TANKER Operator

MARCH 2018

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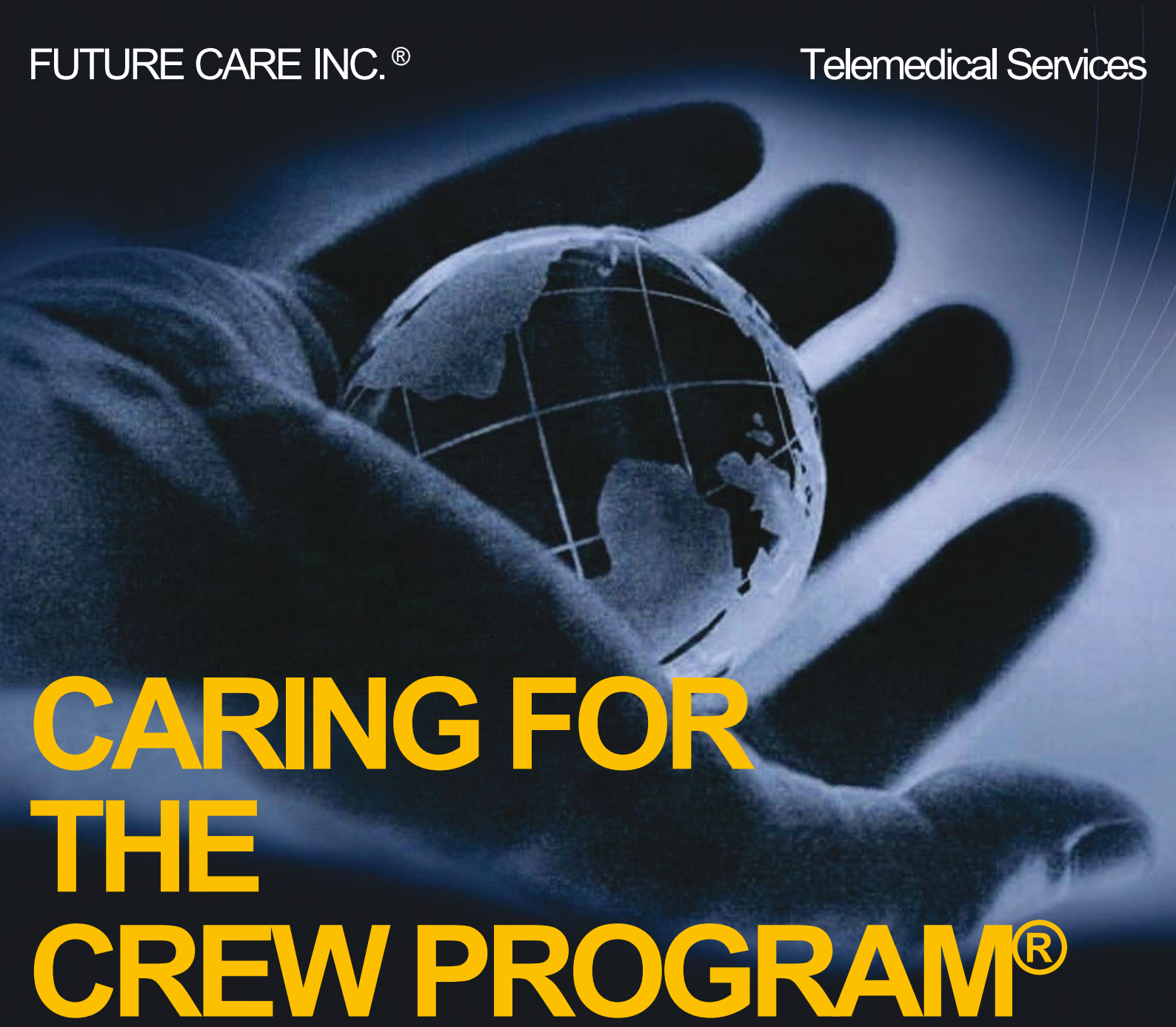

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Contents

DNV GL has long been at the forefront of modern technology, for hardware and software.
For example, Nauticus Hull software has been given a major upgrade to provide improved support for the new DNV GL rules and IACS requirements.
It covers DNV GL rules for classification of ships and IACS Common Structural Rules for Bulk Carriers and Oil Tankers with capabilities ranging from simplified rule-check and scantling calculations to advanced tools for finite element structural analysis.
Nauticus Hull V20 enables increased approval efficiency, quality and superior design support, the class society said.
DNV GL said it will continue to expand the software's functionality and streamline work process for the different ship types.

The strong get stronger!

As mentioned in this issue, consolidation has hit the tanker sector again.

Just before the Christmas break, the tanker market was greeted with the announcement of the proposed merger between two NYSE quoted tanker companies - Euronav and Gener8.

This merger has still to be approved but, if the green light is given, the joint company will own 40 VLCCs and 28 Suezmaxes (including four newbuildings).

Part of the deal includes the sale of six Gener8 VLCCs to International Seaways (INSW), another NYSE company, which will raise its VLCC profile to 16 vessels.

In a separate deal, concluded last March, DHT Holdings acquired all 11 VLCCs from the BW Group (including two newbuildings). Then in May, the BW Group placed an order for four VLCCs from Samsung for 2019 delivery at an attractive price.

These were the only major so called consolidation deals concluded in 2017 in the large tanker sector. DHT had rebuffed several earlier takeover proposals by Frontline.

According to Gibson Shipbrokers, the attraction of the agreed deals is that both parties could grow their fleets without adding to the existing orderbook and, as a result of clever acquisitions, bring down the age profile of their respective fleets.

Euronav has a good track record of smart acquisitions without adding to the orderbook. For example, in March, 2015 the company purchased four new VLCCs from Metrostar, while at the same time selling off older units at good prices to keep its fleet modern.

DHT has also been very active in this area, selling off five units in November (all over 17 years of age) to reduce bank debt.

Based on the VLCC fleet in early February, excluding those on order and assuming the Euronav/Gener8 deal is ratified, Euronav will own 5.5% of the fleet, while DHT Holdings will own 3.2%.

With the recent delivery of two units, Frontline now owns 3%, while INSW's ownership could rise to 2.2%.

Of course, consolidation has several strategic benefits for listed companies, as size does matter, making shares more liquid and more attractive to investors. Euronav's acquisition of the Gener8 fleet will swell the Tankers International Pool at the expense of the VL8 pool, providing a stronger platform to counter charterers, Gibson explained.

The VLCC supply is still dominated by the Asian giants, such as China VLCC (CMES), Bahri and Cosco Shipping (CSET), with NITC's share slipping (see *Tanker Operator*'s Top 30 listing on page 25) .

Apart from Euronav and NITC, all of the top 10 owners have tonnage on order, which will swell the ranks by another 44 units. Maran (part of the Angelicoussis Group), steadfastly remaining independent, will take delivery of nine more VLCCs before the end of 2019.

However, both CMES (China VLCC) and CSET have substantial orderbooks, which will eventually give them an even more dominant position. The domination of the big fleets and the diverse ownership of the remainder of the VLCC fleet, mostly 10 units or less, is likely to limit any further consolidation in the short term.

The volatility experienced in the US stock market in early February, driven partly by concerns over the prospect of higher interest rates, coupled with the current malaise across the tanker markets, heaps more pressure on beleaguered CEOs to keep the shareholders happy.

With the prognosis of a tough year ahead for the crude sector, almost certainly, owners in the large tanker sector are unlikely to have further consolidation as a priority, Gibson said.

However, Euronav's Rodgers has gone on the record by saying that he wouldn't rule out making another acquisition and there is the oft repeated saying - 'We are always open to interesting projects that come our way'.

Forward thinking

Now for something completely different, as an old UK television comedy programme used to say.

I attended a seminar on future ocean business opportunities. This is to be discussed at the Opening Oceans Conference 2018 (OOC), an event, which is Nor-Shipping's first outside its Norwegian home.

This will see Maersk, Statoil and OECD executives pus others gather in Copenhagen on 2nd and 3rd May to examine how to responsibly realise the huge potential of the ocean, gaining the understanding, partners and tools to equip businesses for the way ahead.

The event is being organised by Nor-Shipping's Sofia Furstenberg, Strategic Lead OOC. She was also responsible for last year's Nor-Shipping 'Disruptive Sustainability' theme.

This has not a lot to do with tankers, except possibly for future shuttle tankers, I hear you say, however, these events are intended to get everyone thinking about what is coming next.

While many of the ideas being put forward may not reach fruition, at least people are thinking about how to alleviate the world's energy and food shortages going forward and should be applauded for it and not dismissed as 'this will never happen in a million years' attitude.

TO

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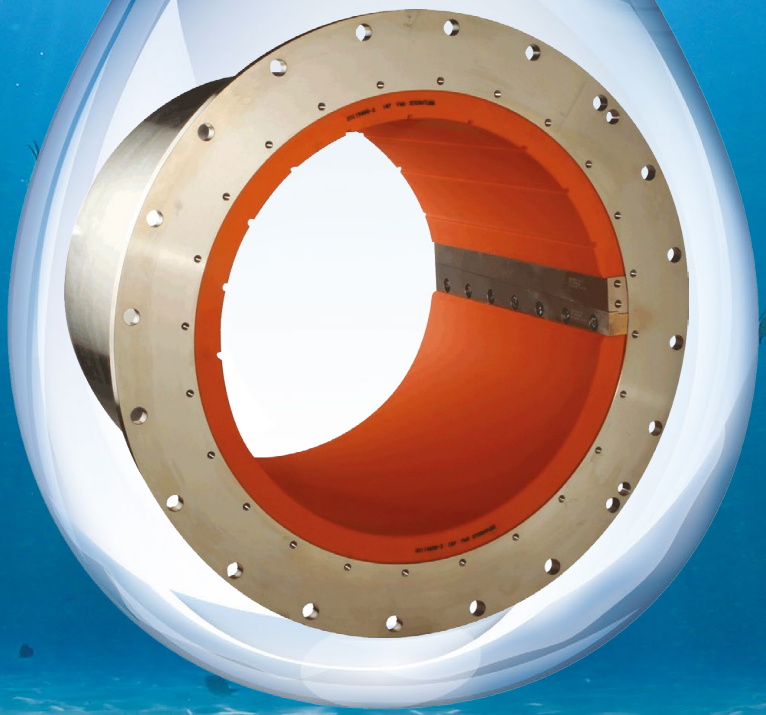

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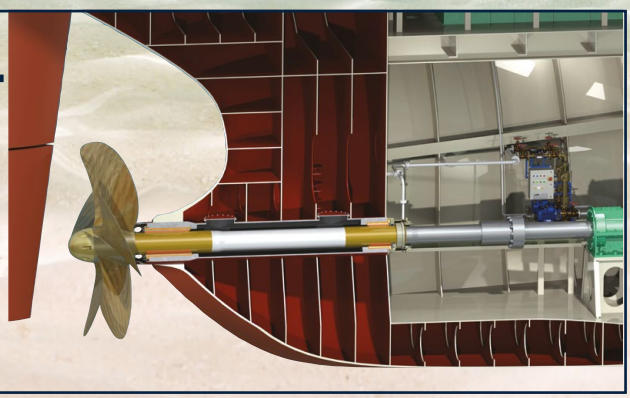

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Where will it all end?

For quite some time the consensus in the crude tanker market has been that 2018 will be a disappointing year in terms of industry earnings.

However, the extreme weakness in spot TCE returns across all tanker categories in January still left many surprised, taking into the account the traditional support lent to the market during the winter season, Gibson Shipbrokers said in a report.

Spot TCE earnings on the benchmark VLCC trade from the Middle East to Japan (TD3) averaged just under $13,000 per day at market speed last month - an unprecedented level for January since the turn of the century.

The performance on key trades for other crude tanker segments was even worse. For example, spot earnings for Suezmaxes trading West Africa to UK/Continent (TD20) averaged $6,500 per day, while Aframaxes trading across the North Sea (TD7) returned on average $4,500 per day during January, in both cases insufficient to cover fixed operating expenses.

Without doubt such a poor performance is largely attributable to OPEC-led production cuts, coupled with the rapid growth in the tanker fleet.

Crude production in the Middle East, the largest VLCC loading region and an important demand source for Suezmaxes and Aframaxes, is now at similar levels relative to volumes produced in early 2016, while the fleet size is notably larger.

At the start of this year, the VLCC fleet stood at around 720 vessels, nearly 80 units more than in the beginning of 2016. In addition, back in 2016 a sizeable portion of the VLCC fleet was tied up in Iranian and non-Iranian storage, which is is no longer the case.

Decline in storage

VLCC storage of Iranian crude and condensate stopped in November, 2017, while storage of non-Iranian crude declined dramatically over the past three months. According to Gibson's figures, more than 20 VLCCs were released from floating storage duties between January, 2016 and January, 2018. The vast majority resumed trading.

The Suezmax and LR2/Aframax supply also witnessed spectacular growth, with the fleet size up by 50 and over 75 units, respectively, over the past two years.

