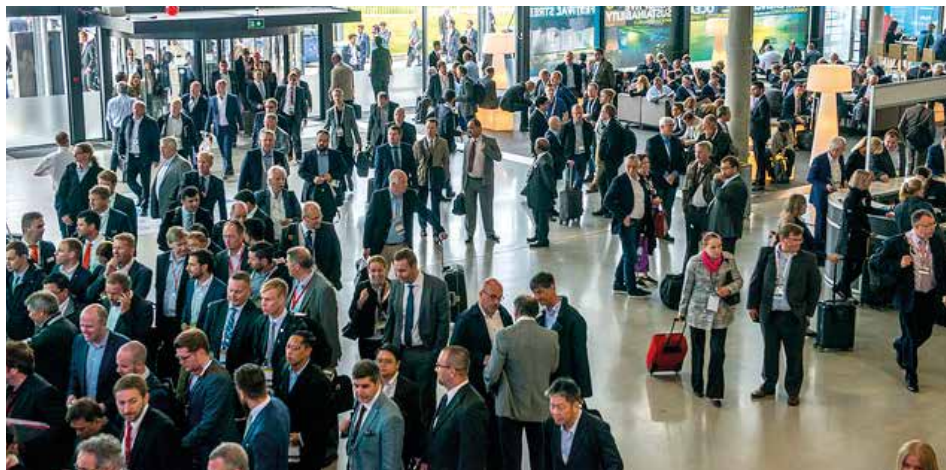
“This is the place for thought leadership, collaboration and discussion within the ocean space, and we want as many stakeholders as possible to be part of that conversation,” she said.

A central component of the hall, will be the Blue Talks. These will see established leaders and start-ups in their respective fields sharing knowledge, ideas and visions in a quest to solve challenges and create new, sustainable solutions.

“Communication is vital to progress. To achieve lasting success in the ocean space there’s a need to engage with a broad variety of stakeholders in a single arena – to bridge the gap between, for example, the scientific community, digital innovators and asset owners. The Blue Talks open a stage up for leading minds to discuss themes that are central to development.

“Seen as a whole they’ll tackle issues of leadership, digital disruption and sustainable growth. Three areas that will emerge as cornerstones in the project to realise the huge potential of a new Blue Economy,” she said, adding, “Shipping has been a key driver of global trade for centuries. But that doesn’t mean we’re protected from new players, trends and disruptive forces.

“I believe we’re at a moment of paradigm shift and that necessitates action. The companies with the vision to take a lead today – collaborating across verticals, sharing data, working with transparency and demonstrating environmental care – are the ones that will prosper tomorrow,” she concluded.



Will they flock to see the new Blue Economy hall?

Tankers shortlisted for award

Three out of the four ships on the Nor-Shipping Next Generation Ship Award shortlist were tankers, while the fourth was a containership.

Each shortlisted vessel was selected by an international seven-person jury who were each asked to select six vessels from the 21 entrants received.

The final four were -

AET Shuttle tankers - Being built by Samsung and described as exceptionally fuel-efficient, the twin-screw vessels will feature low pressure 2-stroke WinGD main engines and Wartsila DF auxiliaries.

In addition to running on LNG, an on board volatile organic compound (VOC) recovery system will also capture and convert liquid VOCs from oil cargoes for re-use as a supplementary fuel for propulsion and power generation.

Teekay E-Shuttle tankers - A series of hybrid Suezmax shuttle tankers under construction at Samsung. Teekay's new 'E-Shuttle' tankers

will operate on both LNG as the primary fuel, and a mixture of LNG and recovered VOCs as secondary fuel, with MGO as backup.

VOCs are produced in a gaseous state from evaporation occurring in the oil cargo tanks. This mixture of VOC and LNG as fuel enables the new shuttle tankers to travel from the oil fields on their own waste gas rather than releasing it into the atmosphere. This will reduce both emissions and bunkering requirements considerably.

'Gagarin Prospect' - This vessel was the world's first Aframax designed to use LNG as her primary fuel. She was delivered from Hyundai Samho Heavy Industries in July, 2018 and is timechartered to Shell for up to 10 years.

She is the first of an initial order of six vessels by Sovcomflot (SCF), as part of its 'Green Funnel' initiative, launched in partnership with

Shell to introduce LNG as a primary fuel for large-capacity tankers and, in general, for vessels not tied to fixed routes or set timetables.

With her Ice Class 1A hull, 'Gagarin Prospect' was designed for year-round export operations from areas with challenging ice conditions. She is equipped with ice radars and spotlights, ensuring full compliance with the recently introduced Polar Code.

'Yara Birkeland' - The world's first fully electric, zero emissions and autonomous containership.

This move to all electric operations also extends onto land, as load and discharge will be undertaken automatically using electric cranes and equipment.

The ship will also be equipped with an automatic mooring system.

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‘Face to face’ meetings still of vital importance

Per Martin Tanggaard, the Director of Nor-Shipping, claimed that there’s still no substitute for doing business the ‘old fashioned way’, even when you’re embracing the future.

“**T**he shipping industry is being redefined by digitalisation,” Tanggaard said. “Connected, smarter ships and businesses are utilising data in ways that are only restricted by our imaginations, while the way we communicate, consume information and go about our day to day duties has been transformed. Not over the past decade, but over the past few years.”

Tanggaard, who has been with Nor-Shipping since 2015, assuming the Director role last year, stressed. “But, there’s still no better way to connect than this. This – here and now, face-to-face. You meet someone and it takes your relationship and understanding of each other to another level.”

Spanning a 21,000 sq m exhibition space at Lillestrøm, and a number of venues in Oslo, the week attracts close to 1,000 exhibitors and around 35,000 visitors, from 75 different nations. This year, the event has repositioned itself to help its more traditional maritime audience take advantage of the growing opportunities within the fast-growing ocean industries, emerging as ‘your arena for ocean solutions’.

He explained: “At Nor-Shipping you’ll meet traditional maritime players and key decision makers, but you’ll also meet new people, partners and ideas that can help build your business as they build theirs – for example in the tech sector, renewable energy, finance, food production and innovation. In that way we can help our customers develop sustainable commercial and environmental activity into the future.

“We see Nor-Shipping as more than just an exhibition, but as a collaborative platform to assist our industry in consolidating a sustainable and profitable leading position within the ocean space. We’ll do all we can to assist them and support that development,” he said.

Nor-Shipping offers six themed halls, including the new Blue Economy hall – dedicated to using ocean resources in a



Nor-Shipping head Martin Tanggaard

responsible, sustainable and profitable manner - a major conference, plus other seminars and conferences, an array of speaker events and interactive debates covering various topics and emerging business opportunities, and a programme of social events centred around the ‘Festival Street’ hub in city centre Oslo.

“There’s nowhere else where you can connect with industry decision makers of this level, all gathered in one place, all eager to network, collaborate and plot a course for future success,” Tanggaard claimed. “The exhibition and knowledge sharing events are one thing, but the importance of meeting within a social context can’t be overstated either. For example, at the DNV GL BBQ at Høvik we’ll have around 2,500 of the most important decision makers in our business standing shoulder to shoulder. The chance to connect, converse and build relationships, at that level, is something special.”

Nor-Shipping has, along with showcasing the latest innovations, a position as a champion of young talent, with its Young@Nor-Shipping programme and Young Entrepreneur Award amongst other established initiatives.

Tanggaard explained: “We conduct extensive feedback after each Nor-Shipping and a takeaway from 2017 was

the industry’s desire to connect with young talent, promoting opportunities and raising the profile of maritime as an attractive sector for personal development, competence building and successful careers.

“We’re responding to that with the launch of the Ocean Solutions Festival, which will take place in downtown Oslo and showcase new ideas, innovation and career opportunities, and, as previously mentioned, the Blue Economy hall – an aspirational and inspirational environment.

“Furthermore we’ve entered a partnership agreement with SeaFocus to hold the finals of its established ‘intelligence hunt’ initiative in Nor-Shipping’s exhibition Hall B. This initiative, which sees international students presenting new solutions to business challenges, will be an important networking opportunity and showcasing platform for both students and industry players alike. It’ll be the place to meet tomorrow’s decision makers today,” he said.

He added: “We can’t build competence, relationships, innovations, profit and sustainability in isolation. We have to work together to fully realise this industry’s potential. And the best way to do that isn’t via the internet; it’s with a handshake, a smile and the chance to fully understand one another’s capabilities. In 2019 the place to do that is Nor-Shipping.”

In the following columns, we have highlighted just a few of the exhibitors’ wares.

Wastewater treatment supplier **ACO Marine** will be exhibiting a range of maritime-specific products alongside its Norwegian distributor, Reed Olsen & Schytz.

ACO Marine will showcase its MBR Maripur NF sewage treatment system, alongside its AVT 100 and AVT 150 series of vacuum toilets.

Launched in 2018 to provide ship operators and shipbuilders with a total wastewater management solution, from first use to discharge overboard, the AVT

series completes the ACO Marine sanitation package, which includes vacuum and gravity-based toilets, vacuum generation, pumps, holding tanks, grease separators and membrane bioreactors through to pipework, scuppers, channels and waste stream transfer systems.

Maritime software solutions provider, **BASS** will be highlighting its patented BASSnet Fleet Management Systems, among other solutions

This software system was recently chosen by Wallem to manage its fleet of more than 180 ships.

The signing of the Wallem contract marks a key milestone for BASS, signaling a wider move to complete maritime solutions as a means to effectively standardise ship processes.

Wallem selected BASSnet to be a total solution for maintenance, safety, operational and financial management, among others, on a fleet-wide basis.

Talking about the contract, Frank Coles, Wallem Group CEO, said, "Having run several maritime software companies and considering the complexities of operations, compliance and the regulatory environment, I was keen to not reinvent the wheel.

"We have chosen to install a cloud based COTS solution, without customisation. Exactly how digitalisation is supposed to be done. We are going to defy the myth that ship operations and management needs to be different, or somehow special. It does not need all the disparate or heavily customised homegrown systems. This is the stuff of myths created by a lack of understanding or appreciation and old fashioned operational techniques.

"In my view, offering transparency, analytics and business intelligence is the way forward for high-performance fleet management, and implementing a complete enterprise solution from BASSnet will allow us to integrate the power of big data with our business processes," he explained.

"BASSnet Fleet Management Systems is a complete solution that removes the reliance on multiple vendors for piecemeal software," Per Steinar Upsaker, BASS CEO and managing director, claimed. "We have prioritised a well-thought-out strategy that is forward-looking, comprehensive and puts BASSnet in a unique position. This includes the incredible convenience and security of managing an entire fleet using a single database on a state of the art platform."

BASS has also released the first version

of the patented BASSnet Data Archiving – a tool that will help customers maintain an optimised live database, whilst retaining data integrity.

The heavy reliance on digitalisation to manage everyday operations among shipping and offshore companies triggers rapid growth in data volume, increasing the burden on critical systems over time. Continuing unchecked, this can affect the performance of related systems and hampers the end-users' ability to execute their daily operations.

UV-based water treatment specialist **BIO-UV Group** will showcase its fully type-approved BIO-SEA ballast water treatment system (BWTS).

Recently, BIO-UV Group completed the testing of an enhanced BIO-SEA BWTS designed to reduce further the time in which treated water has to be held on board prior to discharge overboard.

Testing verified the technical improvements to the BWTS by cutting minimum holding time down to zero hours for fresh water, 20 hours for brackish water, 24 hours for marine water.

Recently sold on board training provider, **Seagull Maritime** has acquired a majority stake in Tero Marine.

Based in Bergen, Tero Marine, has developed fleet management software for the shipping industry for more than three decades.

The company's flagship, TM Master, is a tool for shipowners, not only as an instrument for planned maintenance (and asset management), but also as a business intelligence resource, Seagull claimed.

Tero Marine is growing and has more than 55 employees in offices and representatives in Norway, UK, Singapore, US, Brazil, Japan and Russia.

The software development is mainly conducted at the head office in Bergen, strongly supported by a team in St Petersburg.

"There will be no organisational changes and the company will continue as a separate company," explained Roger Ringstad, Seagull Maritime Group CEO.

To be qualified to work on board a modern ship, all crew members must be able to document their competences. As a result, training has become a necessary and important part of a seafarer's job.

Responding to the growing need for a modernised and more convenient way of training, Seagull has developed electronic distance courses.

The contents are the same as before, but they are easier to complete, Seagull claimed. As this method of training is cost effective and environmental friendly, this helps contribute to sustainable shipping. By using the on board solutions, the company's carbon footprint will be reduced by minimising the number of flights and hotel nights associated with courses.

Seagull's wide range of distance courses provides valuable third party verification of a crew's competence. Seafarers are now able to track their course application from the moment they send it to the moment they receive the course diploma.

All personal data is handled according to GDPR regulations, the company explained.

Safety and survival equipment provider, **Survitec**, will be promoting its new davit at this year's Nor-Shipping.

It will also be demonstrating its holistic approach to the inspection and certification of lifesaving appliances (LSAs).

The company offers a variety of services to support owners and operators make the most of their vessels' downtime. Minimising the need for interim inspections helps operators reduce cost and downtime at port.

For commercial vessels, Survitec offers SOLAS 360, a service designed to support ships' Masters and operators keep tabs on servicing and inspections. It maps full inventory of the ship's safety equipment and then manages the due dates alerting both the Master and operator at 90, 60 and 30-day intervals in the run up to the deadline.

Survitec will demonstrate how SOLAS 360 can help customers harmonise their service due dates so that as many pieces of equipment as possible are serviced at the same time, resulting in fewer vessel visits and reduced maintenance costs.

Water-lubricated bearings designer and manufacturer, **Thordon Bearings** will be exhibiting its COMPAC water lubricated propeller shaft bearing and Seathigor safety seal.

Thordon will also mark the event with a celebration commemorating the first commercial installations of COMPAC and promote the environmental and commercial benefits seawater-lubricated bearings can bring.

COMPAC is now being widely installed in newbuildings and retrofits as a way of meeting environmental regulations, particularly the US VGP rules.

Why data is key to safety performance

Port State Control inspection records suggest safety standards are improving, but a closer examination reveals areas for improvement.*

Transparency of data is key to improving safety in shipping and at first sight, the statistics suggest that the industry is on the right course in terms of compliance. In 2018, Port State Control (PSC) inspectors in the USCG, Paris and Japan MOUs made more vessel inspections and found fewer deficiencies.

In fact, the number of annual inspections has risen by 4% over the last four years while the number of deficiencies has fallen by 8% over the same period.

It's evidence that PSC effectiveness has improved since authorities started sharing data and making it publicly available, because deficient owners have fewer places to hide from inspectors, enforcement bodies - or shippers and charterers.

This data, which GNS collects and analyses for use with our clients also demonstrates that while the headline figure is encouraging, there are issues that lie behind the results that need continued vigilance. It also demonstrates the continued importance of data to the safety management process for shipowners and operators.

As the shipping industry becomes more digitalised and embraces a higher level of data sharing in order to achieve a 'digital business mindset', so the need for accurate data and actionable information grows too.

From the PSC data, GNS has analysed, sourced from the combined MoU organisations, there is a clear need for this global data stream - and to make it as widely available as possible if we are to achieve further improvements in safety performance.

As might be expected, lifesaving appliances and fire safety measures were the biggest causes of deficiencies in 2018. Some 39% fewer navigation related deficiencies were recorded last year compared to 2014, suggesting that the move to digital navigation has made it easier for vessels to comply.

Issues with nautical publications were

the third most likely cause of a deficiency in 2018, accounting for 39% of navigation-related deficiencies, perhaps because they are easiest to identify. However, whereas paper chart-related deficiencies fell by 66% over that period, issues related to ECDIS and ENCs increased by a factor of nearly four, as more of the fleet transitioned to digital navigation.

Managing ENC data should be relatively straightforward - though our research has shown that many operators tend to buy too many ENCs and not always the data they actually need.

However, it is clear from digging a little deeper that the industry still has an issue with navigational safety. If we combine all the defects reported in the safety of navigation categories, they dwarf the top two categories, despite being much easier to rectify.

It seems obvious that ships will benefit from a single view of their environment in terms of availability of critical voyage and safety data. But according to our research the missed opportunity goes beyond failure to capitalise on just-in-time delivery of navigation data for operational reasons.

Vessel inventories are often not being regularly reviewed against routes, flag, port state or technical library requirements and the software installed on board to help navigate safely isn't being fully exploited.

The core of what we do is about safety and compliance; enabling our customers to benchmark their performance and providing tools that make it easier to identify and rectify problems. Instead of having to sift vast tracts of data, we provide information as a management tool that can be acted on, for every vessel worldwide, whether or not they are a GNS customer.

The first quarter of 2019 has tragically demonstrated how much work is still needed to improve shipping safety. Our belief is that the digital trend is so well established that more owners are recognising the advantage that data gives

them, not just in operational efficiency, but in safety too.

For that, shipowners need the full picture on inspection data and the ability to establish connectivity between reported issues. By creating a detailed picture, vessel by vessel and across a fleet, it is possible to identify defects and spot trends - and put resources in place to address issues before they become deficiencies.

Since partnering with StormGeo, the companies have collaborated to develop on board solutions to deliver ENCs direct to ECDIS that are optimised for GNS' Voyager HUB and Voyager PLANNING STATION on board software.

The new solutions will automate the distribution and management of ENC updating and reduce the workload of the bridge team while enhancing navigation compliance and safety.

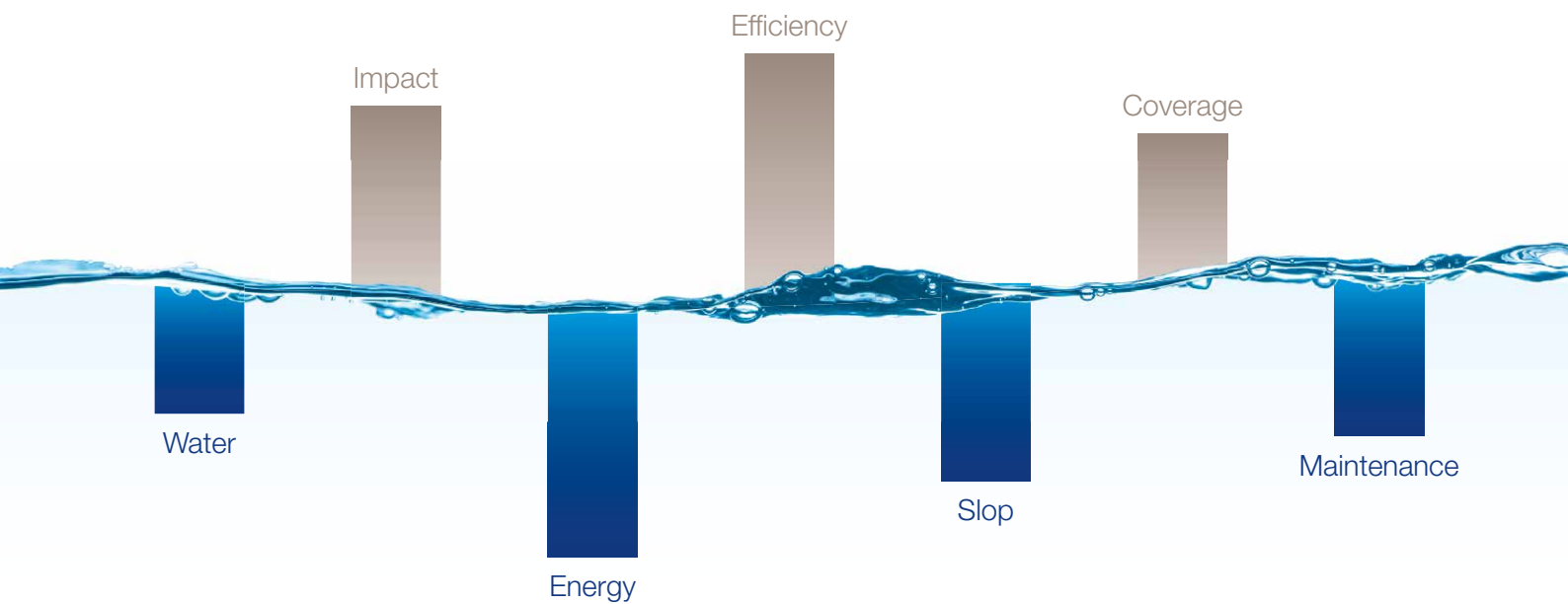


Global Navigation Solutions CEO Paul Stanley

**This article was written by Paul Stanley, CEO Global Navigation Solutions.*

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Importance of passage planning

Following an \$800,000 ruling by the English Admiralty Court regarding a grounded containership case, Ben Johnson, Senior Claims Executive at UK P&I Club, advised on the importance of passage planning:

Despite logistical and technological advancement within voyage planning, human error and poorly executed processes can risk cargo, the safety of crew, and make any resultant claims void – costing shipowners substantial amounts in lost revenue,” he said.

The case involved a large container vessel, which was laden with cargo with a value in excess of \$500 mill, as well as about 8,000 tonnes of bunkers, grounding on a shoal while leaving Xiamen through a recognised dredged channel marked by lit buoys. The vessel’s owners alleged the shoal was uncharted.

About 8% of cargo interests refused to pay cargo’s contribution to General Average (GA) expenses of around \$800,000 on the grounds that the Master was at fault for the grounding.

The court found that:

- The absence of an adequate passage plan was causative of the grounding.
- The vessel owners did not exercise due diligence to make the vessel seaworthy as required by the Hague Visby Rules (Article III Rule 1).
- The passage plan prepared by the Second Officer did not refer to the existence of a crucial Preliminary Notice to Mariners alerting seafarers to the presence of numerous depths less than charted in the approaches to Xiamen.
- The passage plan did not refer to any ‘no-go areas’, which had not been marked or identified on the chart.

Ultimately, cargo interests successfully defended the vessel owner’s claim and were not required to contribute the \$800,000 GA.

This incident occurred in 2011, when there was no SOLAS requirement for the vessel to carry electronic charts. If this incident occurred in 2019 then, provided the passage plan on the electronic chart included a reference to the notice, it may not be defective and as a result the vessel may have been seaworthy at the commencement of the voyage. The display format of such Notices to Mariners do vary between system types and may not be displayed automatically, the club pointed out.

“This is an important decision, which highlights the utmost importance of careful and accurate passage planning by the navigational officers on board. Poor passage planning can lead to groundings, collisions, the endangering of crew, as well as significant financial costs for shipowners,” Johnson warned.

TO

NAVTOR’s solution certified as cyber secure

NAVTOR’s NavBox solution integrity comes with a cyber secure certification from DNV GL against the backdrop of increasing cyber threats.

NavBox, which automates the distribution and updates of digital charts, publications and other navigational data, now guarantees both complete regulatory compliance and security for an increasingly digitised generation of shipowners and operators, the company claimed.

Tor Svanes, NAVTOR CEO, said: “If we look at the past two years we can identify a worrying increase of cyber criminal activity, with high profile attacks targeting, amongst others, key shipping businesses including Maersk and COSCO, as well as ports such as San Diego and Barcelona. And this is really just the tip of the iceberg.”

He continued: “As shipping becomes increasingly digitised great benefits are unlocked in terms of efficiencies, intelligence and decision making, but a new

risk environment also emerges. That is of particular concern to those of us dedicated to developing innovative e-Navigation solutions, which rely on the collation, analysis and sharing of data. With this in mind we have been quick to devise the industry’s most robust, reliable and cyber secure solution with NavBox.”

NavBox offers a range of security features, including an encrypted connection – transferring data in a format only recognised by NAVTOR software – CRC checks, the non-transferral of executable files (a key source of malware) and communication through secure servers. The unit also operates as a ‘blackbox’, with no screen, keyboard or mouse, diminishing risk from human interaction.

NAVTOR designed NavBox to cut navigators’ administration duties, while

ensuring that the latest charts and publications are always available on board, leading to total regulatory compliance.

In addition, NavBox also provides shore-based teams with a full insight into chart usage, equating to more effective cost control and fleet management. The solution is available as PC software or as a separate hardware box that connects to a vessel’s ECDIS.