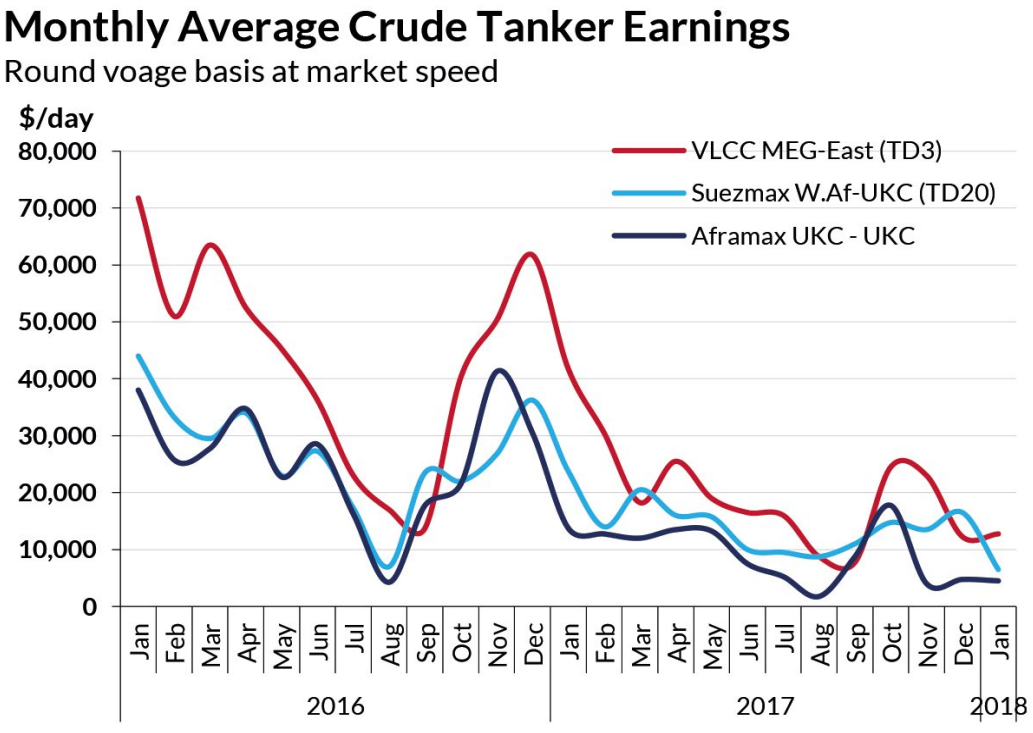
In addition to the developments in the Middle East, crude trade on the key Suezmax route from West Africa to Europe remains weak, despite recovering Nigerian output. This is primarily due to the rebound in Libyan output, which has reduced the European refiners' appetite for West African barrels. Furthermore, more crude is also being shipped from the US to Europe.

The same factors aid Aframax demand; however, simultaneously, there has been a decline in Aframax trade from Latin/South America to the US, mainly due to lower flows from Venezuela.

Finally, generally favourable weather conditions in January in a number of regional markets meant less weather driven delays and disruptions, one of the key support factors to the market during this time of the year.

Going forward, there could still be a few weather driven spikes in rates, particularly in the Northern Hemisphere. However, the rapid fleet growth will continue, as the anticipated pick up in demolition activity will only provide a limited relief from the plenty of new deliveries expected to start trading this year.

To reverse the current fortunes, owners need notable increases in trading demand. At the moment, rising US crude exports is the key area for growth but the industry also needs to see stronger exports in other parts of the world, Gibson concluded.



Source:Gibson Shipbrokers

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US set to lose another major player

US-based tanker operations are going through something of a hiatus at present.

For example, consolidation is again affecting the US with the news that Euronav is buying New York-based Gener8 Maritime, which itself has been active in the M&A market down the years.

Gener8 can trace its history back to 1991 when Peter Georgiopoulos founded Maritime Equity Management. In 1997, he launched General Maritime Ship Holdings, a private entity consisting of Maritime Equity Management's fleet.

The company first contracted General Maritime's technical management to Universe Tankships, before acquiring the former Ludwig Group company and its technical department.

In 2004, General Maritime acquired the Soponata Group, thus increasing the fleet to 47 vessels, consisting of 26 Aframaxes and 21 Suezmaxes, with a total capacity of 5.2 mill dwt.

Fast forward to 2015. General Maritime Corp merges with Navig8 Crude Tankers to create the third largest VLCC owner worldwide - Gener8 Maritime. In June of that year, Gener8 successfully completes an IPO on the New York Stock Exchange (NYSE).

Then at the end of last year, the companies announced that Euronav had reached an agreement to merge on a stock-for-stock basis, which will result in the US company becoming a wholly-owned subsidiary of the Belgian-based tanker owner and operator.

Due to be finalised during the second quarter of this year, the merger will create an operator of 44 VLCCs, 28 Suezmaxes and two part-owned ULCC size FSOs; a combined equity balance sheet assets of over $4 bill; estimated pro-forma market capitalisation of around $1.8 bill based on Euronav's closing price of $8.10 per share on 20th December, 2017 and a liquidity position estimated at more than $750 mill, including cash on hand and undrawn amounts available under existing credit facilities.

On the sidelines of this deal, independent International Seaways (INSW), formerly Overseas Shipholding Group's overseas operations division, has agreed to purchase six VLCCs from the merged entity for around $434 mill.

It maybe recalled that at the end of 2016, OSG split its divisions into two companies - INSW, who operates the international fleet and OSG who manages the Jones Act US flag fleet.

Jones Act

As for the controversial Jones Act, it is still subject to scrutiny from time to time and there have been several attempts to repeal it, most notably by US Senator John McCain. Thus far, these attempts have been rebuffed by Congress.

However, it was briefly lifted in the wake of the devastating hurricanes last year when the Trump administration allowed the chartering of foreign flag tankers along the US coast to ship fuel to badly hit states, such as Florida and Puerto Rico, which comes under the Jones Act.

However, there were not many overseas controlled tankers taken up and by and large, the domestic fleet of MRs and ATBs coped with the extra shipments.

Overall, rates for Jones Act tankers softened considerably last year, before strengthening in the fourth quarter on the back of increased demand for refined products and crude shipments across the US Gulf and to the US Northeast.

On a TCE basis, short term period fixtures of over $50,000 per day were reported, according to American Shipping Co (AMSC).

AMSC also pointed out that there were around 20 tankers and ATBs of 35 years of age and older, equal to around 20% of the fleet and no US flag tankers had been ordered in domestic yards for three years.

In addition, the last newbuilding US flag tanker was due to be delivered in the first quarter of this year.

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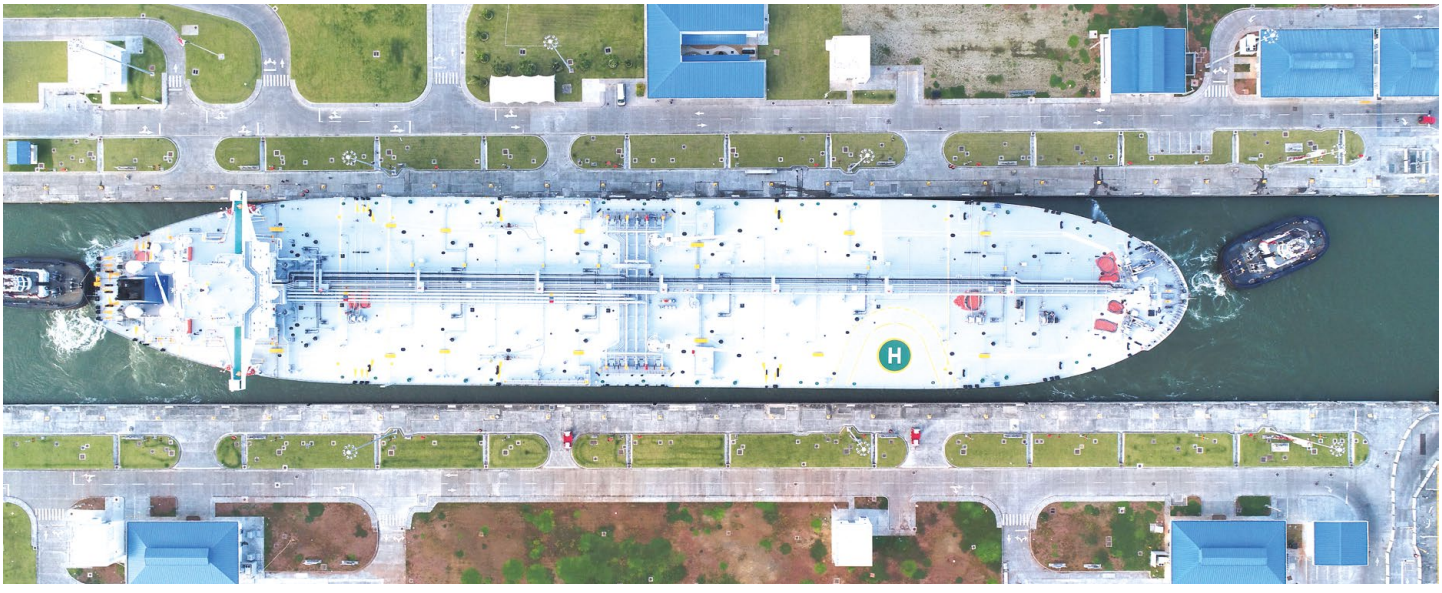

A tight squeeze - INSW's 2017-built Suezmax 'Seaways Montauk' seen transiting the new Panama Canal locks

USCG lays down the law on BWMS

In November and December last year, the US Coast Guard (USCG) released a series of five blogs outlining its stance on ballast water management systems (BWMS).

The US is not a signatory to the IMO Ballast Water Management Convention (BWMC), preferring to go its own way.

In the blogs, issued by Rear Adm John Nadeau, USCG's assistant commandant for prevention policy, an introduction led into the USCG's focus on compliance, a BWMS type approval programme update, the 'plug and play' BWMS and contingency planning.

On the question of compliance, Rear Adm Nadeau pointed out that between 2012 and 2017, the USCG issued nearly 700 vessel deficiencies for ballast-related incidents of non-compliance.

Vessels operating in US waters should follow a ballast water management plan (BWMP) that is specific to the vessel and that identifies how it will comply with the BWM regulations.

In lieu of installing a treatment system, the following management options are still available to comply with US regulations:

1. Retain ballast water on board while in US waters (within 12 nautical miles).

2. Discharge to a facility onshore, or to another vessel for purpose of treatment.

3. Use only water from a US Public Water System.

As a result of the IMO's recent agreement that some vessels' compliance schedule will extend through September 2024, Rear Adm Nadeau stressed that vessels should operate their BWMS regularly to ensure the crew is trained and proficient, and the systems remain operational.

Turning to the 'plug and play' issue, he said that in various contexts and in the course of many conversations, shipowners have expressed the expectation that BWMS should be 'plug and play' equipment.

Owners who recently built ships and wrote BWMS specifications into the contracts with the expectation that, upon delivery, there would be sufficient space, power, and piping available for future 'plug and play' type systems are now finding that the selection and installation of a BWMS requires additional work specific to the ship and its operating profile.

Unique features

He pointed out that the different treatment technologies employed by the various BWMS manufacturers each have unique features and operational requirements that must be satisfied in order for the equipment to function properly.

The expectation is that the selection, installation, operation, and maintenance of a BWMS will require analyses specific to the vessel and its operating profile. Every BWMS installation is a customised installation, and every BWMP is a customised plan, he said.

'Plug and play' is not a reasonable expectation for a BWMS, as its operation directly impacts cargo operations. Due to the complexity and breadth of a BWMS' impact on vessel operations, a 'plug and play' solution is not likely to succeed.

Furthermore, a BWMP should provide contingency measures that are specific to the vessel, its operational profile, and its intended BWM method. The plan should also outline the procedure for consulting with the Captain of the Port (COTP) and reporting to the National Ballast Information Clearinghouse (NBIC).

If a BWMS stops operating during a voyage, or the intended management method is unexpectedly unavailable, regulations require that the vessel owner or operator inform the nearest COTP as soon as practicable.

He concluded the series by saying that compliance was now possible and expected. The USCG had moved on from programme implementation to compliance and enforcement.

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Sabrina Chao to wear the famous hat

Ms Sabrina Chao has been named as the Connecticut Maritime Association (CMA) 2018 Commodore.

The award is to be presented on 14th March, 2018 at the Gala Dinner, which marks the conclusion of CMA's Shipping 2018 Annual Conference and Exposition.

She is Executive Chairman of Wah Kwong Maritime Transport Holdings and follows a long succession of influential maritime industry leaders as Commodore.

Joe Gross, President of the CMA, said upon making the announcement, "The CMA is honoured to present Ms Sabrina Chao with the 2018 Commodore Award. Sabrina's story is a personal and corporate story of commercial success and personal contribution to the health and future of the industry.

"Wah Kwong is of course a global brand and has been through generations, a distinction saved for only the most nimble, effective and forward looking businesses. Her family has always contributed to the industry and local maritime community as well, a commitment to service that has continued with her recent role, through November 2017, as Chairperson at the Hong Kong Shipowners Association (HKSOA).

"The CMA has been honoured to have had the support and participation of the HKSOA over our own decades of industry participation. The Board believes that the engagement with multiple aspects of the industry, commercial standing and generosity of time and effort on behalf of community make for the perfect Commodore.

"For us here on the East Coast of the US, the central role in and understanding of Hong Kong, the Greater Bay Area and the remarkable 'One Belt One Road' initiative is just icing on the cake for our community," he said.

As usual, CMA Shipping 2018 will be held at the Hilton Hotel in Stamford, Connecticut from 12th to 14th March.

The conference takes its usual format with three tracks, 15 sessions involving around 2,500 delegates and speakers. There are also about 130 exhibitors from all sectors of the maritime industry.

Shipmanagers look to the future

Blockchain in the shipping industry, the safety culture among crew members, and the changing world of maritime payments were all debated at InterManager's first interactive shipmanagers' forum in early February.

The conference, held on 5th February, was opened by Gary Pogson, Lead Specialist, Marine & Offshore Innovation Team, at Lloyd's Register. Pogson posed the question 'distributed ledger for engineered systems - hype or hope?'

"A lot of the hype over the past year or so has been driven by ICOs or Initial Coin Offerings, facilitated by smart contract capabilities on blockchain platforms such as Ethereum – this is the new crowdfunding and the numbers are significant," he explained.

The interactive conference, attended by around 60 delegates at LR's London building, saw audience participation through the online app Slido, which allowed delegates to post questions and comments throughout the conference and guide the debate.

Yuzuru Goto, Managing Director of 'K' Line LNG Shipping (UK), spoke about the safety culture of crews and the launch of the 'K' ARE project after the company recognised the need to improve the safety culture, as many accidents are caused by human error.

The development of this project followed a serious incident when a 'K' Line-managed ship collided with another vessel in Zeebrugge. The other vessel sank and there was significant damage to the Japanese vessel.

Goto told the audience you can only shape the safety culture once you embrace failure.