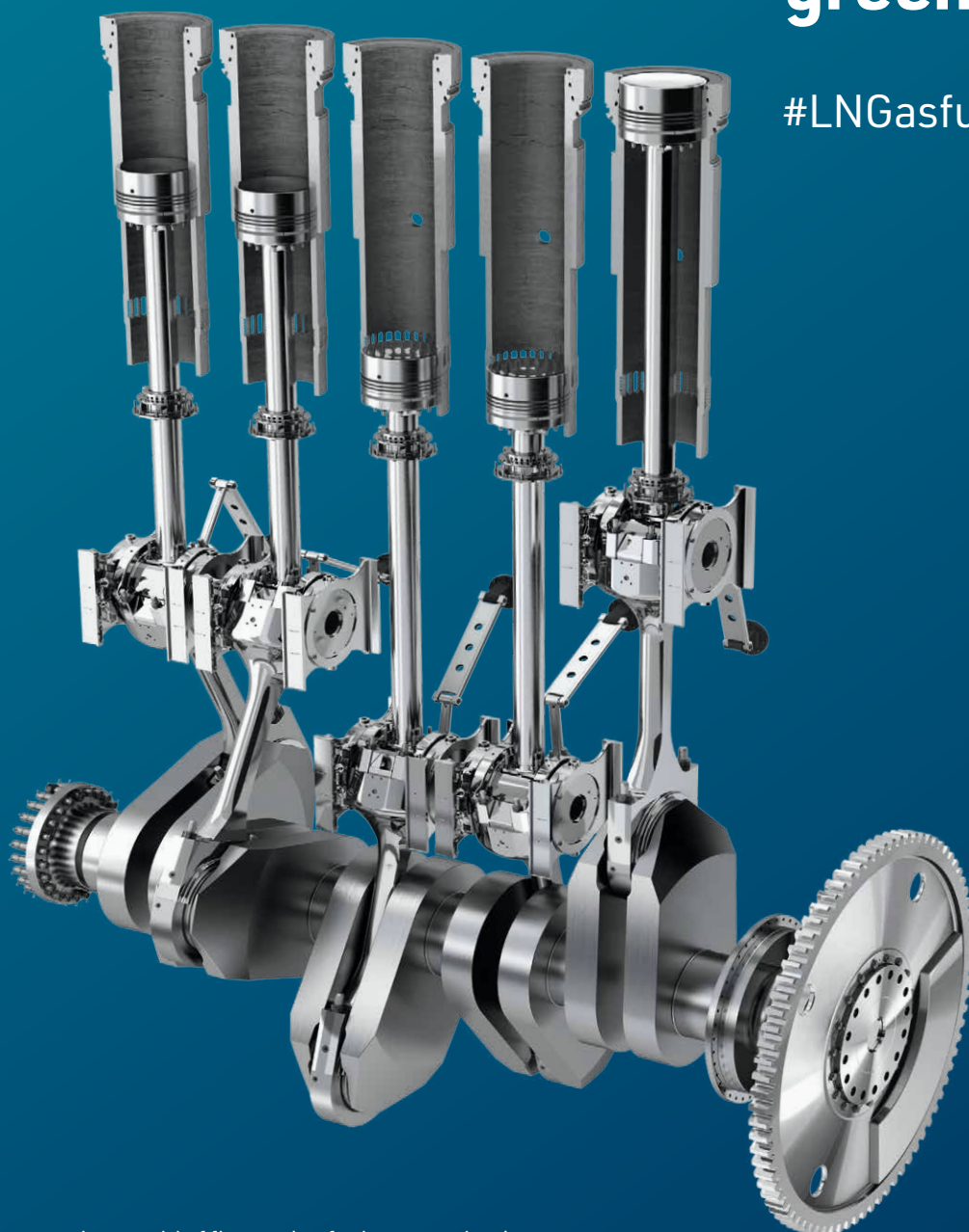
“e-Navigation is the cornerstone of smart shipping,” Svanes added, “enabling optimal routing, fuel use, efficiency, operational intelligence and communication between assets at sea and offices on shore. NavBox is a key component of our market leading e-Navigation proposition, so ensuring its resilience against any form of rogue cyber activity was a clear priority for us.”

TO

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Utmost despatch and utmost clarity

C Demurrage has analysed the case of - *CSSA Chartering and Shipping v Mitsui OSK (the “PACIFIC VOYAGER”)* [2018] EWCA Civ 2413.

Seeing as ever to optimise scheduling, owners often voyage charter out while a vessel is still performing a previous fixture, and will sometimes enter into an intermediate charter, which they plan to complete beforehand.

Charterers' and often sellers' arrangements depend on valid arrival or loading dates, and owners must ensure that all such are genuine and reasonable. In giving them, they must allow for transit, cargo operations and all ancillary matters, and will sometimes be held to account under familiar provisions and well established principles.

Thus:

- 1) If a fixture says that owners will proceed with all convenient speed (or, often, with the utmost despatch) to a loadport, and also gives an ETA or ETRL, owners have an absolute obligation to start the approach voyage at a time when it is reasonably certain that the vessel will arrive on or around the given date;
- 2) Any charterparty exceptions only apply once the approach voyage has begun.

A vessel might be delayed, in port or transit, for many reasons, including congestion, bad weather, breakdown or even casualty. Which side bears the risk of operational difficulty depends on what has been promised, or excluded, by the fixture wording. MOL's VLCC 'Pacific Voyager' is a good example of that.

Still laden under a prior charterparty, the vessel was fixed on an amended Shellvoy5 form for carriage to the Far East and had to "perform her service with utmost despatch and ... proceed to [Rotterdam] ... and ... load ...".

This fixture had no loadport ETA or ETRL, but (by incorporating the previous charter itinerary for the Red Sea, eastern Mediterranean and English Channel) it gave an ETA at that final disport, near Le Havre.

During the Suez Canal transit and through no fault of owners, the vessel hit a submerged object. She needed extensive repairs and charterers terminated and sought damages. Subject to liability, these were agreed at \$1.2 mill.

Before this decision, it was unclear whether the absolute obligation at (1) above in fact arose

where no loadport ETA or ETRL had been given. So the question was whether, in those circumstances, such nevertheless existed, and by reference to (a) the previous itinerary or perhaps (b) the cancelling date.

It was agreed that (2) above meant that owners could not invoke any charterparty exception.

Trial

The trial Judge ruled that the various ETAs under the prior fixture equated to estimates on which charterers could rely in identifying the commencement of their chartered service, and in order to make loading arrangements, and were thus meant to perform the same function as a loadport ETA.

Owners were therefore under an absolute obligation to start the approach voyage to Rotterdam after a reasonable time for discharging at her final disport under the previous fixture.

Owners argued that:

- (a) Wording that differed from that in the decided cases meant a different outcome - here there was no loadport ETA or ETRL, and the utmost despatch obligation was expressly 'subject to the terms of this charter', so
- (b) Such could only arise when the vessel left the final disport under her prior charter; but
- (c) It never arose, as that never happened (charterers countered that, if this was right, the utmost despatch obligation would not apply even if failure to leave the last disport had been entirely owners' fault);
- (d) Just as for the common shorthand 'bss iagw/wp', the itinerary was simply to highlight that the vessel was still performing under a prior charterparty.

The Court of Appeal ruled that:

- 1) The itinerary was very important to charterers, and did not merely signpost that the vessel was still subject to a previous charter;
- 2) Nor did 'bss iagw/wp', which instead emphasised that (as anyway required) the estimates were honest and on reasonable grounds, and owners got no help from 'subject to the provisions of this charter';

- 3) Likewise, the utmost despatch obligation is important and is intended to assist a charterer. The prior itinerary plainly showed that the vessel was not to sail for the loadport 'forthwith', and it could also be used to determine the alternative obligation, which was to start that approach voyage when the vessel would reasonably be supposed to have left her last disport after a reasonable time for discharging.

Owners were therefore in breach of their obligation, since they did not sail for Rotterdam, then or at any time, and were liable for \$1.2 mill.

C Demurrage commented - This decision shows that, even if there is no ETA or ETRL, if owners want to make the beginning of a charter service contingent on the conclusion of the prior one, very clear words will be needed.

In another case analysed by C Demurrage, the question of an arbitration agreement arose again.

This familiar issue arose in a novel way in *Sonact Group Ltd v Premuda SpA (the 'FOUR ISLAND')* ([2018] EWHC 3820 (Comm)).

Most fixtures contain clauses that make disputes subject to, say, English law and High Court jurisdiction, or more often provide for arbitration, also detailing how the tribunal is formed and citing the governing rules, such as LMAA.

But very few demurrage disputes get that far. Commercial operators document, present, negotiate and settle in the great majority of cases. This is mostly undertaken by correspondence but occasionally at a meeting, called to wrangle over a number of matters, with each side generally seeking one overall deal.

Sometimes lawyers are involved, but even then the bargain is typically recorded just by email. Formal documents are sometimes drawn up, but not usually.

An awkward problem?

But what if charterers do not pay the agreed sum?

Owners will press them, perhaps then involving lawyers, but in most cases the only way to compel payment is by formal action. But that cannot

be under the charterparty. It has to be under the settlement agreement that (for this purpose) has replaced it.

However, while the fixture may have stipulated arbitration in the clearest terms, the concluding deal may not have done, and that might enable charterers to challenge owners' attempted arbitration, by urging lack of jurisdiction.

That is exactly what happened in the Aframax 'Four Island' case.

Owners Premuda claimed almost \$719,000 demurrage and about \$190,000 heating costs under an amended Asbatankvoy charter that contained the usual arbitration clause.

The claim was settled by an email exchange, under which charterers Sonact Group agreed to pay \$600,000 for all owners' claims.

But they did not pay, and later challenged arbitration on the basis that the agreement did not provide for that, so the arbitrators had no jurisdiction over a claim for the agreed sum.

They said that owners' claim was not under the charterparty. It was under the settlement agreement. That did not have an arbitration provision, and no words had been used that could incorporate the charterparty clause.

The Tribunal ruled that it did have jurisdiction, as there was an agreement to arbitrate anything arising under the settlement, and on appeal the Judge agreed.

The Judge said that:

1. As mostly happens, the parties had traded views, in writing, and eventually reached an

agreement;

2. That was likewise in correspondence, and not in a separate, self-contained document;
3. The parties' unstated intention was that their agreement should have the same dispute resolution wording as the fixture under which the claims arose;
4. Claims handling like this is standard, and parties would be astonished to be told that the same mechanism did not apply;
5. Anything else would require the payee to establish court jurisdiction, probably where the defaulting party was based;
6. Parties can agree dispute resolution terms that differ from their charterparty; however
7. Especially if there is no separate settlement agreement, but just an exchange of emails, any such would have to be expressly recorded, and could not simply be inferred;
8. It was obvious that the parties intended the arbitration clause to continue to apply if the settlement sum was not paid, and inconceivable that they had contemplated anything else;
9. There was no rule that, once parties enter into the new legal relationship of a settlement agreement, an arbitration clause in the underlying contract no longer applies;

It was equally obvious that the parties intended that English law, as in the charterparty, would likewise still apply.

Charterers also argued that, under owners'

notice commencing arbitration, the arbitrators had been appointed for disputes under the charterparty, not the settlement agreement.

The Judge rejected that, too. Applying the established "broad and flexible approach", the notice here was effective to refer a claim for the agreed sum to arbitration.

Discussion

Charterers' arguments were firmly rejected, but the Court did not lay down a general rule, and each case is different.

Where, as normal, a demurrage claim is made and settled in correspondence, it might be hard for a defaulter to argue that the charterparty dispute resolution terms no longer apply.

But that will not always be so. It will depend on what the parties have said, and the exchanges might allow one side to argue that some other mechanism applies to the settlement.

This is perhaps especially so where the parties have captured their agreement in a separate document, or maybe under a different string of correspondence.

It may also be so where the parties have met to deal in aggregate with several claims, arising under fixtures with different disputes clauses, so it may be hard to say which was intended to apply.

Parties should take great care, and perhaps seek advice on this. It will generally be sensible to ensure that a settlement agreement, in whatever form, deals expressly with how any dispute under it will be determined, C Demurrage said..

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Fire on board- being prepared

A fire is one of the most dangerous events that can happen on board a tanker.

John Newbury, Ramtech Electronics products manager, looks at how latest technology can detect the risk of an electrical fire before it ignites.

Research shows that collisions (23%) and fires (20%) are the two most common causes of maritime accidents (Scientific Journal: Cause-and-effect analysis of ship fires using relations diagrams. Barbara Kwiecińska).

The author published the results of a survey that showed 'Damage to electrical equipment and cables', is the second most common reason for fires after spontaneous combustion. Based on data between 2009/2014 collated by IMO-GISIS, 2015/Barbara Kwiecińska, some 15% of all marine accidents involved LPG, chemical or oil tankers.

It highlights that fire on board is caused by a number of factors divided here into six main groups: damage to electrical equipment and cables, damage to machinery (for example, fire or explosion in the marine power plant), damage to ship's hull or its equipment, damage caused by external forces – force majeure, damage occurring during maintenance work/repairs and spontaneous ignition of cargo.

Loose connections, faulty appliances, overloaded sockets and distribution boards, as well as ageing and improper selection of materials, are also known to cause electrical fires.

The majority of ships have a main switchboard, which distributes power to lighting boards, smaller control panels, motor controls, emergency switchboards and other important controllers of equipment (Maritime Injury Center: Maritime Electricians and Electrical Room Injuries).

Constant vibration and movement on board and exposure to salt water tends to chafe or loosen electrical wires, whilst confined spaces and limited evacuation routes all exacerbate the difficulty in identifying and then tackling a blaze.

A risk assessment report on ship fires produced by the Finnish Border Guard and Finnish Transport Safety Agency and produced for the Baltic Sea Maritime Incident Response Group (Baltic Sea MIRG) project concluded that it is very difficult to prevent ship fires and minimising their consequences posed great challenges.

Despite strict regulations in place to ensure



Ramtech's WES Hotspot monitors electrical installations

vessels comply with fire safety requirements there are still a worrying number of incidents on board ship each year. Aside from the risk to life, one of the consequences is that the tanker may lose main and emergency electrical power leaving it drifting in busy shipping lanes, creating a danger to other vessels.

Given the size and scale of the problem, a growing number of tanker operators are looking for ways of preventing fires before they start using a technological-based solution.

Resistive heat

All electrical fires have one thing in common and that is the generation of excessive or 'resistive' heat, resulting in the ignition of adjacent combustible materials. This abnormal heating of connections and components can develop long before a fire even starts, and is the root cause of so many avoidable and potentially life threatening electrical fires on board tankers.

Resistive heating of connections can generate heat in excess of 1,000 deg C, well above the ignition point of many adjacent combustibles, such as PVC cable insulation.

If there was a way of detecting this build-up of heat before the point of ignition then many electrical fires on board could be avoided. This was the thinking behind the development of Ramtech's WES Hotspot, a new technology that monitors electrical installations and equipment,

alerting nominated personnel on board to the risk of an electrical fire long before it starts. This technology has the ability to turn what would be an emergency situation into a simple maintenance task.

The units can be easily fitted to new or existing vessels, where they are installed within sockets, consumer units and distribution boards – the key risk areas in a typical electrical installation. In these situations, the technology provides permanent monitoring of heat and activates as soon as abnormal temperature (80 deg C \pm 5 deg C) is detected. Once activated, the single and multi-point sensors generate a signal, which can be connected to virtually any alarm system to provide seafarers with instant notification.

A maintenance team can then be sent to the source of the alarm and carry out the necessary repair work – long before it develops into a fire or trips out power supply. Prior to this kind of technology becoming available, the likelihood would be that the resistive heat would continue increasing well above 80 deg C until it resulted in combustion of nearby materials, or eventual tripping of the system after the fire had started.

Being able to detect a fire before it starts means that it is more intuitive than existing protective devices such as MCBs and RCDs – because it responds to the excessive heat caused by wiring faults and overloads.

TO



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**GIANT
STRENGTH**



By Rotortug.

Rules and regs update

In April, 2018, the IMO's MEPC 72 adopted amendments to the Ballast Water Management Convention (BWMC), which will enter into force in October of this year.

MEP 72 also adopted the BWMS Code (resolution MEPC.300(72)), which will supersede the 2016 Guidelines for approval of ballast water management systems (G8) from October, 2019.

Up to the beginning of May, BWMC has been ratified by 81 countries, representing 80.76% of world's tonnage.

The main focus for the convention is on its effective and uniform implementation, and on an experience-building phase, with a focus on gathering data on application of the BWM treaty.

MEPC 74 will consider proposals related to ballast water sampling and analysis, including revisions to the data gathering and analysis plan for the experience-building phase associated with the BWMC to incorporate a link to standard operating procedures.

This meeting, which took place after *Tanker Operator* went to press, is expected to approve amendments to the BWMC and the BWMS Code, concerning commissioning testing of BWMS, as well as amendments to the form of the International Ballast Water Management Certificate.

Also up for consideration are proposals regarding the application of the BWMC to specific ship types, as well as exemptions under the convention, including possible amendments to the convention and/or development of guidance.

MEPC 74 will also consider proposals for approval of ballast water management systems that make use of active substances.

USCG changes

As for the USCG, Matthew Reudelhuber, Environmental Standards Division posted that the

Coast Guard understood that vessel owners and operators faced many challenges in selecting and installing a BWMS to meet its regulations.

As a result, the USCG has reconsidered its interpretation of 'next scheduled drydocking' and is providing additional guidance on what constitutes entry into drydock and the end of an extension period.

A number of vessels have received an extension of the ballast water compliance date that was stipulated as the 'first scheduled drydock after (date)'. This (date) was the date of entry reported to the USCG for the upcoming statutory out-of-the-water survey for the required inspection of the outside of the ship's bottom.

Based on the schedule for these surveys, the extensions were expected to extend the compliance date by no more than five years.

Due to drydock slippage, some of these vessels entered drydock after the date originally reported to the USCG. Other vessels entered drydock before the 'first scheduled drydock after (date)' for emergencies or to install an exhaust gas cleaning system (scrubber), but with no change to the schedule of statutory out-of-the water hull surveys.

Under the terms of the extension letters and the guidance provided, these circumstances substantially affected the original extension period.

The USCG said it had received multiple requests from owners and operators seeking their extensions be amended due to drydock slippage or entry into a drydock either for an emergency or for the installation of scrubbers, but not for a statutory out-of-the water survey.

The USCG normally responds by granting these requests with a 2.5 year extension from the

date of the originally scheduled drydock date.

Reudelhuber explained that the USCG had reconsidered and determined that existing extensions with a compliance date stipulated as the 'first scheduled drydock after (date)' will NOT be affected under the circumstances described above.

Vessels that have received an extension of the ballast water compliance date that was stipulated as the 'first scheduled drydock after (date)' and subsequently experience drydock slippage, enter a drydock for emergency reasons, or enter for the purpose of installing a scrubber, will retain the originally issued extension, provided there is no change to the next scheduled statutory out-of-the-water survey of the ship's hull for the required inspection of the outside of the ship's bottom.

A vessel's statutory out-of-the-water survey for the required inspection of the outside of the ship's bottom will be verified by vessel records, including the Certificate of Inspection, Cargo Ship Safety Certificate, or Cargo Ship Safety Construction Certificate, as applicable.

The USCG will provide vessels with updated language that reflects the intent of the originally issued extension. This will tie the extension termination date to the vessel's out-of-water statutory survey schedule, not to exceed five years. For those vessels that already received 2.5 year extensions, due to one of the reasons listed, the USCG will send letters to clarify the beginning and end of the originally issued extension period.

For vessel owners and operators choosing to install a BWMS, there are many USCG type approved systems today - up to 18 at the beginning of May. The type approved BWMS cover nearly all vessel types.



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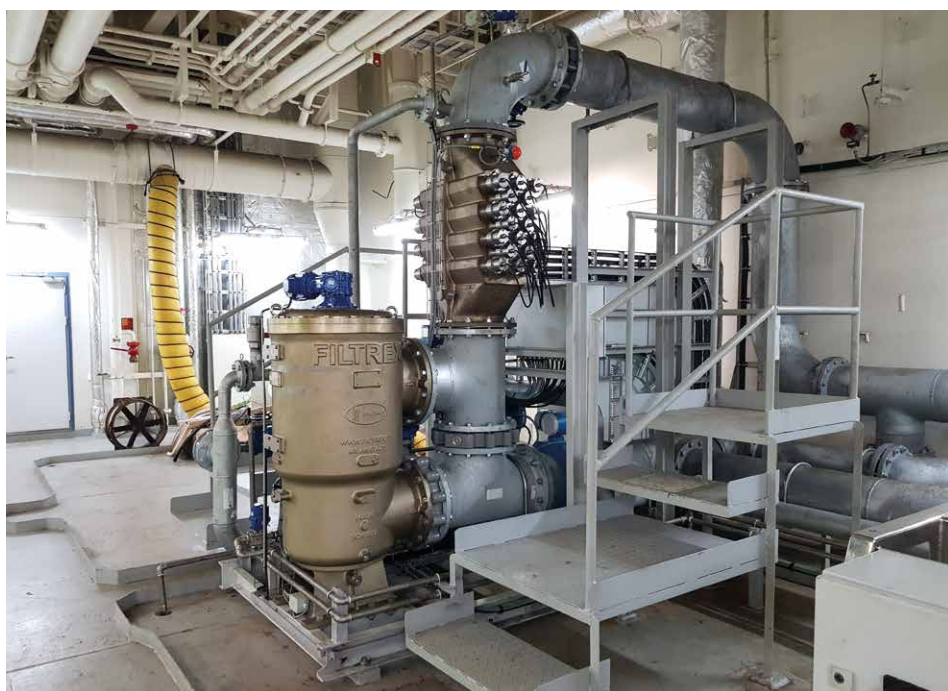
DESMI - ready for the rush

DESMI Ocean Guard's CompactClean Ballast Water Management System (BWMS) recently received US Coast Guard type approval to add to its IMO type approval. This means that the system is now approved for worldwide operation.

USCG's certificate is valid for all salinities and seawater temperatures, and has no requirement for a special operating mode in US territory. The stringent US requirements are met everywhere in the world by running the system in its normal mode. This means the system is fully approved and certified for discharge of ballast water worldwide in fresh water, brackish water, marine water, cold water or warm water.

Rasmus Folsø, DESMI Ocean Guard CEO explained: "It is a significant achievement that the CompactClean system does not need a special US operation mode to meet the USCG requirements in US territory. With just one operation mode used globally, there is no need for knowing the de-ballast location at the time of ballast uptake, in order to determine if the BWMS should be operated in IMO or US mode. Likewise, there are no issues related to mixing IMO and USCG treated ballast water when water is treated in one mode during ballast operation, but then pumped to a tank with remains of water treated in another mode.

"Mixing of ballast water treated in different



CompactClean 750 Ballast Water Management System

modes is also a concern when water is moved internally from tank to tank during a voyage to compensate for consumed fuel. All of these issues represent serious complications to the ship operator when using BWMS that must

be switched to one operation mode in US and another in the rest of the world (IMO). With CompactClean, we have managed to solve this. Furthermore, we have managed to keep the power consumption at a minimum by incorporating automatic dimming of UV lamps when the water conditions permit," he said.

USCG's type approval includes a requirement for a minimum holding time between ballast and de-ballast operations of 24 hours. This is already significantly better than many competing systems, but in order to meet customers requirement, additional testing was recently performed in order to demonstrate that the minimum holding time can be reduced to close to zero.

Successful tests

Tests were successful and DESMI said that it expected an amended USCG Type Approval certificate with a close to zero holding time requirement will be issued in the near future. The IMO type approval certificate is already without any minimum holding time



CEO Rasmus Folsø

requirement.

Furthermore, the CompactClean BWMS has recently been approved according to ATEX and IECEx requirements for installation in hazardous zones on for example, oil and chemical tankers, and this is also expected to be added to both IMO and USCG certificates soon.

DESMI's BWMS comes in 14 different flow rate sizes, from 35 cu m per hour to 3,000 cu m per hour. The largest UV Unit boasts a maximum capacity of 1,500 cu m per hour, and by combining two of these in parallel a 3,000 cu m per hour flow rate is achieved.