He explained: "When I got the call at 3 am, I knew immediately that this was not a drill, it was for real. All you can think of is what if the worst has happened and we have lost crew members. Thankfully that did not happen, but there was damage to everything, and the other ship eventually sank. Upon reflection you ask yourself how did this happen and your initial conclusion is it is just bad luck. But when you look at it more deeply you realise it is down to the safety culture."

Working alongside ShipMoney, a maritime payments company that facilitates on board payroll payments through a singular integrated payments platform, Phil Kelly from human performance, training and consultancy company Pro Noctis, delivered a presentation on what feeds decision making.

Discussing the behaviour of people, Kelly said: "Particularly with today's set of millennials, the next generation of leaders want things to be individualised. They want something that is not generic. Add into that automation, artificial intelligence, blockchain, cryptocurrency, and the one thing that binds this all together is us as human beings.

"There has been a lot of focus in your policies, infrastructure and IT and a lot of money invested. But we have forgotten about the people – and that's not just the members of staff, that is right to the top as well. It seems the industry is a bit stuck and fearful of change," he said.

Ship to shore

Continuing the discussion about people, Mark Charman, Founder and CEO of Faststream Recruitment Group, spoke about seafarers and shore personnel and why making the switch from working out at sea to shore is a good move for seafarers.

He revealed that through a 'Perception Versus Reality' report that Faststream had carried out, the majority of seafarers surveyed said they would never make the transition from ship to shore. Out of the total questioned, 85% said they were not interested in moving to a shore-based role.

He concluded that attraction and recruitment is only going to get harder and said: "If you don't bear-hug your seafarers someone else will."

Mark Robertshaw, senior vice president, sales & commercial, at Brightwell Payment discussed the changing world of maritime payments.

He said that through Brightwell's research, the company has found that the majority of crew members fall into three categories when it comes to their pay. They are: young, single and not necessarily working towards a goal or plan; those who actively support their family back home and need to get money home to ensure bills are paid; and those who want to send money home but have the luxury to watch rates and send at optimal times.

Robertshaw said: "If you think about it some of your crew get paid in US dollars, but their home currency is not in US dollars, so a lot of employers are saying we'll pay you in US dollars. But if you, as an employer, pay your crew members in US dollars but allow the crew member to dictate when they transfer the money to their home bank accounts to benefit from exchange rates, then that is a big plus."

How do we find the best seafarers in the world? That was an important question posed by Roger Ringstad, Seagull Maritime managing director. The company runs psychometric APRO testing to conduct ability profiling, For this project Seagull used test results from more than 20,000 individuals.

Ringstad revealed that the DNA of the world's best seafarers is made up of levels of knowledge, accuracy, speed, emotions, energy, affection and control.

Mikael Weis, ShipServ COO spoke of how ShipServ is working with shipmanagers to understand and address some of their challenges. ShipServ works with its customers to reduce opex by process automation; finding suppliers; optimising supplier base, and analysing and benchmarking, he claimed.

He revealed that in a survey, three quarters of the company's customers said it was difficult to answer spend questions and the majority understood the need to answer such questions.

InterManager secretary general, Capt Kuba Szymanski, said: "We had a fantastic line-up of speakers and a packed out audience for our first Ship Managers' Forum. A lot of important issues were discussed and the

interaction from the audience guided the debate. There were so many questions, we did not have the time to answer them all."

Future role

Tanker Operator asked a few of the leading shipmanagement companies about their future roles, the need to embrace other services and offer more of a package.

InterManager's Capt Kuba Szymanski

Capt Szymanski said; "Third party shipmanagement companies absolutely should be embracing other services. Forward thinking members of our industry do just that.

"One of the biggest developments in this field is newbuilding services. Some of our members have been offering supervision services at newbuild yards to existing and new owners, who are lacking the expertise our members have.

"More and more frequently our members are listening carefully to what their customers need and as a result, they provide services, which were before outsourced to somewhere else. These include development of bespoke plan maintenance systems, payroll systems, and remote IT support for ships.

"Back office support seems to also be high on the agenda, as well as travel requirements for office and sea staff. All of this must be conducted with financial optimisation in mind," he said.

BSM's David Furnival said that the shipmanagement giant is wholly committed to the adoption of new technologies across the entire range of our activities both on shore and at sea.

"This is a strategy we adopted more than a decade ago because we realised that greater, smarter use of technology in our business would in turn produce better service with the added benefit of cost savings. The latter is not our primary motive or concern when we look at technology.

"We strongly believe that much of our business can become more efficient and produce more value to our customers if it is applied in the right way. Of course, if we can deliver superior services at a lower cost, then it is a competitive advantage. But that is not our sole concern when it comes to technology application.

"We have been involved in the development of new technologies and software for a long time. In many respects, the future of shipping and the global transport chain will be determined by the new technologies. We are at the forefront of the digital revolution; we have long supported the greater use of ECDIS, for example, and we have our own software applications business, which today employs around 250 people globally.

"For BSM, the way in which technology is applied, effectively and in a practical manner, is the key to managing this development over the long term," he said.

Other Services

Addressing the question of embracing other services, Furnival said; "BSM is a genuine leader in this trend. As one of the world's leading third-party managers, we have been at the forefront of the trend towards the provision of broad-based maritime service provision to our customers.

"For truly world class shipmanagers, the days of offering purely technical management at lower cost as a sustainable business model are probably over. Owners are more discerning, and each is different. BSM today offers a wide array of complementary solutions in addition to our core crew and technical management services, ranging from software application, travel, hospitality, newbuilding and conversion, through to a suite of other integrated maritime solutions.

"BSM intends to develop further as a maritime solutions provider with high quality management at the centre of our offering," he explained.

"As mentioned, we are broadening our range of services to our customers and we have an ongoing strategy of growing this both organically and via acquisition when opportunities arise. We are always on the look out for like-minded partners who may wish to work more closely with us. This applies for service sectors where we believe many owners wish to work with a manager able to provide comprehensive services across their fleet.

"BSM strongly believes that in future there will be an ever-increasing need for high quality third party shipmanagement as the nature of vessel owning becomes more asset class based. Many owners today have great ambitions in owning vessels as an asset class but have no wish to operate and manage the vessels.

"We continue to retain and develop the expertise which make this workable as a business and we remain fully committed to it in the long term," Furnival concluded.

Wallem Group technical director, Ioannis Stefanou said that there are many ways that the use of technology is helping us reduce

BSM's David Furnival

operating costs for both our own shore operations and also for our clients.

"The biggest advantage for shipmanagement companies comes with the use of technology to automate processes. This enables us to reduce administrative tasks and put quality controls in place. In addition, through technology we can greatly reduce the use of paper and at the same time improve communication and collaboration of remote teams.

"We have seen this in practice in Wallem with the introduction of a new crewing software system that enabled us to work more efficiently by significantly reducing the administrative tasks involved and allowing us to gain better visibility over our processes. The use of smart data and analytics is another way we can reduce costs for ourselves and our clients; for example by analysing and optimising our procurement and maintenance processes and strategies.

As for the service aspect, Stefanou claimed that Wallem was a pioneer in offering diversified services to its clients; something which is reflected in the tagline,'Delivering Maritime Solutions'.

He explained that the company began as a shipbroking house in Shanghai more than 100 years ago, before moving into shipmanagement.

"Today we offer diversified services to clients", he said. "Aside from shipmanagement, we offer a wide range of technical support services including newbuilding supervision, drydock support, lifeboat maintenance & repair and marine procurement. Wallem also has strong crew management, commercial services and ship agency businesses," he said.

Embracing change

As for the future, he said; "At Wallem we embrace change. That means embracing new technologies, adopting them and implementing them in our operations. For example we have been using cloud base platforms (such as SharePoint and OneDrive) for ease of communication and to store and share information.

"We are revamping our operating systems, which will see all our individual functions such as planned maintenance, safety & quality and procurement integrated into one platform. This will enable us to make better use of analytics and cross functional data-communication.

"Our Safety Management System (SMS) has also been enhanced and digitised; with the aim of making it as easy as possible for the seafarer to interpret and follow. The new system features process flow maps rather than the tradition pages of instructions, along with a powerful search function; harnessing key phrases rather than individual words. This will drive compliance and best practices and enhance safety and operational excellence. We have also introduced a new platform to monitor our vessels' movements that will enable us to comply with EU MRV and other regulations.

"We recognise that the increasing use of new technologies will require those that manage vessels to have new skillsets and aptitudes. The Wallem Graduate Programme is aimed at attracting the best and brightest mechanical engineering and naval architecture graduates (from both Hong Kong and abroad) and training them as superintendents of the future, to complement our teams of superintendents, the majority of whom are ex-seafarers; as is the case in most third part shipmanagement companies," he said. TO

Knutsen Group and Marlink extend contract

Norwegian tanker owner Knutsen has extended its contract with Marlink

This contract extension helps to ensure that its fleet of 38 vessels and two newbuildings continues to take advantage of high bandwidth, reliable global IP connectivity and voice calling with the Sealink Premium VSAT service, Marlink said.

Marlink's Sealink VSAT features a Committed Information Rate (CIR), which ensures a minimum level of bandwidth is always accessible while also providing a faster Maximum Information Rate (MIR) when available.

Based on its guaranteed level of service, Knutsen is also exploring new ways to further digitalise its fleet of shuttle tankers, LNGCs, product and chemical tankers.

A Marlink customer for 18 years and an early adopter of maritime VSAT in 2000, Knutsen has continuously developed its digital processes. Starting initially with on board/shoreside database replication and electronic forms/ reporting, Knutsen uses Sealink VSAT to deliver a high quality service to its clients through efficient vessel and logistics operations.

Knutsen said that it also promoted the business case for providing high-end communication facilities for its crew members. The shipping company said it had seen demand for crew bandwidth rise significantly since 2002 and has continuously asked Marlink to ensure that its crew are satisfied with the communications facilities on board.

The current on board configuration, using 1 m Ku-band antennas with back-up on L-band, enables the crew to be able to always access social media, browse the Internet and talk to friends and family at home, while enabling high bandwidth and reliability for vessel and business applications, in addition to fleet management.

"VSAT has been a standard on our fleet for a long time, but we continue to see new applications and demands with the ongoing digitisation happening within the maritime markets, which means we need a future proof solution to enable our own digitisation strategies," explained Nils Trones, communication & navigation manager, Knutsen OAS Shipping. "We are reviewing new opportunities to improve our service to clients even further using Marlink's digitalisation solutions that can help us to maximise our investment in communications."

In addition, Marlink's customers using Sealink Allowances maritime VSAT service plans can now take advantage of a burst rate, or Maximum Information Rate (MIR), of up to 6 Mbps without any extra charge. The new MIR is twice as fast as the previous 3 Mbps. TO

Owners need accurate monitoring come 2020

As the 2020 0.5% sulfur cap on marine fuel looms, shipowners and operators are left with a short window to decide which path they will take in complying with MARPOL's Annex VI regulations.*

Although the reduction in the sulfur content of marine fuel from the current 3.5% has been known since October, 2016, many within the industry are adopting a wait and see approach.

To ensure compliance, shipowners must decide between the three main commonly accepted compliance options – switching from HFO to distillates, using LNG as a marine fuel, or installing exhaust gas emission cleaners (scrubbers).

There are benefits and disadvantages to each, with the size and age of vessel impacting on suitability. LNG still needs significant investment in infrastructure and bunkering standards and is primarily suited for newbuildings. LNG installation also requires substantial upfront capital investment, which is unlikely to be an issue for major operators, but might influence smaller companies.

Distillate, or distillate-based low sulfur fuel, is expected to be the most widespread option, although its future cost and availability is unknown. There are also concerns about the commingling characteristics of blended fuels and the impacts on engines.

Scrubbers could be an attractive compliance option that affords the owner/operator the opportunity to continue to burn lower cost HFO. Scrubbers are a costly capital expenditure, with installation costs ranging from $2 mill - $6 mill per unit. However, the wide spread between the price of HFO and the more expensive MGO means that the cost of installing scrubbers could be recouped in just a few years.

Conversely, estimates tagging the fuel spread between HFO and distillates post 2020 range between $150 and $400 per tonne depending upon the port, according to Platts and Bloomberg data, which will not be cost effective for many shipowners.

According to Clarkson's Research, the number of vessels reported to be fitted with scrubbers has risen to 240 as of 1st December, 2017. The sentiment among many in the industry is that scrubbing will play a significant role in meeting post-2020 emissions regulations standards.

About a third of commercial shipping will install a scrubber system and will continue to burn sulfur fuel oil by 2030, according to a recent report by naval architecture and engineering consultants, Foreship.

Well suited

Tankers are well suited to scrubber technology, installed either inline or outside the funnel. Indeed, BP has already installed scrubbing technology on two LR2s, and scrubber systems will be installed on seven Inventor Chemical Tankers (ICT) vessels built between 2015 and 2017.

It is crucial for shipowners that they take the best option for their vessels and operations to ensure compliance with the regulations. For those looking to scrubbers as a solution, they will need to fully understand both the regulatory and operational implications, and will need accurate monitoring to ensure compliance with associated regulations.

Wet scrubbers use wash water to 'clean' emissions before they are released into the atmosphere. It is this water that must be accurately monitored at all times to avoid discharges that may exceed regulations. If wash water monitoring is not accurate, owners are risking significant fines or even detention.

For example, Chelsea Technologies Group's (CTG) Sea Sentry scrubber wash water monitoring system can measure the required parameters of water in closed loop scrubbers, providing accurate data that proves compliance with wash water regulations.

Sea Sentry monitors both the water inlet and outlet of wet exhaust gas scrubber systems. It analyses wash water to ensure that it is compliant with environmental regulations, which reduce potentially high levels of contamination in exhaust gas scrubber wash water discharge.

Closed loop scrubber systems present a unique challenge when monitoring water as the recirculation process darkens the water, making it difficult to obtain an accurate PAH measurement.