As reported by other UV suppliers, the company said that it also saw a growing market for these large flow rate UV systems, as shipowners value the simplicity, ease of installation, ease of operation, low operating expenses and chemical free operation offered by this technology.

The system consists of an automatic backflushing filter, an UV unit, valves, sensors, and controls. Furthermore, the system includes many features that are of importance to its daily operation. One example is the automatic generation of PDF reports that document all the performed ballast water treatment operations, in a format



CompactClean now has both USCG and IMO type approvals



that is suitable for submission to local port authorities and others.

Another example is that the system includes a pump that can be used as a stripping pump under ballast stripping operations, thus solving one of the main problems for ballast water management system installations today.

Talking with *Tanker Operator*, Folsø explained that the ATEX and IECEx approved equipment have flow rates from 135 cu m per hour to twin 3,000 cu m per hour units.

He reiterated that the company expected IMO and USCG approval for this equipment within a few weeks. "However, our system already holds all the required EX certificates on component level, and we have already installed and commissioned a number of CompactClean-EX systems in hazardous zones on tankers.

"We just need to get this information added to the type approval certificates," he explained. Thus far, the company has only fitted these BWMS in the hazardous areas on board tankers.

Folsø concluded; "We have seen a significant increase in inquiries/orders, and we are ramping up production, project management, service network, etc and today use DESMI service hubs available in strategic locations worldwide."

"The Ecochlor system has worked well for us... it uses an almost negligible amount of electrical power and works effectively in all water conditions, including the sediment filled, biologically saturated waters off Chittagong, Bangladesh. Ecochlor has shown their commitment to our system by reliably providing support, scheduled service and chemical resupply as needed."

- Chief Engineer, BWMS Retrofit 2005

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BWTS suppliers make progress on all fronts

Several companies have reported significant progress with their respective ballast Water management systems. We have highlighted a few of the initiatives recently reported.

Microbiological testing company, **LuminUltra Technologies** has introduced a cloud-enabled digital platform to manage the microbiological quality of shipboard fuel and water systems, including ballast water.

The patented LuminUltra Cloud, available both on-line and off-line, allows end-users to control the data from all sampling, testing and analyses carried out on board, and to create custom compliance reports that can be shared between ship and shore-based personnel.

Pat Whalen, LuminUltra Technologies' President & CEO, said: "LuminUltra Cloud is a real game-changer for assessing and reporting the microbiological content of fuel and water on board ships. Users can now have the information available on which to base accurate and immediate corrective action where and when necessary. The platform also provides trending analytics across all water and fuel tests."

Carine Magdo, Business Development Manager, Ballast Water Monitoring Solutions, LuminUltra, said: "For operators of shipboard ballast water management systems, the digital platform is particularly useful for ensuring compliance information is immediately available for port state control authority inspections.

"A dedicated B-QUA app is featured to provide rapid automated analysis of the microbiological status of treated ballast water over various time periods, allowing users to follow the historic results of compliance testing across all vessels in a shipowners' fleet.

"LuminUltra Cloud provides our customers with a secure, web-based solution for all their monitoring and sampling data. Also included is LuminUltra Academy, an online training and certification platform. Visitors to the 'Academy' have access to a myriad of technical support and training modules, including training videos, webinars, user guides, sampling guidelines and templates for ballast water reporting,"

she said.

Compatible with all Apple, Windows and Android-based devices, the data is secured using Microsoft Azure Authentication.

Updated approval

Alfa Laval's PureBallast 3, the third generation of Alfa Laval's BWTS technology, has received an updated type approval from the US Coast Guard (USCG).

The new certificate makes it possible for vessels to de-ballast in US waters with a holding time of just 2.5 hours using this system.

Alfa Laval was awarded an updated certificate on 4th April, granting the system type approval with zero-day holding time in all water salinities. PureBallast 3 owners in US waters now have the option of discharging ballast water just 2.5 hours after taking it on.

The holding time of 2.5 hours, which is due solely to a technical testing procedure, is only applicable if the vessel crosses over into another Captain of the Port Zone within this very short time.

"We are committed to keeping operations simple, even under the more complicated USCG legislation," said Anders Lindmark, Head of Alfa Laval PureBallast. "The new, and dramatically reduced, holding time for PureBallast 3 removes a key frustration when operating in US waters."

Holding time is a designated interval between the completion of ballast water uptake and the start of ballast water discharge. PureBallast 3, like many other treatment solutions, has had a mandatory holding time when operating under USCG legislation – despite having no such requirement under IMO legislation.

The reason UV treatment systems have had holding times in US waters is the difference in testing methods used by IMO and the USCG to verify biological disinfection performance.

However, the recent signing into law of the Vessel Incidental Discharge Act (VIDA) paves the way for the USCG to re-evaluate

the IMO-endorsed method. If the USCG decides to accept the same testing principle used by IMO, suppliers of UV treatment systems will likely be able to reapply for USCG type approval based on the IMO testing methodology.

"Alfa Laval is closely following the developments related to VIDA, but we have chosen not to wait for a change in the USCG legislation," Lindmark explained.

Electrochlorination (EC) systems can only achieve short holding times through an increased use of chemicals, the company explained.

For many EC systems, large amounts of neutralisation chemicals are needed to meet the discharge limit for total residual oxidants (TRO).

Another type approval

Meanwhile, **Wärtsilä's** Aquarius UV Ballast Water Management System (BWMS) has been granted USCG Type Approval.

With the company's other BWMS, the Wärtsilä Aquarius EC, already type approved, the company became the first manufacturer able to offer two USCG type approved BWMS technologies.

"Wärtsilä's dual technology offering provides the broadest range of BWMS solutions for fleet wide regulatory compliance. This means that owners can be sure of having the most appropriate system for their particular needs from the same premium support supplier," claimed Craig Patrick, General Manager, Sales, Water and Waste, Wärtsilä Marine.

The company's Aquarius UV technology utilises proven filtration and UV irradiation. It retains its effectiveness regardless of the water quality, while Wärtsilä's Aquarius EC system features a simple two-stage process involving filtration and electrochlorination across the full scope of a ship's operating and environmental conditions.

In addition to the USCG approvals, both technologies have also been awarded IMO Type Approval.

Ecochlor- Getting ahead of the crowd

Tanker Operator spoke with Steve Candito, Ecochlor CEO about how the company is dealing with the significant increase in orders and other concerns facing a BWTS manufacturer.

He confirmed that Ecochlor is increasing its capacity at both its North Haven (CT) and Shanghai facilities.

Ecochlor partners with generator manufacturer ProFlow, which has been involved since the first prototype Ecochlor system was developed. Candito explained that the main component of the company's chlorine dioxide (ClO₂) treatment technology is the ClO₂ generator.

Ecochlor's ClO₂ generators are manufactured by ProFlow at its North Haven (CT) location, a short distance from Ecochlor's engineering, installation and service departments' office locations.

Candito said: "When Ecochlor's orderbook tripled in number last year, ProFlow was able to quickly increase production capacity and efficiency by incorporating LEAN manufacturing procedures and increasing their production space, all while maintaining their ISO 9001 certification.

"Ecochlor's chemical storage tanks assemblies, as well as additional components, are supplied by FluidTech (Shanghai) Environmental & Equipment Technology Co. Ltd. FluidTech is a ISO 9001 certified company with a focus in water treatment and electronics. FluidTech has also increased their production capacity in Shanghai to meet our growing demand," he explained.

Strong tanker influence

As of April, 2019, Ecochlor had more than 250 ships in its orderbook, with some of the largest and most respected shipowners in the world — Alaska Tankers; Anglo Eastern Ship Management; Bahri Ship Management; Capital Ship Management; Liberty Marine; Angelicoussis Group; Minerva Marine; SCF Group; Seacor; and, Scorpio Tankers.

"While Ecochlor installations over the past few years have been predominantly tankers, we have many bulk carrier retrofits that are scheduled in the near future," Candito said.

"Ecochlor holds a unique place in the industry as one of a few treatment systems that do not require neutralisation or re-treatment at discharge. As such, the Ecochlor System

offers a significant advantage to bulk carriers with gravity-discharged top side ballast tanks. Modifying a bulk carrier with these type ballast tanks to re-treat or neutralise the ballast water can be extremely costly and, more importantly, could lead to operational difficulties of the vessel," he said.

Addressing the stagnant newbuilding market, Candito said that Ecochlor has installed its BWMS on newbuildings that are owned by current clients. However, the majority of the orders at this time are for retrofits.

"Over time, we expect that our BWMS will be installed on more newbuilds, as shipowners start specifying Ecochlor's systems in their newbuild orders. We have seen our BWMS specified for newbuilds because of the shipowner's excellent experience with the reliability and ease of use of our BWMS," he said.

He also confirmed that Ecochlor still works closely with Argo Navis Marine Engineering & Consultants (Argo Navis) and Drew Marine, but he said that it should be noted that both Argo Navis and Drew Marine are independently owned companies separate from Ecochlor. "Thus, we also work with many other companies in the market," he said.

He stressed that Ecochlor's contracts with Argo Navis have been primarily for Greek and Cypriot shipowners, which have hired the Greek company as the integration engineering firm.

Recently, Ecochlor signed a fleet contract with Scorpio Tankers and Choice Ballast Solutions is the installation engineering firm for these upcoming retrofits, he explained.

"As a compact, modular system with minimal footprint, the Ecochlor BWMS is relatively simple to install. Even so, there are clear benefits to working with an integration firm that has experience installing our system, as they can bring the experience and knowledge gained from each installation to future vessels," he said.

As for Drew, the Ecochlor service team handles each of the company's service calls and performs all chemical re-supply. This team collaborates with Drew Marine to assist in providing logistics and technical support primarily to facilitate transporting Ecochlor's precursor chemicals to the re-supply location.

An authorised Ecochlor representative handles the actual chemical re-supply, typically once or twice a year. The entire process is closed, using specially selected equipment and trained personnel with no direct human contact to chemicals. There is no need for the crew to assist in the process with the exception of crane operations when loading the chemical storage totes on board the ship.

"A clear advantage of Ecochlor's service team managing the re-supply process is not only having our team on board to handle the chemical re-supply, but we also check on the



Ecochlor generator assembly at ProFlow



Ecochlor chemical supply

BWMS to ensure it is working as it should be. This routine contact with the BWMS system is one of the reasons our system is so dependable," Candito said.

For tankers, Ecochlor's standard approach is to install the filters in close proximity to the ballast pumps (typically the cargo pump room), and the treatment system within a deckhouse in a non-hazardous space.

When installing an Ecochlor BWMS on a vessel with submerged ballast pumps, there is an added challenge as the ballast pumps are situated within the ballast tanks. For these installations, the filters are typically placed in a pre-fabricated deckhouse on the main deck directly above these tanks.

Both the Ecochlor CIO2 system and the filters are monitored from the same control panel to allow for a consistent, easy-to-use system for the ship's crew. At the shipowner's option, control panels can be installed in multiple locations, such as the engine room, cargo control room or the BWMS treatment deck house.

Ecochlor also offers a free guarantee, the patented EcoCare. This is a multi-faceted guarantee that ensures regulatory compliance

with IMO, USCG and individual US state standards as it pertains to treating ballast water for invasive species. It insures against financial penalties up to \$1 mill relating to possible fines, port charges, delays and off-hire if ballast water, properly treated using Ecochlor's BWMS, fails an invasive species test.

As for service, Candito explained that for the most part the company's extensive service team, with locations around the world, stand ready to respond to any service needs. In areas, where there is an Ecochlor trained member of the Drew team or other trained service network personnel, such as Goltens, we will call on them to provide logistics or other support for some onsite calls, as well as spare parts delivery and replacement.

Ecochlor is a supporter of BEMA, which has both charter and associate members. The charter members are BWMS makers that have received an IMO or USCG type approval, while the associate members are others that have an interest in

the ballast water management market such as filter, UV lamp and sensor makers.

To date, BEMA has 43 members and is making plans to apply for IMO NGO status prior to the next deadline in 2020.

As for testing, which is due to start in October of this year, Candito clarified that there is a distinction between testing upon commissioning and routine Port State Control (PSC) compliance testing.

Theoretically, commissioning testing should already be occurring. It is PSC testing that was informally delayed for 12 - 18 months from the regulation's implementation. However, during MEPC 73 in October, 2018, the Committee recognised that there are a number of open issues, primarily with regard to sampling. Thus, they issued a proposal regarding compliance sampling procedures.

Hopefully, MEPC 75 will provide further guidance on this issue including whether samples of the water coming into the BWMS, as well as the discharge water after treatment have to be tested, in order for the administration (or class society) to evaluate whether the BWMS is actually working properly, he explained.

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Ecochlor submerged pump placement

BWM advisory published ahead of IMO compliance dates

ABS recently published its 2019 Ballast Water Management Advisory providing critical advice to owners in advance of the five-year window beginning September, 2019, requiring retrofits of BWM systems on existing ships.

We anticipate roughly 6,000 vessels per year over the next five years will need to be retrofitted with ballast water management systems to meet the revised IMO compliance dates,” said William Burroughs, ABS Ballast Water Management Lead.

“We recognise this is a large portion of the fleet and will only be achievable through proper planning and effective project management and execution. This Advisory provides in-depth guidance to help owners understand the complexity of retrofitting ballast water management systems, supporting successful and on-time retrofits,” he explained.

Through a recent comprehensive global questionnaire circulated to owners and operators, ABS found that 65% of BWMS were reported as inoperable or problematic.

This Advisory provides a practical and phased approach to guide owners and operators with retrofitting and operating BWMS, helping avoid costly mistakes and operational disruptions, ABS said.

To be compliant with the IMO’s Ballast Water Management Convention for existing vessels, shipowners need to install a BWMS at the vessel’s next renewal survey associated with the IOPP certificate (MARPOL Annex I) after 8th September, 2019, essentially creating a five-year

window for retrofits between September, 2019 and September, 2024, depending on when the renewal survey is due.

ABS’ Advisory covers:

- Latest IMO & USCG BWM regulatory updates.
- Updates on ballast water treatment technologies, practical considerations and system limitations for each.
- Practical advice to help owners identify the ‘most suitable’ BWMS for each of their vessels.
- A detailed discussion of the challenges for conducting BWM system retrofits.

TO

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Ten years of cost-savings and environmentally efficiency

In 10 years, the patented Becker Mewis Duct has become a globally successful product.

Demand for the energy-saving device is rising again as the new IMO environmental guidelines come into force next year.

Accordingly, Becker Marine Systems will be at Nor-Shipping and will also be presenting other manoeuvring systems and energy-saving solutions for ships.

Well over 1,000 Becker Mewis Duct units have been sold to date, for both newbuildings and retrofits. Worldwide, emissions of CO₂ have been lowered by more than 7 mill tonnes by employing the energy-saving duct.

“Our company has written a success story with this product,” claimed Dirk Lehmann, Managing Director of Becker Marine Systems, “and demand continues to grow unabated.”

One reason for this are the IMO’s stricter environmental regulations. According to the IMO 2020 regulation, starting 1st January, 2020 vessels may only operate at sea with fuel that has a maximum sulfur content of 0.5% instead of the previous 3.5%. For the shipping industry this means considerable additional costs, which however, can be reduced by lower energy consumption.

Becker’s complete package fitted

“By employing the Becker Mewis Duct, consumption is lowered by an average of 6% for both empty and fully loaded ships,” said Lehmann, “reductions are often higher for older ships.”

For this reason, many owners are taking advantage of the opportunity to upgrade their ships by retrofitting. “Delivery time

is currently around three months, plus one week for retrofitting at a shipyard,” Lehmann explained.

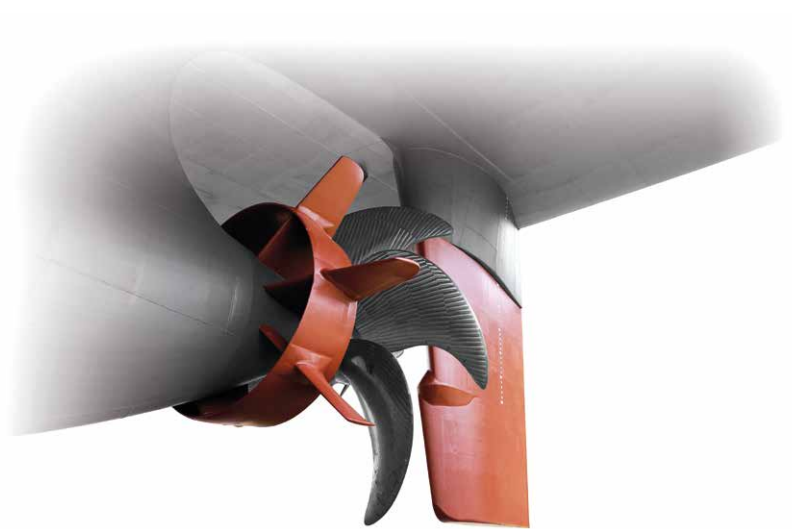
This means that there is enough time to react to the IMO 2020 regulation and to reduce the rising costs for fuel through the efficient use of the duct.

EEDI applicable

The same applies to the guidelines relating to the Energy Efficiency Design Index (EEDI). Here too, the Becker Mewis Duct is a tried and tested way of lowering CO₂ emissions and enabling more sustainable shipping, the company claimed.

“By the combination of reducing additional costs and at the same time acting in a more environmentally friendly way, we expect a further increase in interest in the duct at our exhibition stand in Oslo,” added Lehmann on the forthcoming Nor-Shipping expo.

The Becker Mewis Duct Twisted is currently being used for large 22,800 TEU containerships built in China for French shipping company, CMA CGM.



A Schilling rudder fitted

Big data is revolutionising the maritime sector

As big data and analytics revolutionise the shipping sector, demand for Propulsion Dynamics' CASPER operations platform continues to grow, the company claimed.

Leaders in the maritime field have therefore been quick to include data analysis as part of their toolbox in order to stay one step ahead.

For one of the world's leading owner and operator of LPG vessels, BW LPG, data analysis and performance data is helping the company to achieve its goal to be part of the solution to today's environmental challenges, while ensuring voyage efficiency and customer satisfaction.

"For BW LPG, the CASPER operations platform forms part of our performance monitoring analysis toolbox, allowing us to optimise fuel costs and reduce consumption, benefiting both commercial and environmental aspects for owned and chartered ships," explained Kevin Knott, Senior Manager, Fleet Performance, BW LPG.

In 2015, BW LPG implemented the performance analysis tool CASPER Service. Three years later, BW LPG began using the CASPER operations platform – a fully automated platform that adds a new layer of transparency to daily performance analysis and ensures easier detection of deviations to the expected performance of the vessel.

This year, BW LPG renewed its contract to install the new CASPER operations platform.

"CASPER was primarily introduced to allow us to monitor and determine the amount of hull and propeller resistance of our vessels and thus the corresponding consumption at a given draft, weather and speed," said Knott. "The various BW business units were very much involved in the development of the new CASPER operations platform and we saw the additional benefits in continuing to use it."

Daniel Kane, Propulsion Dynamics' CASPER Service vice president, added that the platform has helped improve the overall data quality of the BW fleet, due to all parameters being constantly monitored and evaluated.

"Daily deviations are now being detected



Propulsion Dynamics' Daniel Kane

by a systematic use of ship hydrodynamics at a much earlier stage, resulting in faster and more reliable analysis and thus allowing swift action to adjust performance," Kane explained.

BW LPG had noticed that sister vessels can have very different performance profiles and CASPER is helping them to identify those differences and causes early on.

"Monthly detailed performance reports are produced, whilst a daily overview of performance can also be reviewed. The platform also includes a report on the consistency of the data received from the respective vessels, which is imperative when making performance related decisions," Knott explained. "It highlights trends in performance – be it positive or negative direction – and also adds to the decision making process when deciding on possible hull cleaning and/or propeller polishing operations."

The CASPER Service, which was introduced in 2002, is currently in active use on hundreds of tankers, plus other vessels and has become recognised worldwide as helping increase the reliability and transparency of

fuel performance, the company claimed.

Sustaining the highest possible propulsion efficiency is critical for economic and environmental prudence. Propulsion Dynamics' CASPER Service provides a solution for shipowners, shipmanagers and charterers that require independent decision-support on how to conserve fuel and reduce emissions for the active fleet.

For shipowners: Shipowners are helped to meet the challenges to improve technical fuel efficiency through a highly accurate performance monitoring service. Determining hull pre-treatment strategies, comparing hull coating systems and cutting operational bunker costs provide shipowners with an immediate return on investment (ROI) using CASPER.

For charterers: This service determines the actual fuel efficiency of the chartered-in vessels and reconciliation of the reported daily fuel oil consumption (FOC) to the theoretical FOC. In addition, fuel saving predictions are available from in water husbandry, providing charterers with an immediate ROI.

The CASPER Service, Computerized Analysis of Ship PERformance, combines hydrodynamic analysis with the expertise of a skilled team of naval architects.

A shipowner's technical policy in regards to hull and propeller husbandry, fuel savings, emission reduction is important in order to attain profitable results.

Propulsion Dynamics assists shipowners and shipmanagers formulate such a policy and provide the clear facts, so the right decisions can be made on how to optimise ship performance and fuel efficiency.

With volatile fuel prices, demands to reduce emissions, the advent of environmentally-friendly hull coatings and new hull cleaning technologies, Propulsion Dynamics fulfills a capability gap in cost-benefit analysis, the company claimed.

TO

Maintenance timing is of prime importance

Due to the advance in technology, shipowners and operators can now take advantage of condition based or predictive maintenance, rather than the more traditional predetermined or time-based maintenance.

According to Thomas Knödseder, DNV GL's Senior Engineer, Hulls, Materials and Machinery Department, based in Hovik, the goal of any preventative maintenance is to stop a failure, either over time or by analysing the equipment's condition. With the correct prediction, the maintenance can now happen at the exactly the right time.

By using this method, the threat of a failure virtually no longer exists, unlike previously, where an OEM would stipulate a time-based condition maintenance programme. "Maintenance could be conducted at the wrong time, for example, too early or too late," he explained. "Here, the system's weakness is a fluctuating reporting system."

Today, the shipping industry has a better insight into the data being collected from the sensors on board and the diagnostics used to monitor the equipment, as the different technologies are based on thorough inspections.

"Capitalise on what you have," Knödseder said, talking about the amount of data now becoming available. However, the trick is to decide what to do with the data collected, as capturing measurements on a main engine under condition-based maintenance is difficult.

In the short term, structured results can be obtained but DNV GL has asked questions about the data received and the equipment examined, for example for a seawater pump or a main thruster, which are serviced by invasive time-based inspections. "The data received needs to be good enough," he said.

In the past five to 10 years much work has been done and a 'tipping point' has been reached, Knödseder said. With the new accent on machine learning, statistical analysers need to know what to look for. "Correlation-based thinking is difficult with machine learning and we needed to know how to look at the data, as more emerges," he explained.

However, he said that technical operations people were gaining more confidence in data. "We have a starting point," he said. "Shipowners are now buying into it. OEMs are also much more interested in this type of service. They need to know what is going on in real time. Condition monitoring just

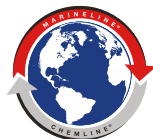
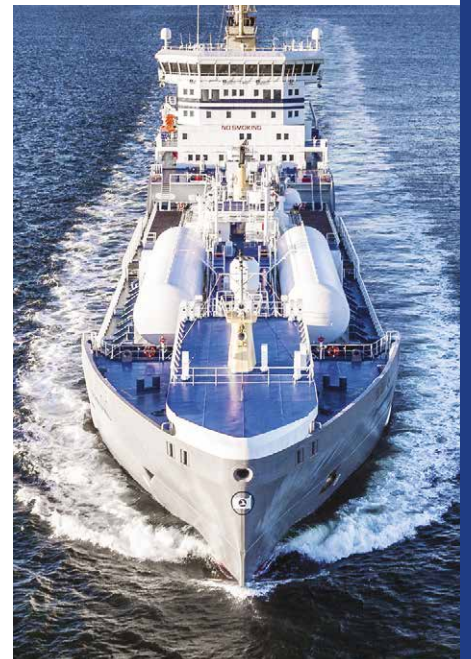
tells you how it is," he said.