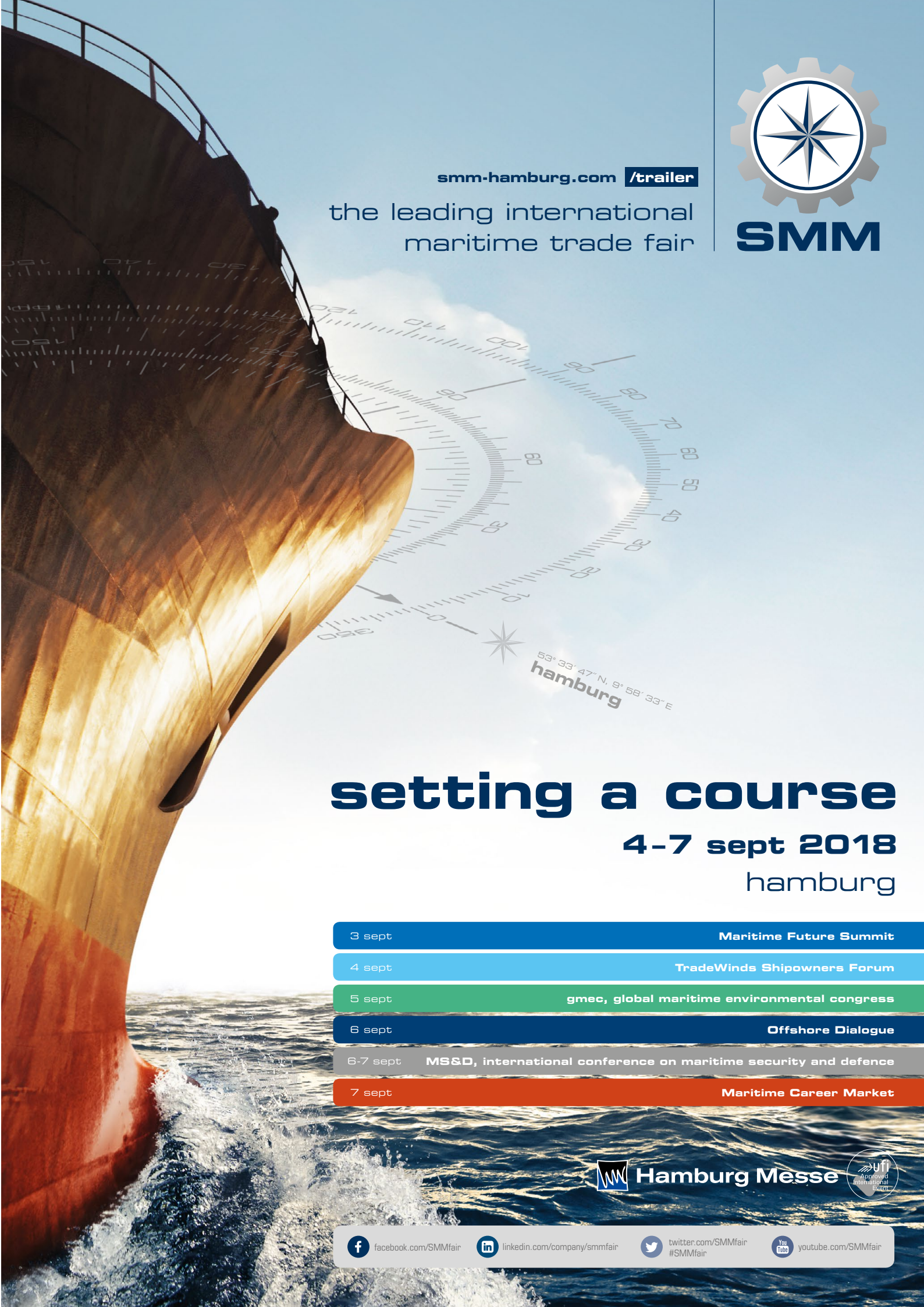
It is by adapting the monitoring process to not only measure the turbidity and absorbance levels, but to apply these values as a correction to the PAH measurements, that accurate readings can be taken.

It is essential that crews have a thorough understanding of the regulations, monitoring procedures, and the analysis and interpretation of the data. CTG works closely with shipowners, the leading scrubber manufacturers and the Exhaust Gas Cleaning System Association (EGCSA) to provide them with the knowledge they need to prove compliance under the IMO criteria.

Sea Sentry is certified by DNV-GL and ClassNK and is a solution, which measures the polycyclic aromatic hydrocarbon, absorbance, turbidity (to ISO 7027: 1999), temperature and pH of scrubber washwater.

The installation of scrubbers will allow tanker operators to continue using existing HFO and benefit from the anticipated spread between the cost of HFO and distillates. But with increasing environmental regulation, accurate monitoring will be essential to provide operators with confidence in the reliability and accuracy of their systems to remain compliant and preserve market opportunities. TO

**This article was written by Dr Brian Phillips, Managing Director, Chelsea Technologies Group.*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3 sept Maritime Future Summit
4 sept TradeWinds Shipowners Forum
5 sept gmec, global maritime environmental congress
6 sept Offshore Dialogue
6-7 sept MS&D, international conference on maritime security and defence
7 sept Maritime Career Market
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Wärtsilä - goes with the flow

Wärtsilä's recently released solution EnergoFlow is currently being marketed to tanker and bulker owners and managers, among other vessel type operators.

This system is a pre-swirl stator that sits in front of the propeller. It is claimed to be able to increase fuel efficiency by about 8-10% and thus reduce emissions, on full body ships, such as tanker and bulk carriers, without increasing maintenance needs, as it has no moving parts.

Wärtsilä claimed the stator has a quick return on investment- typically one to two years and thus far is only designed for fixed pitch propellers (FPPs).

A new research project is in its early stages to develop this solution for twin-screw controllable pitch propellers (CPPs).

EnergoFlow creates optimal inflow for the propeller by guiding one side of the stern flow in the opposite direction to the propeller rotation, generating pre-swirl. The solution consists of multiple curved fins and a ring attached to the ship's hull to prevent the power losses that typically occur in a propeller's slipstream.

Tamara de Gruyter, Vice President, Area North Europe and Propulsion System Services, Wärtsilä Services, explained that as the engineering conglomerate had a wide range of propellers for newbuildings, the company now offers services, spares and lifecycle management solutions. This can include propulsion equipment upgrades and retrofits.

Wärtsilä has large R&D facilities, notably for propulsors, at the former Lips facility at Drunen in the Netherlands, as well as other research outlets worldwide, including in Norway. These R&D facilities also co-operate with the major hydrodynamic testing laboratories, such as MARIN and HSVA, in order to gain that extra efficiency percentage from a ship's hull, propulsion and steering systems or any combination.

De Gruyter explained that an efficiency drive might not necessarily involve a large amount of work, for example the changing of an old to a new propeller hub cap while a vessel remains in the water should give a cost saving in the long term.

Some 20 years ago, a propeller was mainly considered as lasting for the life of a ship but today studies can be undertaken on the ship's profile, voyage pattern, etc, to determine if the ROI of a retrofit or upgrade makes sense.

Wärtsilä's Tamara de Gruyter

The question of noise is now on the agenda, as Vancouver (BC) for example is researching whether propeller noise has an effect on the resident Orcas. The IMO is also working on the question of ship noise underwater.

For the past few years, Wärtsilä has ramped up its service offering also by acquisitions, such as Eniram and latterly Dutch underwater experts Trident. She gave an example of synergies by pointing out that the analytics provided by Eniram will calculate when the next hull cleaning or propeller polishing is due, which could be undertaken by Trident.

This would result in the ship's schedule being analysed to see which port or harbour could be used for a hull or propeller polishing exercise, bearing in mind that some countries ban underwater cleaning in their territorial waters. Trident has workshops and fully qualified personnel in the Netherlands, Canary Islands and Livorno, Italy and can now plug into Wärtsilä's huge network worldwide to build up a service network in multiple locations.

Certification

Trident's divers and underwater equipment is able to certified for use on Wärtsilä solutions at the company's Land and Sea Academy, thereby authorising the equipment and skills to be used on the company's propellers and other equipment.

The training of engineers is a very important aspect of Wärtsilä Services work, both in the field as well as in the engineering and especially in the field of hydrodynamics.

"We are offering long term partnerships to gain efficiency by using a lot of products together," she said. "This involves not only Wärtsilä products but also other products and ideas from other companies in joint industry research to continuously develop products and discuss ideas for greater vessel operational efficiency."

Of course, digitalisation is the next step forward and with Eniram's analytics, a lot of knowledge can be combined, she said, aiming towards the so called 'intelligent ship'. TO

Standard EnergoFlow delivery supply

- System design, supply and class certification.
- Redesign and modification of the existing propeller.
- Installation drawings and instructions.
- Design interface with the shipyard and/or ship designer.
- Supervision by Wärtsilä technicians during installation.
- Modification of the existing propeller if a new, optimised propeller is not included in the scope of supply.

Optional scope of supply

- New propeller with design optimised for Wärtsilä EnergoFlow.
- Model EnergoFlow stator and/or model propeller for testing.

How technology is driving change and improving efficiency

Predictions for the tanker industry suggest that this year could be challenging, with earnings remaining low because of oversupply

According to Fitch Ratings, several new vessel deliveries and the limited scrapping of older ships means the global tanker market will remain oversupplied for the near future, keeping freight rates low and shipping company credit metrics under pressure in 2018.

Other challenges include regulatory burdens and environmental issues, such as minimising oil spillages, many of which are caused by human error and can result in large fines, as well as the ongoing challenges around managing the day-to-day operations, including crew scheduling and communication.

So how can tanker companies ensure they stay ahead of the competition?

While shipping has been slow to embrace technology, now many companies are using it to address ongoing management challenges and improve efficiencies. Technology enables companies to optimise the management of their entire fleet, automate their processes, increase their business performance, improve operational efficiencies and drive down costs. There is enormous potential for further progress driven by technology, especially to improve fleet management.

Cloud-technology is already having an impact on the way companies operate. The key benefit if that it enables data to be centralised and easily accessed by teams on the vessel and onshore, making business critical information available regardless of time or location. This improves communication between staff on land and at sea and improves efficiencies in areas, such as crew planning, the execution of payroll or the evaluation of seafarers – the digital data is always up-to-date and available.

This technology is also be used to simplify purchasing and stock planning. It is tailor-made for purchasing executives who are often in meetings or out of the office, thus enabling them to stay on top of stock ordering and purchasing processes, and handle tasks from any location.

One shipping company using cloud-based software to improve its operations and management is German shipping company PT-Shipmanagement.

Patrick Toll, PT-Shipmanagement managing director wanted to use technology to implement smarter ways of working and chose Hanseaticsoft's Cloud Fleet Manager (CFM) for the management of his fleet.

He said, "The Cloud Fleet Manager and its apps enabled me to run my business with a lean structure and manage a fleet of 30 vessels with only 10 employees. Using the cloud-based system all our employees have access to one central data platform – making additional requesting and forwarding of information obsolete and it has increase collaboration and improved communications.

"Harnessing the potential of technology for shipping feels very natural now, as we are already using smart devices. Soon we will be using Augmented Reality (AR) and other technology to simplify our daily lives, so it makes sense to use the same technology for businesses. Using modern technology is simply the next step on the digitalisation journey. Why would you go back to using landline instead of your smartphone?"

Hanseaticsoft's Alexander Buchmann

EU MRV

Another key area where technology is making a difference is in regulatory compliance. One example is the new EU MRV (Monitoring, Reporting and Verification) regulation that came into force on 1st January, 2018 and applies to all vessels of more than 5,000 gt. The aim is to quantify and reduce CO2 emissions from shipping and the regulation will create a new kind of benchmarking system in Europe.

This regulation presented a challenge for tanker companies, as it requires them to capture and report on a range of data for the first time. This includes origin and destination information, the total amount and emission factors for each type of fuel consumed, the CO2 emitted, the distance travelled, the time spent at sea; the cargo carried and transport work.

Cloud-based applications are available to help companies monitor, capture and report their data, which can be input from the vessels and then aggregated, synchronised and transmitted to relevant parties quickly and seamlessly. This can save both time and money and ensure vessels always have the most up to date information at their fingertips and are always compliant.

While tanker companies can do little to address oversupply in the industry or overcome external economic factors they can look at ways to improve their internal management systems and processes. TO

**This article was written by Alexander Buchmann, managing director of Hanseaticsoft.*

In hot water

With an oversupply of tonnage in the tanker market, now is the time for operators to seek new efficient solutions to maximise their operations before they find themselves in hot water.*

Despite significant overcapacity, new vessels continue to be ordered.

Figures show that the global tanker fleet comprises around 5,300 vessels, with an around a further 530 vessels currently on order, compared with an estimated 80 vessels, which have been scrapped or lost during the last year. This significant imbalance poses considerable challenges for the industry.

In an unpredictable market with overcapacity delivering slimmer profit margins, tanker efficiency is as vital now as it has ever been. At Hempel, we recognise the challenges that tanker operator's face and have developed effective antifouling paints to enhance vessel efficiencies.

Fouling is the process of organisms, such as algae and barnacles attaching themselves to a vessel's hull. This creates drag meaning more fuel is needed to move the ship, increasing fuel costs and CO2 emissions. This is an inefficient use of energy and power and is less friendly to the environment.

Recognising the challenge fouling presents tanker operators in maintaining profitability and with our continuous focus on innovation and progress, we have developed an advanced fouling defence coating, which would keep a ship's hull clean and smooth, reducing friction and streamlining a vessel's movement through water. The result was Hempaguard.

In a single coat, Hempaguard combines low surface friction silicone with efficient fouling prevention biocides through our patented Actiguard technology. Since 2013, Hempaguard has been very well received by shipowners worldwide, delivering a 6% fuel saving, compared with other antifoulings.

Innovative technology

Euronav, one of the global leaders in the shipping of crude oil, was interested in trying the new Hempaguard coating back in 2014. However, before making any full-ship applications, Euronav wanted to patch test it first.

After 45 months, the Hempaguard test patch was still smooth and fouling free. This performance convinced Euronav to complete a full-scale Hempaguard application on a number of its vessels.

Caroil, the multinational oil drilling company, applied Hempaguard to its Panamax tanker 'Petion' in April, 2016. Following just over a year in operation, the vessel's hull remained fouling free, and the ship achieved an impressive 6% in fuel savings.

According to Caroil, additional savings might have been possible if the operating distances had been longer. As a result, Caroil has increased its productivity by fulfilling contracts with reduced operating costs.

Defining industry standard

The above case studies show the positive impact Hempaguard provides to tanker operators in overcoming the challenges of achieving efficiency posed by bio-fouling. We are also at the forefront of efficiency initiatives on an industry level and was integral in the development of the International Organisation for Standardisation (ISO) 19030.

This standard defines the methods for determining changes in hull and propeller performance in addition to calculating basic indicators to provide industry standard measures for propeller efficiency.

SHAPE up

Going a step further and in support of the industry's ongoing focus on fuel efficiency, we launched our hull performance system, SHAPE (Systems for Hull and Propeller Efficiency) in January, 2018.

SHAPE combines elements of hull and propeller efficiency optimisation to maximise the quality of performance data analysis, allowing Hempel to deliver expert advice and solutions to every ship operator, enabling them to maximise hull efficiency and return on investment.

Fouling and mechanical damage to the hull can increase the engine power a vessel needs to maintain a defined speed by up to 20%. Our SHAPE system can monitor the long-term trends using in service key performance indicators (KPIs).

Pressure is on the tanker market and its operators to think outside the box to maintain profit margins. But by using systems, such as SHAPE, operators can make data driven decisions to optimise their operations and keep them out of hot water.

**This article was written by Andreas Glud, Group Segment Manager, Marine, Dry Dock, Hempel.*

MDT develops dual-fuel engines

MAN Diesel & Turbo (MDT) has signed a Memorandum of Understanding (MoU) with Hyundai Heavy Industries Engine & Machinery Division (HHI-EMD) to develop and manufacture MAN B&W ME-LGIP dual-fuel engines.

Upon firming, HHI-EMD will be able to deliver LPG–fuelled, 2-stroke-propulsion engines.

Bjarne Foldager, MDT's vice president sales & promotion, 2-Stroke business, said: "MAN Diesel & Turbo has previously experienced strong market interest in using LPG as a fuel on board LPG carriers, but other shipping segments have also begun investigating this option, a general tendency that is growing."

"LPG holds great potential as a fuel since it contains no sulfur, is widely available, and easy to bunker. It is therefore becoming an increasingly attractive alternative to other, low-sulfur fuel types. We have a long tradition of technical co-operation with our licensees and we are looking forward to working with Hyundai on this exciting project," he said.

With the MoU, LPG joins the list of liquid, environmentally-friendly fuels that can power MDT's portfolio of 2-stroke, dual-fuel engines, which are available from all licensees. The engine designer and manufacturer also said that it expected an ME-LGIP installation on board a commercial vessel to be extremely competitive in costs, compared to other, dual-fuel-burning engine types

Due to ever more stringent emission limits, many LPG carrier operators called for MDT to develop an LPG-fuelled engine that could power LPG carriers in the most viable, convenient and economical way, using a fraction of the LPG cargo already on board, the company claimed.

LPG is an extremely environmentally-friendly fuel, in much the same class as LNG, and an LPG-fuelled engine will significantly reduce emissions, enabling vessels to meet the stringent IMO SOx emission regulations, due to come into force globally from 2020, MDT said.

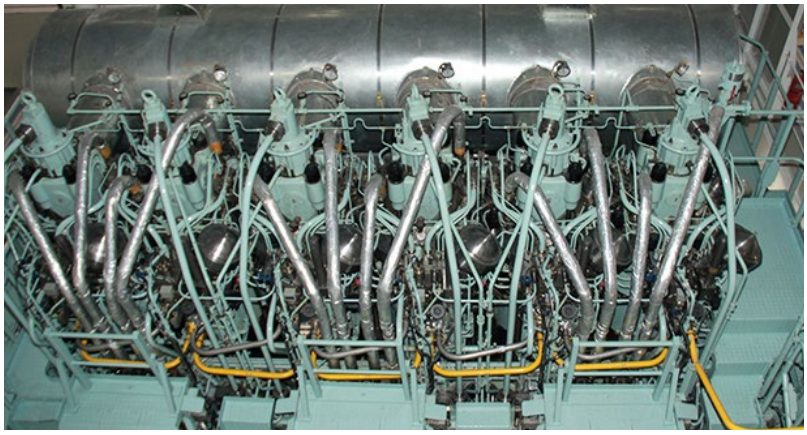
MDT added that LPG's future as a viable fuel for marine transportation looks promising, as it will not require as large an investment in infrastructure – such as bunkering facilities – in contrast to other, gaseous fuels. As a result the engine manufacturer said that it expected strong demand for LGIP engines for very large gas carriers (VLGCs) and coastal vessels once introduced.

Methanol fuelled

Another initiative already underway is the use of methanol as a fuel. For example, another four 49,000 dwt recently ordered tankers, to add to the seven in service, are to be fitted with an MAN B&W ME-LGI 2-stroke dual-fuel engine that can run on methanol, fuel oil, marine diesel oil or gas oil

They will be operated by Waterfront Shipping (WFS) and were ordered by Marinvest/ Skagerack Invest, IINO, Mitsui & Co and Japanese giant NYK.

They will join the existing seven methanol-fuelled vessels chartered by WFS and delivered to Marinvest, Mitsui OSK Lines and Westfal-Larsen Management in 2016.



ME-LGI main engine

The vessels were fitted with the first example of the MAN B&W ME-LGI 2-stroke dual fuel engines.

"We are very happy to be working with Waterfront Shipping again on this innovative technology. With seven engines already in operation and proven in the field, this new order confirms the ME-LGI concept as a mature technology.

"Since this dual-fuel engine entered the market in 2016, its price has dropped considerably, which makes it an even more attractive propulsion option. Allied with its environmental credentials and convenience of use when employing methanol as a fuel, we are confident the ME-LGI will continue its promising progress," said René Sejer Laursen, MDT's promotion manager.

"It's been great working with MAN and our shipping partners who are as committed as we are in advancing sustainable clean marine technology. Our seven methanol-fuelled vessels have been operating safely and reliably since 2016, and we expect these new vessels to benefit from ongoing technological advances that will continue to optimise performance and efficiency," said Paul Hexter, WFS president. "We are proud to see 40% of our fleet powered by methanol-fuel technology in the coming year."

As a safe, biodegradable and clean-burning fuel, methanol is a promising alternative marine fuel that can meet new and existing IMO environmental regulations that require vessels to decrease emissions of sulphur oxide and nitrogen oxides. By using methanol rather than conventional marine fuel, the vessels produce significantly fewer emissions than conventional vessels.

The four new vessels will be built at Hyundai Mipo Dockyard, where several of the first generation of methanol-fuelled vessels were built. WFS will charter the vessels to replace older units and support growing demand for methanol around the world.

Two of the vessels will be owned in a joint venture between WFS and Marinvest, one will be owned by NYK and the fourth will be owned in a joint venture between IINO and Mitsui. TO

Selektope hard-fouling hotspots performance passes test

A two-year trial on a chemical and products carrier, which spent more than half of her time in biofouling hotspots, demonstrated that the patented antifouling ingredient Selektope provided an answer to the growing hard fouling issue.

Average global water temperatures are rising and the zones whose tropical, or sub-tropical, characteristics support a greater variety of organisms attracted to settling on ships hulls are experiencing increasing intensity. These zones, called 'biofouling hotspots', are creating a growing biofouling problem for ship operators and shipyards alike.

Idle hulls become prey to hard fouling, which can have a serious impact on fuel consumption and a fouled hull also increases maintenance costs, thus creating a headache for ship operators.

A problematic issue for shipyards with newly launched vessels, for example, is that the hulls can remain stationary for three to four months during outfitting and become so fouled that they perform poorly during sea trials. Protecting the hulls is part of the antifouling process and maintaining hull performance and vessel efficiency is a key driver for ensuring hulls remain foul free.

However, increasing regulatory pressure around the transfer of invasive aquatic species (IAS) via fouling on the hull means that ship operators need to ensure that their vessels have ultimate antifouling protection for whatever waters they sail in.

Technological innovation is supporting ship operators facing the growing demands of fouling prevention. Unique antifouling solutions, such as Selektope, are demonstrating outstanding hard fouling prevention performance, developer I-Tech claimed.

Laurin's MR 'Calypso' was coated with an antifouling containing Selektope

Selektope is an organic, non-metal compound that works to prevent barnacle fouling by temporarily activating the swimming behaviour of barnacle cyprid larvae, making it impossible for them to settle on the hull. It is characterised by high efficacy at extremely low concentrations (0.1% w/w), is ultra-low leaching and offers paint manufacturers the flexibility to boost copper-based paint formulations, or replace copper completely.

A recent 24-month trial of an antifouling coating on Laurin Maritime's MR 'Calypso' has demonstrated that bio-repellent active agent Selektope is proving vital to meeting the rising challenge posed by hard fouling in biofouling hotspots.

The vertical sides and flat bottom of the 2010-built 46,067 dwt vessel were fully coated in 2015, during her first five-year drydocking. No special provisions were required beyond normal preparation work. During the trial period, 'Calypso' spent more than 50% of her operating time in biofouling hotspots with > 25 deg C (up to 32 deg C) temperatures.

Performance analysis

The performance of the coating applied to 'Calypso' was confirmed by independent hull and propeller performance analysis: total resistance increased by 7%, compared with a benchmark 10-20% for a new vessel. Over the period, speed losses experienced by the MR amounted to a mere 2% when measured against sea trial performance.

Data collected over the trial period also confirmed that the development rate of added resistance for 'Calypso' amounted to 0.1% (0.5% to 1.5% is expected). A subsequent underwater hull inspection, conducted in November, 2017, found no soft or hard fouling over the starboard and portside verticals, flat bottom and bilge areas, with no antifouling loss established two years after the initial coating application.

Laurin Maritime's technical director, Bertil Andersson, commented: "The vessel has now operated for two years since last drydock, and we can conclude that the fouling of the hull (read added hull resistance) remains at a very low level and the trend continues being flat."

Created and marketed by Swedish bio-tech company I-Tech, Selektope was introduced in 2015 after 15 years of intensive R&D. The company's progress by the start of the century, caught the attention of coatings suppliers in the relatively early stages of R&D and, today, an increasing number of products are available through mainstream antifouling coatings suppliers that include Selektope.

I-Tech CEO Philip Chaabane welcomed the independent verification results for Selektope over an extended time period in biofouling hotspots. He commented: "This independent analysis of data and the underwater hull inspection provide convincing evidence supporting the performance claims for Selektope-containing coatings where fouling conditions are severe.

"The fact that the hull fouling trend continues to be flat means that our general outlook on the continuous performance of the coating is very positive. This delivers the proof required that our unique antifouling ingredient can offer ship operators guaranteed hard fouling prevention performance for any vessel activity and trading patterns," he said.

With multiple major coatings suppliers now turning to Selektope to enhance their products, I-Tech has urged shipowners to check whether the ingredient is available in all antifoulings being considered as part of their coatings selection process.

Team Tankers opts for vessel hardening device

Team Tankers International has made a commitment to crew welfare by investing in a new ship hardening device created as a last line of defence for ships attacked by pirates.

The shipping company was an early adopter of new security devices manufactured by Easi-Chock, a company founded by former UKSF serviceman and ship security guard, Wayne Harrison, after he survived a pirate attack in 2010.

Team Tankers has incorporated the use of the new security solution into its formal security procedures and said that it will not send any of its vessels through high risk areas without it being fitted.

Easi-Chock's ship hardening devices are designed to deny intruders access into the superstructure, and create multiple internal layers of defences, all of which stop intruders from taking control of the ship or gaining access to the crew.

Team Tankers', Kate Chaston, said;

A door secured using the Easi-Chock and the Easi-Block

"Whilst piracy in the Indian Ocean is not at the peak levels, which we witnessed in 2010, the threat is still very real and is certainly no cause for complacency. However, we are seeing an increase in attacks in Southeast Asia and West Africa as demonstrated by the second recent hijacking off the coast of Benin, and therefore ensuring crew welfare is an essential concern.

"It is vitally important to pro-actively safeguard our ships and our crew. That doesn't mean doing the bare minimum, it means being aware of the latest innovations in security, and where appropriate, adopting these measures to maximise our security and deter the threat of piracy.

"We are confident that our commitment to install the latest breakthrough in ship hardening is testament to those aims and will ensure that all of our crew can have complete confidence in the robust nature of protection both they and our ships are subject to," she said.

In 2017, Team Tanker International carried 70 different products worldwide, including chemicals, vegetable oils and refined petroleum products.

Pirate attacks

Last year, 180 pirate attacks and incidences of armed robbery on ships were reported to the International Chamber of Commerce's International Maritime Bureau (IMB).

Wayne Harrison, Easi-Chock founder, said: "The threat of piracy is always evolving and becoming more resilient and sophisticated. Simply following the minimum BNP4 guidelines is not sufficient for ensuring protection of a ship's crew – and I can say that from experience.

"Ensuring protection for the crew in situations where a ship is boarded by criminals is crucial – it's not a scenario that can be overlooked. Having a contingency plan in place, so that crew members are not left vulnerable and exposed to capture if pirates board a vessel, can ultimately save lives.

Wayne Harrison, pictured moments after securing the ship which was attacked by pirates

"Forward-thinking companies like Team Tankers International understand this risk – and it's great to see them taking extra measures to fulfil their duty of care to the crew on their ships. From experiencing a pirate attack first hand, I know that the crew needs to have practical and effective security devices available to them for use in a highly stressful situation.

"The Easi-Chock devices were created specifically with that the scenario in mind. On all the ships in which they are installed, we provide a full ship audit to highlight vulnerable access points, training to the crew and demonstrations of how the products should be installed.

"This training is essential for crew members to feel comfortable operating the devices and can deploy them in a timely and effective manner," he explained.

Easi-Chock products can be installed by the crew within 20 minutes and full training is provided, the company said.