Class carries out inspections on equipment as a matter of course on safety issues, but the maintenance can vary from the times of the inspections. For a planned maintenance system (PMS), the equipment manufacturer's schedule is normally

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followed and the work is verified when due and documented.

He advised that when engaging in predictive maintenance, don't just follow the maker's suggestions but analyse the condition markers from the data collected from the equipment.

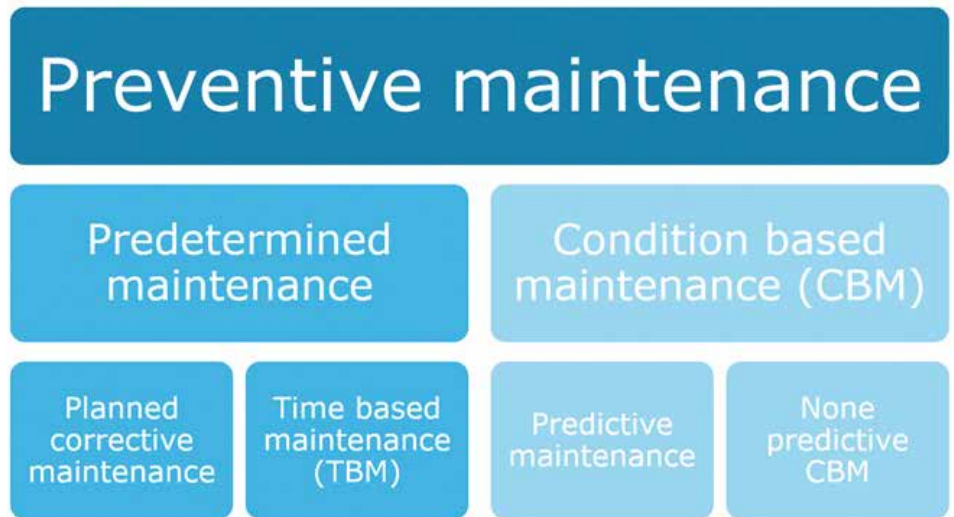
Approve consultants

There are third party consultants now offering data analysis. He advised owners and operators to approve them and their services before they are engaged to ensure that they are competent to carry out the correct data analysis and also talk with the service suppliers to ensure that they are up to the job.

He also advised that when considering a newbuilding, the specs should include a readiness to comply with a modern maintenance philosophy. "Tie this to the management plan to trigger the maintenance," he said.

A major problem is that monitoring software is often not integrated with other shipboard software and data quality could be an issue. "The data is just for what we want to use it for," he said.

For example, there could be different systems in engine rooms designed to operate on different times and the failure modes are



unknown. "We must have a physical check to combine what you already know with what you didn't know," Knödlseider added. "Data is nothing without context."

One box needed

Another problem is that AIS doesn't tell you anything. For fuel consumption, the power data from 50 different small software outlets will lack integration for the bigger picture. All of the systems on board should talk with each other with just one box on board needed for the timings.

Going forward, he said components will

talk to each other but the questions is what will they tell you and then what will you do with the answers. "We are not there yet," he stressed.

Turning to how to save money on asset predictive maintenance. "It can influence operations by changing parameters planning to avoid going off-hire. Every ship has a PMS on board. The necessary work should be optimised. Much of this must be undertaken by outside interests, so we must have trust in the information being received.

"It is a behavioural change. but we are on the right track," Knödlseider concluded. **TO**

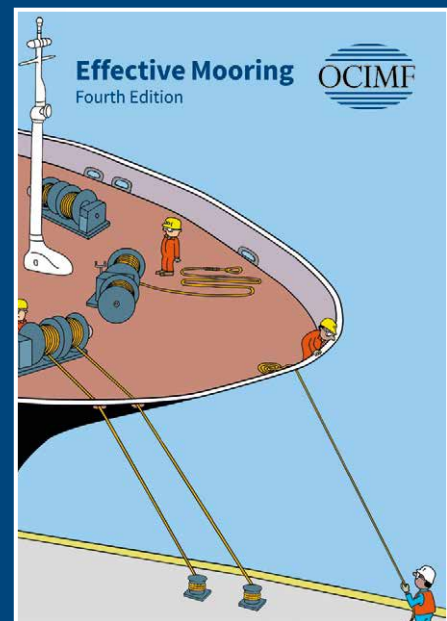
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Fuel efficiency and tanker pools

Danish maritime software company, Vessel Performance Solutions (VPS), has developed a system that enables a pool manager to distribute earnings to pool partners based on how fuel efficient their vessels were within a set period relative to other vessels in the same segment.

The system is fully transparent, as all the pool members will have full access to the system and each member can therefore continuously follow the performance of its vessels relative to the pool average.

One major advantage, director Jakob Buus Petersen, told *Tanker Operator* is that each member will get the full benefit of a fuel saving initiative, ie full pay-back of any costs.

For example, if an expensive treatment and a good paint system is applied in a drydocking, the pool member will benefit from that investment until the next drydocking.

The pool itself will hopefully benefit from each member doing its homework and therefore being able to offer on average more efficient ships to the pool.

It is these operations that are required to make it transparent that fuel saving initiatives gives the member a direct benefit, but also as a tonnage provider.

There is an ongoing process for each segment, so specific vessel size are measured against other vessels from the same segment, ie Handy, MR, LR1, LR2, etc.

The software is fully integrated in Maersk

Tankers' pools and the company's Per Navndrup Pedersen will present the concept and ideas at a VPS conference on 28th May.

The conference - Operational Performance Beyond 2020 - is to be held at the Athens Marriott Hotel.

Buus Petersen explained that the shipping industry is moving into turbulent times and must prepare for a future filled with major challenges and changes.

For example, market conditions for operating ships are undergoing rapid changes and future vessel design requires flexibility to be able to match this.

Fuel prices are expected to rise with the introduction of the 2020 sulfur cap and the need for transparent and reliable performance systems is becoming even higher.

The data amount collected from vessels operations is increasing and data analyses can now be delivered continuously. The environmental landscape demands increased reporting and systems that can handle this.

Among the questions to be tackled are - What is the status of the market? How do handle increased digitisation? How do we handle performance management? How do we get reliable data from the vessels?

How do we get meaningful answers to the performance inquiries we have? Which voyage optimisation tools are available and what can they offer when it comes to voyage and weather routing? How is this handled by shipping companies? How do we prepare for the future with respect to optimising operations, fuel selections and design?

Delegates will listen to contributions from shipping companies, class societies and suppliers.

Buus Petersen will also chair the VPO Forum at Nor-Shipping, which will look at the latest practise and methods optimising vessel performance with the help of digital technology.

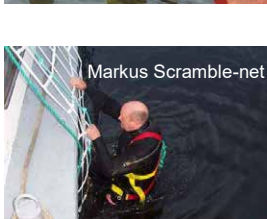
VPS was founded in 2014 by Jakob Buus Petersen and Kristian Bendix Nielsen.

The company is located in Lyngby, just north of Copenhagen, and close to the main Danish shipping centres of Hellerup and Copenhagen.

Its core business is the analysis of operational data from ships, supporting shipowners/operators by creating insight into their fleet performance, without having to install equipment or software.

This is accomplished through existing operational data analysis.

TO



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On the safe side with GEA CatFineMaster

The fine-grained, hard, brittle and highly abrasive catalyst residues in fuels, known as cat fines, can cause considerable damage to marine engines.

Under extreme conditions, they even lead to the main engine's total failure.

One effective countermeasure is GEA's CatFineMaster. This system helps to ensure the performance, safety and economy of marine engines and propulsion technology at sea.

GEA has recently received an order for 20 CatFineMasters from the largest shipbuilding company in China. Two of these systems are to be installed in each of 10 LR2s building for a Danish shipping company, which are to be delivered by 2020.

The GEA CatFineMaster consists of a heavy fuel oil separator and a feed pump. This pump can be controlled during operation in such a way that an optimally adjusted heavy fuel oil flow is guaranteed, taking into account the corresponding process requirements.

This ensures an additional increase in

efficiency and also leads to energy savings, the company claimed. The system is completed by the GEA IO control system and optional measurement and analysis equipment.

In order to achieve the IMO 2020 requirements, the sulfur content in the heavy fuel oil must be massively reduced. This is achieved by using Ultra Low Sulfur Fuel Oil (ULSFO). In the production of ULSFO, fluid catalytic cracking is used, an important substance conversion process in the petroleum processing industry. The disadvantage of this process is that the ULSFO obtained by using this method can contain catfines, which are responsible for abrasion.

These cat fines can cause large amounts of damage. The million dollar mark is quickly reached, especially when several cylinders and valves are affected.

In order to achieve optimum separation behaviour with cat fines of different sizes, the system offers the possibility of varying two essential process parameters. First, the separation temperature can be changed. Hot separation at temperatures of up to 110 deg C reduces the viscosity of the fuel, making it even easier to separate the very small cat fines in particular.

The second process variable is the flow rate, which is controlled by the feed pump to optimally adjust the flow rate of the fuel to the respective process requirements. This not only contributes to an additional increase in efficiency, but also saves energy.

CatFineMaster ensures an effective reduction of cat fines, which in detail means a target concentration of less than 5 ppm and separation of all particles larger than 3 µm, GEA concluded.

TO

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Enhancing surveys by using remote tools

Lloyd's Register (LR) and DNV GL have advanced the use of remote surveys over the past few years.

Here, LR's Chief Surveyor, Iain Wilson, explained how shipowners have been weighing up the efficiency benefits of remote surveys since LR issued its 2018 guidance.

Remote survey techniques have been in use for many years but advances in technology, as well as data storage and transfer, have opened more options. As the benefits of this capability have become clearer, applications of these technologies have become more widespread, spurring LR's decision in 2018 to issue guidance notes on requests for surveys without attendance.

The class society has now undertaken several hundred remote surveys, Wilson said, with the "people who understand the technology pushing for it and using it."

At present, a remote survey, which LR defines as a survey without surveyor attendance, can be used for smaller tasks, such as verifying a repair has been undertaken or ensuring minor damage has been rectified.

Wilson explained that while remote surveys aren't always the answer to everything, they can ensure that there are fewer attendances on a vessel and a reduction in the number of interventions that may be required through the year. This is a huge advantage for owners and operators and has significant benefits for LR's surveyors, he claimed.

A surveyor's skill is rooted in analysing the collected data. Undertaking an inspection can be time consuming and remote surveying techniques can facilitate a more efficient collection of data, while allowing surveyors to focus their energies on the interpretation of the evidence.

Remote surveys can also spare a surveyor from the rigours of travel – eliminating the scheduling and safety risks from flying, driving, or a boat transfer that may be involved in getting an expert to the right location. Removing these travel uncertainties means that a 30-minute job can be completed much more efficiently for all parties.

According to Wilson, a wide range of surveys can be managed through video and picture evidence using everyday technologies and he believed that the scope of remote surveys will continue to increase as the capabilities of the technologies increases and its cost effectiveness is improved.

"It is important, however, that the right technology is used in the right situation," he stressed, adding that he expects that the greatest adoption of remote survey technology will be for assets where access is most difficult, and the downtime costs are high.

Significant interest

LR's Marine and Offshore Director, Nick Brown, confirmed that the introduction of enhanced surveying practices using modern communication tools and technology, such as live video feed etc, is an area that is commanding significant interest from the organisation's customers.

"This technology expands upon what our surveyors have been using for years, but greater ability to stream high-quality images and video around the world enables our surveyors to access the data they require in more reliable ways, sometime without the need to be onsite.

"A survey without attendance has benefits for both our customers and surveyors in the appropriate circumstances, however, safety must always be and remain the first consideration," Brown said.

A common misunderstanding in shipping is that the use of drones can equate to a survey without attendance, which it does in respect of the surveyor but the use of unmanned aerial Vehicles (UAVs) for example still requires a skilled technician on board to pilot the craft.

Drones are part of the answer – but they are not the only answer, Wilson pointed out. While UAVs can be useful for accessing areas difficult to reach on board with the use of staging, the suitability of their use must be assessed on a case-by-case basis. They can be an effective alternative when other equipment that is traditionally used to reach difficult areas, such as cherry pickers, may not be readily available.