Since Easi-Chock was formed in 2013, the company has hardened over 150 vessels, including tankers. TO

Small chemical tankers - options for 2020 compliance

The upcoming global sulfur cap presents a major compliance challenge for shipowners but in common with some other regulations, it also offers choice in terms of the preferred solution to be adopted.*

While compliance with the global cap might seem a straightforward choice of switching to low sulfur fuel, there are short term issues of cost, availability and potentially of quality. For vessels with an expected trading life of 20 years and more, installation of an exhaust gas cleaning system (EGCS), or use of LNG as fuel, are also viable considerations.

In addition to the global requirements, owners must also consider compliance with reference to the amount of time their vessels will spend inside an emission control area (ECA). Newbuildings that need to comply with IMO NOx Tier III emission requirements while operating inside a NOx ECA must use a NOx abatement technology, such as exhaust gas recirculation (EGR) or selective catalytic reduction (SCR) systems, or install gas or dual fuel Otto cycle (low pressure) engines with LNG as fuel.

The chemical carriers small size creates challenges in installing additional large equipment, such as scrubbers and regasification skids for LNG fuel, as well as ballast water management systems. Asset valuation versus the cost of modifications is another important consideration when deciding whether to modify or scrap the vessels.

ABS undertook an analysis of the options for compliance on a 13,000 dwt chemical tanker, including a comparison of the anticipated costs of retrofitting an open and hybrid loop EGCS against LNG and compliant fuel.

While the actual costs for compliance with the global sulfur cap and ECA regulations will vary significantly based on each vessel's unique characteristics, trading patterns and the options chosen to achieve compliance, the results suggest a considerably shorter payback period for this type and size of vessel using an open loop or hybrid EGCS than by use of LNG as fuel, or the base scenario of switching to compliant low sulfur fuel.

For the analysis, capex levels for an open loop scrubber were assumed to range from $1-1.3 mill, depending on installation for main engine, main and auxiliary engines and the auxiliary boiler. For a hybrid system the typical capex cost increases to around $1.8 mill.

Assuming installation costs of $200,000 for a newbuilding, ABS estimated 100-140% of this capex for a retrofit, with design and associated costs of $125,000 for an open loop and $150,000 for a hybrid scrubber. Total capex estimates include installation, design and class costs and a cost for the initial NaOH to fill the tank.

The EGCS was assumed to have a life expectancy of 20 years, with the calculation based on an estimated fuel cost in 2020 of HFO at $320 per tonne, LSFO at $490 per tonne and MGO at $540 per tonne. Additional consumption was included, due to increased back pressure and additional electrical load. Additional costs in the calculation also included system consumables, maintenance, service engineer and crew training and cost of lost cargo, due to the additional weight of the EGCS.

Payback

In terms of discounted payback, the analysis of compliant fuel versus an open loop EGCS gave a figure of one year for main engine, auxiliary engine and auxiliary boiler, two to three years for main and auxiliary and one to two years for main engine only. For a hybrid scrubber, the equivalent for main engine, auxiliary engine and auxiliary boiler is one to two years and three to four for main and auxiliary engines.

By contrast, the total capex for LNG as a fuel solution, including machinery, storage and outfitting, is estimated at $5 mill. Discounted payback for the LNG as fuel installation covering main engine, auxiliary engine and auxiliary boiler is estimated at four to five years.

While the study primarily considered the costs of compliance, it is important to remember that other factors also need to be considered, including the impact of future regulatory changes, the operational reliability of the equipment and the availability of the supporting infrastructure.

ABS believes that analysis like this is key to supporting owners during the transition to low sulfur shipping, which is why ABS developed its Techno-Economic Evaluation solution, a decision support process that identifies technical feasibility and key parameters, such as lifecycle costs, net savings, payback period and rate of return on investment.

The evaluation considers ship design, equipment details, trading routes, fuel cost trends and fleet analysis to establish a base trading case and alternative technology and fuel scenarios. This information can assist owners to make a meaningful comparison between the options and select their preferred solution for retrofitting or new construction projects.

ABS has published guidance to help owners understand the steps they will need to take to implement exhaust gas scrubbers on board ship, as well as an advisory to the 2020 sulfur cap itself. In addition, ABS offers the LNG Fuel Ready and the SOx Scrubber Ready notation concept for newbuilds, which allows an owner to prepare a vessel for implementing LNG as fuel, or SOx Scrubber options, at a later date.

**This article was written by Arinjit Roy, Director, Tankers, ABS Global Marine.*

TO

STS cargo transfer service providers audit proposed

On the back of continuous growth of ship-to-ship (STS) transfer operations globally in recent years, new local STS service providers have sprung up to provide totally new trading/lightering needs, or to compete with existing organisations.

In this specific industry sector, competition can encourage the emergence of low cost, sub-standard STS providers to the detriment of both the industry and the environment and with negative implications for the worldwide standing of the industry.

These companies are able to survive and expand, as there are no adequate resources in place from their contractors, to evaluate their performance prior to or after each STS operation, DYNAMARINe claimed.

Tanker operators cannot directly influence the appointment of STS service providers, since it is the responsibility of the trader/charterer, or cargo receiver, yet have to take full statutory liability and contractual responsibility for the operations thereby subsidising the sub-standard providers by protecting them from any liability.

DYNAMARINe has proposed an auditing scheme*, based on IMO's SOLAS and MARPOL regulations, OCIMF Guidelines, relevant ISO standards and OSIS data.

It is important that the STS service provider's management system is consistent and follows the latest industry standards, the company said, as evidenced by OCIMF's TMSA.

In addition to the review of the management system, the audit will include a visit to the service provider's hubs to verify the condition of the equipment, it's storage and maintenance facilities and consistency with the approved management plan.

Through an assessment tool provided by DYNAMARINe, the Master will evaluate the STS service provider's service quality after each transfer operation.

Ship operators maintain a transparent system, regularly audited along with TMSA audits by oil majors, based strictly on statutory requirements, environmental protection and safety criteria, the company pointed out.

Master's feedback

A Master's feedback reported to DYNAMARINe's OSIS network will be used during the audit and any issues arising will be discussed, as will issues about location assessment and information will be exchanged enabling tanker operators to be aware and prepared for any hazards, as well as available resources.

A tanker operator's direct involvement starts from the nomination of the provider by the charterer until the commencement of the STS operation - usually between two hours and two days.

They cannot choose a STS service provider, however they have the right to reject the services of a third party on the basis of environmental protection and operational safety.

Report validity

The validity of the final audit report is linked to the feedback available through OSIS and may be extended or withheld accordingly. The approval may be terminated when there is evidence, or strong indications, of inconsistency or non-compliance with the requirements of the tanker operator, or the IMO/OCIMF guidelines.

DYNAMARINe explained that the intention is to make available a list of approved STS service providers that satisfy an agreed set of minimum criteria regardless of their area of operation. This process should take place under a standardised auditing regime applying to all STS service providers and undertaken by an independent organisation established to avoid the risk of any conflict of interest.

Only a small percentage of charterers have the resources available to ensure that contracted STS service providers provide high quality services to tanker operators with respect to safety, reliability and efficiency.

These audits are not transparent and the results are not available.

The fact that a contract is in place, indicates that a due diligence process has been undertaken on behalf of the charterer. Evidence indicates that this is not enough for the tanker operator who ultimately bares overall responsibility for the individual cargo transhipment.

There are mutual benefits for those STS stakeholders who support and participate in this audit scheme, the company claimed.

For example, charterers/traders/cargo owners will appoint STS service providers on the basis of the satisfactory outcome from the minimum baseline criteria and subject to the examination of a report that will be provided by the STS service provider.

STS service providers will receive a report on the outcome of the audit and will, if they wish, be able to circulate the findings to current or potential clients as a clear independent indication of the quality of their management systems and procedures.

Tanker operators will receive confirmation that an audited STS service provider satisfies the base line criteria and will provide the expected service to the vessels involved in accordance with industry regulations and requirements.

Illustrating the expansion of STS, the Port of Salalah announced that it recently completed its first STS at the anchorage.

The new service was performed by Fendercare Marine, which transferred vegetable oil from the 2011-built MR 'NCC Nasma' to 'Ariana' while both vessels were in the harbour anchorage.

*The proposed scheme will be discussed in the upcoming International Forum on STS (IFSTS 2018) to be held in Athens on 7th March.

Tank management gets smart makeover

Faced with challenging trading conditions and constrained by rising operational costs, shipyards and fleet operators are increasingly demanding more flexibility and control from their on board tank management equipment.*

For tankers carrying crude oil, protecting the cargo tank is paramount, with values potentially representing millions of dollars of investment. In addition, today's stringent safety regulations call for comprehensive checking procedures and alarm systems to be in place.

With the growing sophistication of vessels and the need to minimise costs through greater performance efficiency, the burden of monitoring and control has increased. At the same time, responding to rapidly changing demand patterns requires a fast, flexible response from shipyards and vessel owners.

With its established reputation in the supply of tank cleaning systems and anti-pirate cannons and a worldwide network of engineers and manufacturing companies providing the necessary technology and marine expertise, Scanjet has responded to the industry's need for a more comprehensive approach with the development of a new Intelligent Tank Management system (ITAMA).

An industry first, the 'total management' offered by this new development encompasses every aspect of tank management and measurement, at sea and during loading and unloading. Central to the philosophy behind the new system is the integration between key elements, such as tank cleaning machines, P/V valves, tank level gauging equipment and inert gas systems.

Equally key to the latest designs, is the relay of information on tank levels, tanks and manifold pressures, temperatures, draft and other operating parameters to the ship's automatic systems.

Scanjet's Niklas Falkmer

Updates in real time and a comprehensive alarm system allows seafarers to undertake a timely intervention where necessary.

Freeing up valuable crew time at the same time as making sure safety and efficiency targets are consistently met, automation of the control

process also protects valuable cargoes against loss or theft.

One of the main advantages of an integrated system is that shipyards and shipbuilders benefit from added flexibility within a standard product, thus reducing the cost of ownership. Designed to be multi-purpose with universal application to suit all sizes of vessel, the ITAMA concept allows customisation to suit individual operational needs.

Quality control has been a critical factor in the development of the ITAMA system. The company takes full responsibility of the specification and supply process from end to end, interfacing with producers throughout to achieve the necessary fit.

PV valves on an MR

For shipyards and vessel owners, product reliability and performance are essential. It is for this reason Scanjet acquired PSM to bring production of the pressure sensors in-house and why critical equipment, such as the radar systems are also manufactured by the company.

Upgrades

In the case of vessels due for upgrades, integrated solutions like ITAMA offer a fast, economic alternative to replacing individual elements, where issues with compatibility or obsolescence can lead to unexpected extra costs. Installing an integrated system for newbuilds eliminates problems from the outset while offering the added benefit of automation.

With compatibility assured, and all interfaces accommodated in the system design, there is minimal or no need for specialist engineering input, saving time and money. This allows shipyards to handle simultaneous projects easily with the added advantage that projects can be fast-tracked where this is a condition of supply by vessel owners.

Integration also simplifies ongoing maintenance. A single-source supply chain can deliver a faster response for spares and service support, with evidence of compliance with all recognised class requirements – often a condition of contract for oil companies.

The industry has reacted favourably to the introduction of the new integrated concept, with take-up from shipyards and shipowners worldwide.

One particular project for Greek shipowner Pantheon illustrates the unique breadth and the scope offered by Scanjet ITAMA. Pantheon had specified the total ITAMA package, including tank cleaning, inert gas system, level gauging and PV valves for four 49,700 dwt MRs.

Other confirmed orders include the French tanker operator Socatra at the AVIC Dingheng shipyard in China and Norwegian company DSD who have opted for the tank cleaning, P/V valve and cargo monitoring system for four vessels under construction at the Huyndai shipyard in South Korea. German shipowner, Carl Büttner, has also confirmed orders for six vessels at the Hantong shipyard in China.

Providing a total monitoring and control system with real-time measurement and reporting, the development of an integrated system offers operators total visibility with minimal input and marks a key milestone on the path to total ship autonomy.

**This article was written by Niklas Falkmer, managing director of Scanjet.*

Drone supplier receives LR approval

Drone and robotics specialist RIMS (Robotics In Maintenance Strategies) has received a fourth classification certificate as Recognized External Specialists, from Lloyd's Register for the use of drones during surveys of enclosed spaces.

The practical audit was successfully executed on a large deepwater construction vessel. Prior to the demonstration, drawings of the tanks were reviewed to establish a flight plan and to indicate specific points of interest. During the demonstration, the drone was able to be successfully manoeuvred around the tank according to the flight plan, and was able to react to the instructions of the attending surveyor in real time.

David Knukkel, RIMS CEO commented: "We are honoured to receive the approval, as these audits are not easy. Class are setting a high standard, not only to ensure safe operations during the flight of the drones but more importantly to achieve accurate survey results. Due to the importance of these surveys, we consider each flight as an examination and it is up to us to maintain the high standard demonstrated in class audits."

This certification means that shipowners and managers now have the option to avoid the use of costly access equipment such as scaffolding and cherry pickers during surveys, and instead to use RIMS' remote live on-screen object inspection, which offers substantial benefits; reduction in the time to carry out a survey, minimising of risk, as well as cost savings.

"We were first to gain approval from BV, ABS, RINA and now also receiving the approval from Lloyds Register, means that the acceptance and use of drone technology finally breaks through in the maritime industry and drones become a common tool to execute safe and cost-efficient inspections of ships and MOU constructions." Knukkel added.

He told *Tanker Operator* that tankers' tanks were possible to access as long as they were gas free. They might be small and mirrors might be sufficient but in general, the manhole sizes are much the same and a drone is capable of flying through a manhole, he explained. TO

Cargo tank coatings - a micro issue with a macro problem

At the January meeting of the UAE branch of IMarEST, Nikeel Idnani, honorary secretary explained that chemical tankers have their cargo tanks coated unless they are made of stainless steel.

Among the meeting's sponsors was Advanced Polymer Coatings (APC), together with the company's Middle East representative, FED COM.

APC produces the patented MarineLine coating for chemical tankers.

Coatings permit easier cleaning, prevent tank corrosion and reduce risk for cross-cargo contamination. The durability of properly applied and maintained coatings could be over 10 years, the company claimed.