So, can the annual survey be conducted without attendance? "Not yet," said Wilson. "The technology is evolving rapidly but given the current range and the scope of the annual survey, skilled surveyors are still required on board. However, remote surveying can be very effectively used for specific parts of the survey and for the follow up on the original survey – verifying that minor repairs have been undertaken and validating deficiencies have been addressed."



LR's Iain Wilson

However, despite the efficiency benefits of remote surveys, industry concerns exist around equivalence. According to Wilson,

organisations like LR have a duty to confirm that remote surveys offer the equivalence to a surveyor being in attendance.

"For us to validate the evidence, the collected imagery must genuinely represent what is being seen," he explained. At present, the only person that can guarantee equivalence is the surveyor, as he or she has the experience of knowing exactly what is needed to see or are seeing, but we are building up experience now that remote surveying has gone beyond proof of concept and has been released to general clients.

"We must keep our eyes open to the benefits and the potential risks," Wilson stressed. "It's important that all of us in the industry get this right given the regulatory scrutiny around this capability. Moving too fast and getting it wrong could be a huge a setback for everyone."

When are remote surveys used? A remote survey may be appropriate when:

- The vessel is at sea when damage is sustained.
- The vessel is at a port, terminal or location where the services of a surveyor are not available.
- The location is remote, and no other surveys are due.
- A minor statutory finding relates to the verification of documentation or the replacement of spare parts.
- A Condition of Class (COC) relates to the verification of documentation or the replacement of spare parts.
- The outstanding documentation can be readily verified using electronic communication.

Circumstances under which LR would consider giving a remote survey include:

- Where new damage is sustained but it is not

possible for a surveyor to attend on board in the vessel's current location.

- Deletion or revision of a Condition of Class of a minor nature.
- Deletion/revision of a minor statutory finding.
- Provision/update of documentation.

Vassilis Moschovakos, Technical Manager, Eletson Corp, said: "We would like to express thanks for the remote assistance we have received in a number of cases. The value of such remote assistance is considered of utmost importance for our smooth business operation and at the same time compliance with the LR rules and regulations."

Remote inspections

DNV GL said that the use of remote inspection techniques (RIT) is increasing. Today, drones, climbers, or robot arms, can be used as an alternative to close-up surveys in both the class society's rules and IACS Unified Requirements.

RIT may significantly reduce the survey time and costs, while improving the safety of surveyors and the owner's personnel. From 1st January, 2019, DNV GL has approved the use of service suppliers for RIT.

A close-up survey normally means the structure is within the reach of the surveyor's hand. With RIT, the surveyor can avoid the use of costly rafting, cherry pickers or staging, while still obtaining the information required to credit a close-up survey of a tank or hold.

The attending DNV GL surveyor will witness

the survey and watch the details of the close-up inspection through a live video stream.

The quality of the data obtained during RIT-assisted surveys must be equivalent to that of a traditional survey. The data is later compiled into a final report.

Hence, there are several advantages to using RIT, compared to visually checking the condition of remote structural components, including reduced time and costs needed for preparation before the survey and improved safety for the surveyor and owner's personnel.

RIT can also eliminate the risk of damaging coatings, while reducing the time and costs needed for set-up. The quality of the data obtained during RIT-assisted surveys must be equivalent to that of a traditional survey.

Approved service suppliers

From 1st January, 2019, DNV GL now approves service suppliers to provide close-up surveys using RIT – eg drones, climbers or remotely operated vehicles (ROVs) – for ships and mobile offshore units.

The service suppliers must be able to successfully carry out a close-up survey according to the requirements given by DNV GL.



DNV GL has tested drones in a Carl Buettner tanker's tanks

Examples of the requirements include relevant training and qualifications of the drone operators, adequate resolution of the live streaming and proper illumination equipment.

As the ESP Code is not clear on the applicability of RIT, acceptance from flag authorities is necessary before RIT is used for class surveys on ESP ships (oil tankers and bulk carriers).

Programme-specific requirements have been developed based on IACS UR Z17 and included in Class Programme 0484, Appendix A 16 'Firms engaged in surveys using remote inspection techniques (RIT) as an alternative means for close-up survey of the structure of ships and mobile offshore units'.

The new programme was released in February, 2019. However, ROVs used for in-water bottom surveys are covered by a separate AoSS programme, CP 0484 A3, DNV GL pointed out (see Tanker Operator January/February 2019 issue, page 34).

TO

First Thun Tankers' L-Class and second E-Class delivered

On 9th May, Thun Tankers took delivery of the 18,650 dwt product tanker 'Thun Lidkoping'.

She is the first in a series of five efficient, high quality tankers to be delivered by Avic Dingheng Shipbuilding in China.

On the same day, the 8,000 dwt 'Thun Evolve' was delivered by Ferus Smit in the Netherlands.

This dual fueled vessel, which can run on natural gas or biogas, is the second in a series of four E-Class tankers. She will enter into a long term charter with Preem.

Ferus Smit had previously built 33 vessels for Erik Thun.

Both the L-Class and the E-Class tankers were designed and developed in-house, using the company's experience of building sustainable, high quality vessels. Focus on environmental care, new regulations and customers' needs has been key in the design

and building process of both vessel types, the company said.

Both vessels will enter into the Gothia Tanker Alliance network with crewing and technical management undertaken by MF Shipping Group.

"It is a historic day for our company with the delivery of both 'Thun Lidkoping' and 'Thun Evolve' on the same day. With the E-Class and L-Class series in trade, we are further strengthening Gothia Tanker Alliance' possibility to serve our clients with climate smart tankers in the right position at the requested time," Joakim Lund, Thun Tankers CCO said.

"These new tankers are part of our next generation purpose-built and efficient vessels enabling us to remain a sustainable Swedish partner over generations," managing director,

Johan Källsson, added.

Thun Tankers is a member of Gothia Tanker Alliance, a European network for coastal tanker owners, currently operating 23 intermediate tankers in the 10-20,000 dwt size range and 17 coastal tankers in the 6-8,000 dwt range.

Three small and six intermediate newbuildings will be added to the fleet during 2019-2021.

Principal Particulars

	'Thun Evolve'	'Thun Lidkoping'
Length, oa	114.95	149.8 m
Beam	15.87	22.80
Capacity, cu m	9,350	20,665
Dwt	7,999	18,650

TO

Tanks monitored by app

App producer arl-shipping.com has produced several apps dedicated to the tanker sector.

For example, one app enables the readiness of a cargo tanks' inspection on a smartphone prior to loading. The inspection results are sent to the cloud for the shore staff, and can be used for auto PDF-reporting.

Tank inspection checklist are maintained in the cloud and sent to all surveyors' smartphones. The number of smartphones that can access the information is unlimited as is the number of office logins.

Records of tank cleaning completion per tank can be downloaded onto a smartphone, which can be supplemented with photographs, sync'd to shore, API with in-house voyage platform, and a report emailed via auto-PDF to external stakeholders.

Arrival and departure drafts can also be recorded on the smartphone app with listings via inclinometer readings for displacement calculations. Bunkers, sludge, ballast and fresh water intake or disposal can be added for cargo

calculations, the company said.

The company will soon be introducing a Tank Cleaner app to record and document properly cleaned tanks with the aid of photographs, and a Tank Heating Monitor app with daily temperature readings per tank.

The apps can be download from Google Play or the company's Draft Surveyor instantly.

An officer on board can also walk around the engine room and bridge with a smartphone for noon report data input from the information available.

The information can be syned to the cloud for online fleet archive, interfaced with existing shore systems, and auto-PDF distributed to shore stakeholders.

For a fleet solution, just configure the reporting fields from the shore for all the fleet's smartphones.

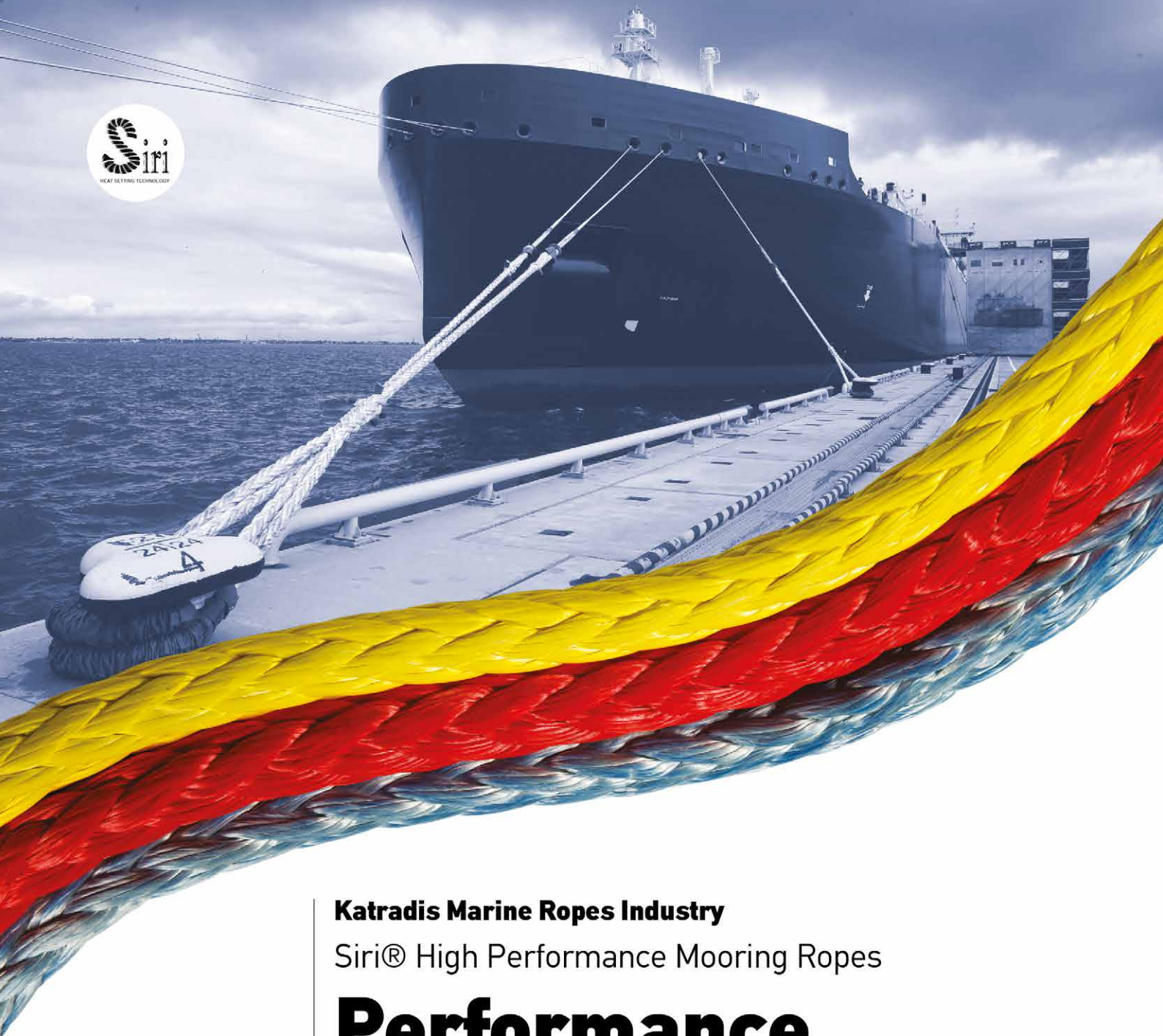
The app can be downloaded to on board Android smartphones and it includes -

- tank selector.

- checklist cloud configuration.
- checklist step-by-step confirm.
- results selector.
- inspector-by-name selector.
- real-time condition reporting.
- photo snapshot(s) of tank condition (unlimited).
- automatic timestamp (non-tamperable).
- GPS co-ordinates (non-tamperable).
- smartphone to cloud sync.
- safety checks.
- sediments and coatings checks.
- safety, sediments and coatings checks.
- washing gear, heat sensors,.
- cloud self-admin, setup and configuration.
- cloud tank inspection reports list with photos and GPS location.
- cloud multi-site or multi-vessel administration.
- Three months cloud storage of cargo condition reports.



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