Yavuz Alavi, FED COM's director of business development described the chemical market growth factors and MarineLine coating's performance capabilities versus bimodal epoxy, phenolic epoxy, zinc and stainless steel.

He introduced MarineLine Enhanced cargo tank coating with nano technology, which has been engineered to provide high chemical and high impact resistance, as requested by shipowners, to withstand mechanical damages that may occur during cleaning, repairs, etc.

Tougher version

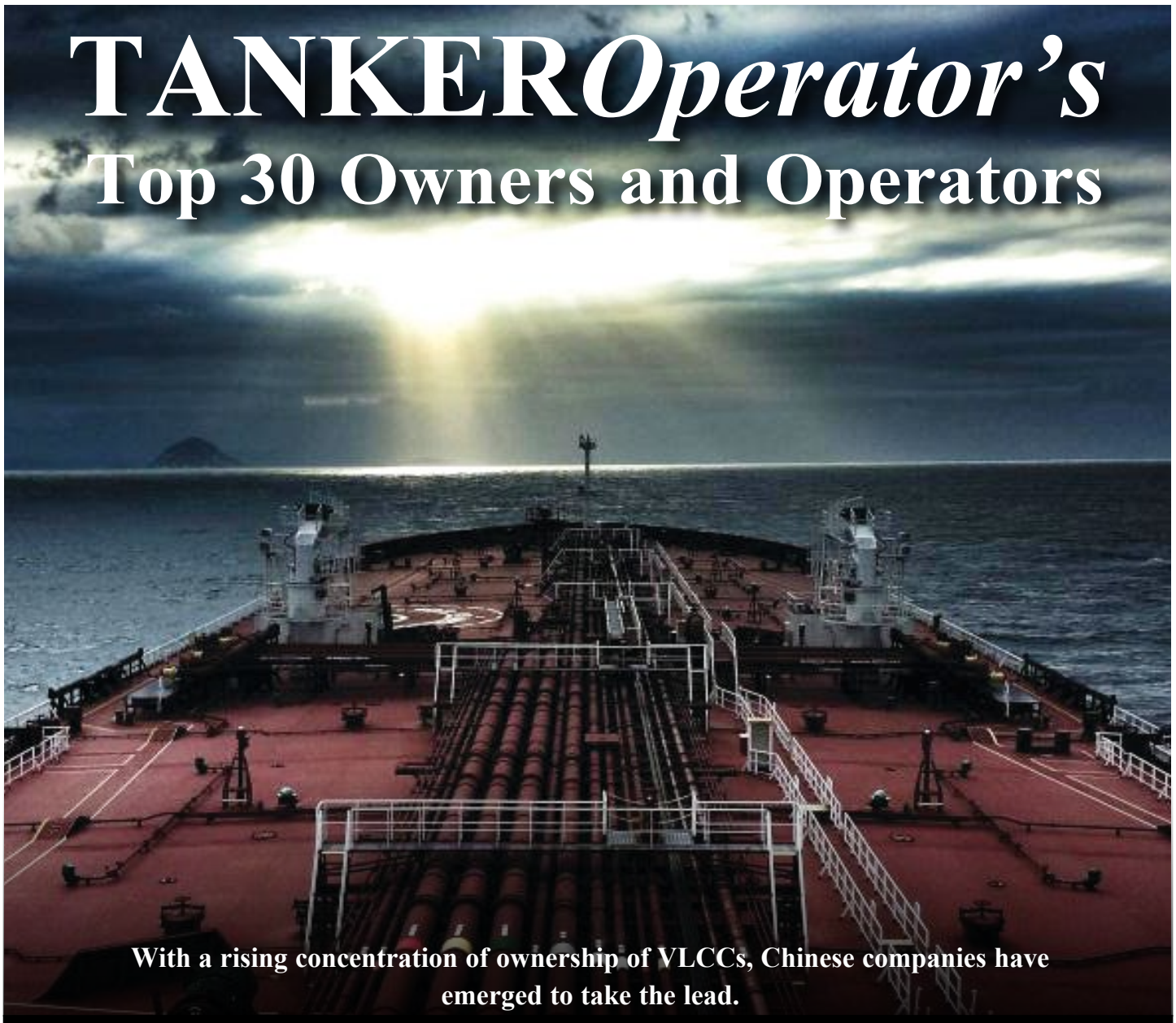
APC's MarineLine Enhanced is a tougher version of its previous coating system while maintaining superior chemical resistance. Several other benefits were also claimed, for example, 50% more impact resistance creating a tougher, more durable coating, elongation of up to 15% to virtually match the carbon steel cargo tank and 60% reduced surface energy for easier and faster tank cleaning.

Also, highlighted during the presentation were illustrations showing the parabolic increases in methanol production in the Middle East and US, and plus the fact that MarineLine coated tanks can carry methanol continuously without restrictions up to 50 deg C.

Alavi was joined by Capt Onur Yildirim (APC's global technical manager), Capt Koray Karagoz (MarineLine Turkey managing director), Joe Harrington (MarineLine sales at APC) for a panel discussion.

The meeting's 74 attendees included representatives from ADNOC Logistics & Services, APC, Bahri Ship Management, BV, Central Ship Management, ClassNK, DNV GL, Drew Marine, Drydocks World Dubai, Goltens, Gulf Ship Management, Gulf Petrochem, International Tanker Management, Key Ship Management, Kuwait Oil Tanker Co, L&I Maritime Services, Liberian Registry, Lloyd's Register, Lukoil Marine Lubricants, Navig8 Chemicals, Petro Plus, Petrofac Engineering, Sigma Paints, Stena Bulk, Total, UASC, Vega Ships Management, Wilhelmsen Ships Service, and Zenith Ship Management, plus engineering companies and consultancies. TO

TANKER*Operator's* Top 30 Owners and Operators



With a rising concentration of ownership of VLCCs, Chinese companies have emerged to take the lead.

According to VesselsValue, the country's top two owners are China VLCC (see CMES) and COSCO (CSET), which together have 83 VLCCs on the water with another 19 on order.

Through the recently announced merger between tanker giants Euronav and Gener8 Maritime, the companies would have a combined fleet of 56 vessels, if the deal goes ahead as planned.

Photo credit- Frontline

Although this move would push the combined company slightly ahead of China VLCC, VesselsValue said that they are not expected to maintain a lead for long.

Out of the total 227 VLCCs owned by five largest owners, Chinese-built ships make up 110 vessels, followed by South Korea-built ships at 98.

"Ordering activity should slow as the large crude tanker market digests the expected delivery of new ships over the next two years amid weak rates," VesselsValue said.

However, China's growth is expected to continue, illustrated by the orders announced this year by CSET, which has taken over pole position in *Tanker Operator*'s Top 30 list with CMES coming fourth.

There is probably more consolidation to come, as Euronav's Paddy Rodgers did not rule out further acquisitions in a recent results presentation.

As usual, this list has been compiled with reference to the Equasis database and the companies themselves where possible. We have tried to calculate the totals up to the end of last year.

1 COSCO Shipping Energy Transportation (CSET)

(18.7 mill dwt, plus 4.6 mill dwt newbuildings)

CSET is a holding and investment company established after the restructuring of Dalian Ocean Shipping Co in the first half of 2016, and is the listed company of China COSCO Shipping Corp for specialising in energy shipment, such as oil and natural gas.

The tanker fleets previously shown under various COSCO subsidiaries - COSCO Tanker Shipping Dalian and COSCO Tanker Shipping Shanghai - are now operated by CSET, resulting in the company attaining first place with 122 vessels, including 116 owned, including subsidiaries, plus six chartered in - five VLCCs and one Panamax.

In addition, CSET has a substantial orderbook, including 10 VLCCs, three Suezmaxes, five Aframaxes and six Panamaxes, as at 31st December last year.

At the end of last year, CSET controlled 44 VLCCs, three Suezmaxes, 12 Aframaxes, 26 Panamaxes and 37 MR/Handysize size products and crude carriers but is also a huge charterer of tonnage.

This was illustrated in January of this year, when CSET chartered five VLCCs from Sinochem. The same month saw the company order two VLCCs from Dalian Cosco KHI Ship Engineering for $152 mill in total.

They are scheduled for delivery in August, 2020 and January, 2021, respectively and will be 70% funded by bank loans, CSET said in a stock market announcement.

CSET said last November that it would be raising some RMB5.4 bill (about $815 mill) through a private offering to fund acquisitions and newbuildings, and in December ordered two Panamaxes, two LR2s and three Aframaxes at Guangzhou Shipyard International (GSI).

This was in addition to the four 320,000 dwt tankers and three Suezmax orders announced in October.

Such is the size of its orderbook that CSET will no doubt be in outright first place over Euronav, once the merger is confirmed, unless further consolidation occurs elsewhere.

2 Mitsui- OSK (MOL)

(15.9 mill dwt)

MOL's Annual Report, published around the middle of last year, still showed a tanker fleet of just over 15.9 mill dwt.

Of course, this includes several vessels on long term charter, which can vary almost daily.

The Equasis database shows that MOL manages around 10.8 mill dwt, consisting of 29 VLCCs, five Aframaxes/LR2s, eight LR1s, 11 MRs and two Handysize tankers.

MOL is heavily involved in pools and joint ventures and is a regular operator on the S&P market.

3 NITC

(13.9 mill)

NITC has been shedding older tonnage recently, as the company re-enters the international shipping arena.

The company has also had to endure the tragic loss of the Suezmax 'Sanchi', which finally sank on 13th January this year following a fire, which raged for six days and was caused by a collision with a Chinese bulk carrier. None of the 32 seafarers on board survived.

The Equasis database is currently showing a fleet of 38 VLCCs, three of which were built in 1996. In addition, there are eight Suezmaxes, six Aframaxes and three Handysize tankers listed.

It is not clear how many of the larger tankers are being used for storage, or are idle in the Middle East Gulf. However, some of the tankers are trading again, especially to Asia.

NITC was thought to be planning to modernise its fleet under a five-year programme in a bid to lower its age profile.

4 China Merchants Energy Shipping (CMES)

(13.4 mill dwt, plus 3.8 mill dwt newbuildings)

CMES has shot up the rankings, as along with other Chinese concerns, notably CSET, this company embarked upon a newbuilding spree a few years ago.

Affiliated to China Merchants Group, CMES was jointly established by China Merchants Group, Sinopec, Sinochem, COSCO and CNOOC on 31st December, 2004.

On 1st December 2006, CMES successfully launched an IPO and became a public listed company on the Shanghai Stock Exchange.

China VLCC (CVLCC), jointly established in September, 2014, is the VLCC subsidiary of CMES operating a fleet of 41 VLCCs with an additional 12 newbuildings to come.

In addition, there are five Aframaxes in the CMES fleet.

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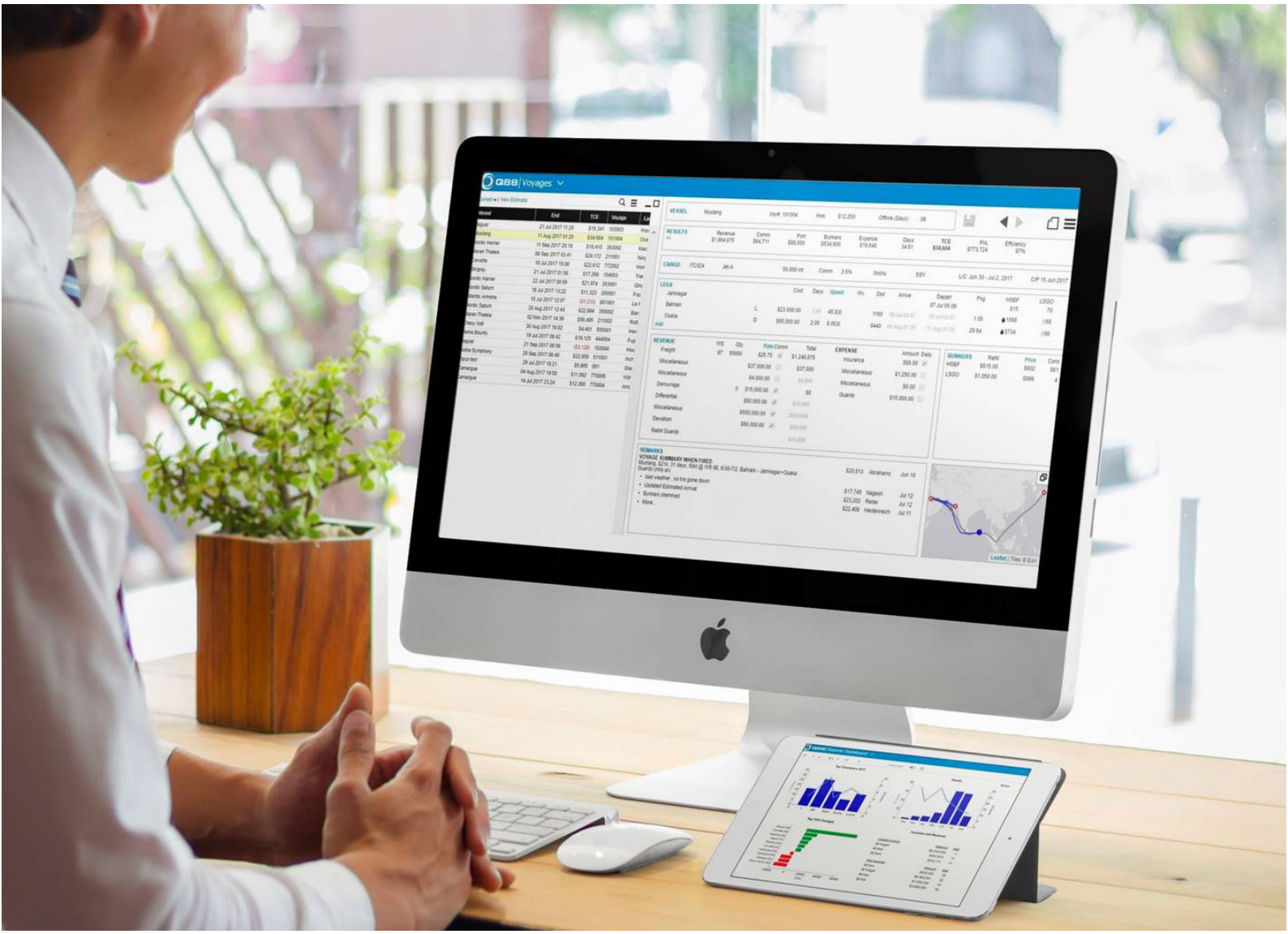

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Bahri

(12.9 mill dwt, plus 1.5 mill dwt newbuildings)

5

The National Shipping Corp of Saudi Arabia, or Bahri as it is better known, operates 41 VLCCs and 36 product/chemical carriers.

The company also has another five VLCCs under construction, mostly due for delivery this year.

Last November, the company took delivery of its 41st VLCC 'Shaden', which was the fifth to be registered under the flag of Saudi Arabia.

Bahri is also a partner in the co-operative that is building a giant new shipyard, near Jubail in the Arabian Gulf.

Teekay Group

(12.8 mill dwt, plus 680,000 dwt newbuildings)

6

Overall, Teekay Corp and its daughter companies have lost a bit of ground having sold some older tonnage.

According to the company, the group has one VLCC, 34 Suezmaxes, 19 Aframaxes (plus one chartered in), nine LR2s, one MR, 33 shuttle tankers (including five newbuildings) plus two chartered in shuttle tankers.

In addition, the company owns or manages, FPSOs, FSOs, LNGCs, LPG carriers, a HiLoad, a maintenance vessel and offshore supply vessels.

Recently, the company announced the development of a new type of shuttle tanker in co-operation with Wärtsilä, of which four have been ordered (see January/February issue of *Tanker Operator*).

In addition, last year, the company completed its merger with Tankers Investments, whose fleet was originally managed by Teekay, hence included in the figures.

Maran Tankers Management (MTM)

(12.2 mill dwt, plus 2.9 mill dwt newbuildings)

7 MTM took delivery of a series of VLCC newbuildings throughout 2017 and still has another nine to come.

At the end of last year, the company managed 25 VLCCs, plus another seven on bareboat charter to ChevronTexaco.

In addition, there were 12 Suezmaxes and two Aframaxes listed in the fleet.

MTM's 'Maran Penelope'

Sovcomfot (SCF)

(12.2 mill dwt, plus 700,000 dwt newbuildings)

8 SCF has started to offload some of its older Aframaxes built in the late 1990s and early 2000s.

The company has 22 x 47,000 dwt product tankers, four Handysize, five 50,000 dwt MRs doubling as chemical tankers, nine LR1s, nine LR2s, 42 Aframaxes (with another six LNG dual-fuelled newbuildings still to be delivered), 15 Suezmaxes and two VLCCs.

In addition, SCF has eight Aframax, five Panamax, three MR size shuttle tankers with another MR to come. These operate in the severe conditions found in the Barents Sea and Russian Far East.

Last year, Sovcomflot, Rosneft, the State Transport Leasing Company (STLC) and Zvezda Shipbuilding, signed agreements to build five Aframaxes.

The 114,000 dwt vessels will be built by Zvezda jointly with Hyundai Heavy Industries. The new vessels are due to enter service from 2021. The tankers will be of Ice Class 1A/1B, sufficient to operate in regions with challenging ice conditions, including the Baltic Sea and sub-Arctic seas.

SCF will operate all of the tankers, first supervising their construction and then providing a range of services, including technical management and the recruitment of crews and their management, etc.

They are specifically designed to use LNG as a primary fuel.

The technical specifications for the new tankers were designed by SCF, with the close involvement of the Far Eastern Shipbuilding and Ship Repair Centre (FESRC).

Just recently, SCF said that another Aframax has been sold for recycling but has been included in the figures.

Euronav

(11.9 mill dwt, plus 626,000 dwt newbuildings)

9

By the middle of this year, Euronav could become one of the largest tankers companies in terms of deadweight tonnage, due to its impending merger with Gener8 Maritime.

However, as the deal is not expected to go through until sometime in the second quarter of this year, we have not included Gener8's tonnage in the total.

Last December, Euronav announced a stock-for-stock merger with Gener8 by which the latter would become a wholly-owned subsidiary of Euronav.

Once completed, the fleet would include about 75 crude tankers, including 44 VLCCs and 28 Suezmaxes, plus two FSOs owned in a joint venture - representing a total of 18 mill dwt with a combined entity balance sheet assets of over $4 bill.

Upon the merger's closing, International Seaways (INSW) has agreed to purchase six modern VLCCs for $434 mill from the combined entity.

This sale will allow Euronav to maintain sustainable and robust financial ratios and keep leverage and liquidity well within management's desired levels.

Other advantages listed by Euronav included the provision of tangible economies of scale via pooling arrangements, procurement opportunities, reduced overhead and enhanced access to capital.

Also, through commitment to the Tankers International Pool (TI) (a spot market-oriented VLCC pool), this will provide the lowest commercial fees as a percentage of revenue in the sector, Euronav claimed.

At the end of last year, Euronav operated 28 VLCCs, one ULCC and 18 Suezmaxes, plus a share of two FSOs, which have not been included in the figures.

In addition, the company had another four Suezmaxes on order for delivery in 2018.

Frontline

(11.6 mill dwt, plus 1.3 mill dwt newbuildings)

10

Frontline disposed of some older tonnage and took delivery of a few newbuildings in 2017.

At the end of last year, the company had 21 VLCCs, incuding one under a finance lease arrangement; 18 Suezmaxes, including two under commercial management; 17 LR2s, plus three Aframaxes under commercial management.

As for the newbuildings, there were still four VLCCs and one LR2 to come at the end of 2017.

AET

(11.3 mill dwt, plus 748,000 dwt on order)

11 AET has continued its fleet replacement programme by selling older units and taking delivery of newbuildings.

As at the end of January, 2018, AET had 14 VLCCs, five Suezmaxes, 43 Aframaxes, five LR2s, four DP2 shuttle tankers, one Panamax and 17 chemical/products tankers of various sizes.

Towards the end of January this year, AET held a naming ceremony for two Aframaxes and two Suezmaxes at Samsung and Hyundai shipyards, respectively. These follow two LR2s, which were delivered last year.

In addition, AET will take delivery of two more Aframaxes later this year and two DP2 shuttle tankers in 2019.

The Aframaxes will be two of the world's first LNG dual-fuelled tankers of this size.

The DP2 shuttle tankers were ordered last year on the back of long term Statoil charters and will also be LNG dual-fuelled and the most modern tonnage of this type to operate in the North/Barents Sea, AET confirmed.

Dynacom Tankers Management

(11.1 mill dwt, plus 155,000 dwt newbuilding)

12 George Prokopiou's Dynacom Tankers Management has 17 VLCCs, 30 Suezmaxes, two Aframaxes and 13 Panamaxes on its books

The company has almost come to the end of its newbuilding spree with just a Suezmax still to come, due around the time this issue went to press.

NYK

(9.3 mill dwt)

13 NYK has been selling off its older units over the past few years and today manages 23 VLCCs, two Aframxes and 37 MRs.

In addition, the company has a small chemical carriers and manages the Stolt feeder fleet in the Asia/Pacific region.

Similar to other major Japanese companies, NYK is also a charterer of a considerable amount of tonnage.

Gener8 Maritime

(7.7 mill dwt)

14 We have included Gener8 Maritime in the listing, as its proposed merger with Euronav had not gone through by the time this issue went to press.

At the end of last year, the US-based company had 21 VLCCs, six Suezmaxes, one Aframax and two Panamaxes on its books.

In 2015, the company merged with Navig8 Crude Carriers, thus giving it a considerable tanker portfolio.

Ocean Tankers
(7.38 mill dwt)

15 Singapore-based Ocean Tankers is involved in several port services in the area, including bunkering and towage.

Its main tanker fleet consists of 14 VLCCs, 12 Aframaxes, five Panamaxes and 20 MRs.

The company also manages a fleet of small regional products tankers and this year ordered six, option four, 23,000 dwt tankers from China.

DHT Holdings
(7.3 mill dwt, plus 1.3 mill dwt newbuildings)

16 Since its buyout of BW's tanker fleet, DHT now has 23 VLCCs and two Aframaxes.

In addition, there are four VLCC newbuildings still to come.

Tsakos Energy Navigation (TEN)
(7.3 mill mill dwt)

17 At the turn of the year, TEN managed three VLCCs, 14 Suezmaxes, three Suezmax shuttle tankers, 20 Aframaxes, three LR2s, 12 Panamaxes/LR1s, six MRs and 14 Handysize tankers.

In January, TEN announced it had sold two Suezmaxes for $65.2 mill gross, through a five-year sale and leaseback transaction.

The vessels were delivered to their new owners in late December, 2017.

"Following the 15-vessel renewal programme that was completed last quarter, the sale and purchase of vessels remains an integral part of TEN's strategy to maintain its owned fleet modernity and enhance liquidity," COO George Saroglou said at the time of the announcement.

In February, TEN announced the charter extension for seven Panamaxes for an average of 24 months, to a state oil concern.

These charters, which all incorporate profit sharing provisions, are expected to generate minimum gross revenues of over $70 mill.

'Sola TS' is the sixth in a series of nine Aframaxes built by Daewoo Mangalia. She is on long term charter to Statoil.

Thenamaris' Aframax 'Seacalm' was delivered last year. There are a further three of this type to come

Minerva Marine

(7.26 mill dwt)

18 Minerva Marine manages six VLCCs, seven Suezmaxes, three Aframaxes and 19 MRs.

Since the turn of the year, the company has taken delivery of two Suezmaxes and one Aframax.

Thenamaris

(6.9 mill dwt, plus 364,100 dwt newbuildings)

19 Thenamaris has increased its fleet size to five VLCCs, eight Suezmaxes, 30 Aframaxes, 10 MRs and seven Handies.

In addition, there are a further three Aframax newbuildings to come.

Earlier this year, Thenamaris took delivery of two Suezmaxes, leaving only the Aframaxes to come.

Maersk Tankers
(6.79 dwt)

20 The company was recently spun-off from AP Moller-Maersk in a finance deal, as its parent company sought to shed assets.

A company called APMH Invest, a subsidiary of AP Moller Holding (APMH), purchased Maersk Tankers for $1.17 bill cash.

An ownership consortium was established with Japanese trading company Mitsui & Co and other interests, in which APMH is the major shareholder.

Maersk Tankers commercially manages five pools, the latest of which is an Aframax pool set up last year.

Included in the figures are five Aframaxes, 12 LR2s, 44 MRs, 66 Handies and 26 Intermediate vessels, which are all commercially managed in the various pools.

SK Shipping
(6.6 mill dwt)

21 South Korea's SK Shipping owns 20 VLCCs, two Aframaxes and three MRs, plus several smaller products and chemical tankers.

They are mainly chartered to domestic energy companies.

Navios Group
(5.8 mill dwt)

22 We have grouped Angeliki Frangou's Navios Acquisition and Navios Midstream together.

This gives a fleet of 14 VLCCs, eight LR1s, 18 MRs and two smaller products tankers.

INSW's Suezmax 'Seaways Montauk' (see page 35)

TMS Tankers
(5.72 mill dwt, plus 775,000 dwt newbuildings)

23 Part of George Economou's empire, TMS Tankers manages three VLCCs, 13 Suezmaxes, 27 Aframaxes (including six Ice Class vessels), two MRs, plus another five Suezmax newbuildings.

International Seaways (INSW)
(5.7 mill dwt)

24 As mentioned in the Euronav entry above, INSW has entered into a binding letter of intent to acquire the holding companies of six 300,000 dwt VLCCs with an average age of 1.7 years.

This transaction is directly connected to Euronav's acquisition of Gener8 Maritime, expected to close by June of this year at the latest.

The purchase price for the six vessels is $434 mill, inclusive of assumed debt.

The vessels to be purchased include five 2016-built and one 2015-built VLCCs, all constructed at Shanghai Waigaoqiao Shipbuilding. They are expected to be handed over in the second quarter of 2018 but have not been included in the figures.

INSW is the international spin-off from the Overseas Shipholding Group (OSG) and at the end of last year operated nine VLCCs and one ULCC, two Suezmaxes, seven Aframaxes, one LR2, eight Panamaxes, four LR1s and 17 MRs.

Oman Shipping Co (OSC)
(5.6 mill dwt)

25 OSC owns 16 VLCCs, 12 MRs and one small products tanker.

Out of the whole fleet, 38 vessels are managed by subsidiary Oman Ship Management, which is seeking to attract third party business (see January/February issue of *Tanker Operator*).

One of OSC's VLCCs, which is managed by Oman Ship Management

Sinokor Merchant Marine
(5.4 mill dwt, plus 300,000 dwt newbuildings)

26 Sinokor controls about eight VLCCs, 12 Aframaxes, two Panamaxes and 35 MRs. There is one VLCC newbuilding still to be delivered.

Olympic Shipping/Springfield
(5.29 mill dwt)

27 The former Onassis-controlled fleet consists of 14 VLCCs, four Suezmaxes and three Aframaxes.

Nordic American Tankers (NAT)

(4.7 mill dwt, plus 470,000 dwt newbuildings)

28 NAT makes it into the Top 30 courtesy of owning 30 Suezmaxes, plus three newbuildings, according to *Tanker Operator*'s calculations. NAT declined to confirm the figures.

Formosa Plastics Marine

(4.6 mill dwt)

29 Part of a huge industrial conglomerate, the Taiwanese company manages 10 VLCCs, two Aframaxes, six Panamaxes, 15 MRs and three smaller chemical tankers.

Kuwait Oil Tanker Co (KOTC)

(4.5 mill dwt)

30 KOTC owns 12 VLCCs, four Aframaxes, four LR1s, four MRs, plus small products tankers.

The company is believed to be about to sell off some of its older units and will order new. Some of the VLCCs date from the late 1990s.

KOTC recently confirmed orders for three VLGCs.

KOTC's 'Al-Salheia'

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