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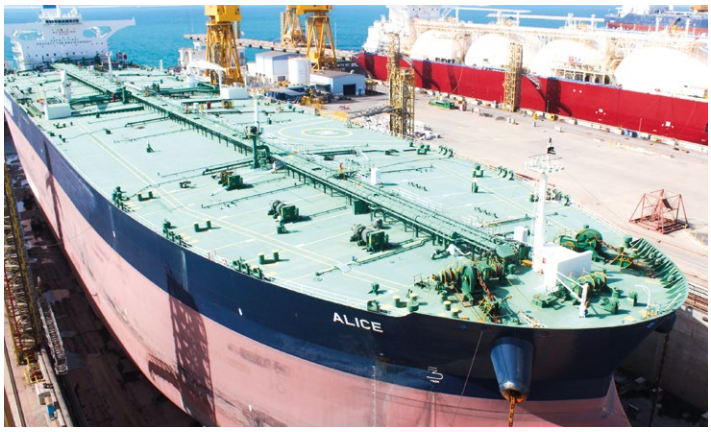

At the end of February this year, International Registries, Inc (IRI), which provides administrative and technical support to the Republic of the Marshall Islands (RMI) Maritime and Corporate Registries, had 4,341 vessels on its books amounting to 159 mill gt.

Tankers accounted for 1,165 vessels of 54 mill gt, or 27% of the total fleet by number and 34% in terms of gt.

At a Maritime Services Group strategy meeting earlier this year, Bill Gallagher, IRI President, said, "We anticipate continued future growth for the RMI Registry, but this growth needs to be supported by an investment in our processes and people. We remain dedicated to preserving the quality that our customers have come to expect, while evolving our services in line with a changing industry."

Will it all end in tears?

With the conference round now in full swing, the shipping fraternity is trying to make sense of falling earnings, digitalisation and forthcoming costly rules and regulations.

Who would be a shipowner in today's seemingly ever increasing costs and ever lower incomes, especially in the tanker sector.

We have been endlessly told to wait, as the market will turn, but I think the pundits forgot to mention in which year.

Those involved in the offshore, containership and drybulk market have had to endure the pain for several years but at least these segments seemed to have turned the corner.

Both crude and products tanker owners have suffered, due to a falling spot market, but today the products people seem a bit more optimistic than their crude operating cousins.

The major agencies dealing with the energy sector have all pointed towards the world's increasing need for energy given the predicted population growth in the next few years, which many shipping forecasters have highlighted when trying to advise owners to 'hang on in there.'

For example in analysing 'Oil 2018', the latest IEA annual forecast of global oil demand, supply, refining and trade, Poten & Partners said that the report is fairly positive and many of the specific elements discussed are rather bullish for the tanker market.

A combination of robust global demand growth, refining capacity expansion and changes in trade flows could help the recovery in the tanker market. Even the IMO mandated changes in marine fuel specifications that will come into effect in 2020 could have a silver lining for the tanker market.

The IEA forecasts solid increases in oil demand based on a strong world economy. Outside of Europe, whose oil demand is expected to start declining again after 2018, all major regions in the world will show demand growth, the agency said.

Between 2017 and 2023, global oil demand will expand by 6.9 mill barrels per day. The Asia/Pacific region will be by far the fastest growing region, followed by the Middle East. Africa and the Americas, which will expand at a slower pace.

Within Asia, China and India will drive this growth and these countries, who represent 50% of global demand growth in the period through 2023, are heavily dependent on imports.

Demand growth in the Pacific Basin will stimulate long-haul tanker demand, especially since most of the oil production growth is occurring in the Atlantic Basin, Poten said.

US oil production growth is a bullish factor. The IEA said that more than half of the growth in the world's production capacity between 2018 and 2023 (3.7 mill barrels per day out of 6.4 mill barrels per day) will come from the US. Canada, Brazil and Norway are also expanding production.

A lot of different factors will drive how this will play out in terms of trade flows, but the IEA described a plausible scenario that could lead to expanding US crude oil exports to Europe and Asia, Poten said.

Supply outweighs demand

This is all well and good but when I'm being told that in the normally busy northern hemisphere winter season, while cargo stems offered by charterers have increased as normal, the number of vessels vying for the these cargoes has far outweighed demand.

Of course, it doesn't take a genius to work out that too many ships chasing too few cargoes leads to a decline in rates offered - simple supply and demand economics.

As already mentioned, the agencies reckon that US oil exports will overtake the barrels coming out of Saudi Arabia and Russia. But when? Can we wait that long with an ever increasing number of hulls in the water, needing business today and not in several years time?

The OPEC production cuts have not helped either and some major oil producers sit in the most unstable of political regimes, where problems could result in the taps being turned off, as witnessed in the late 1960s and 1970s with the Israel/Middle East wars.

Later, tanker owners had to run the gauntlet of the Iraq/Iran conflict and today you could list oil producing countries - Venezuela, Libya, Iran and Iraq - as potential problem areas. Not wishing to give a history lesson, it is today and tomorrow we are concerned about.

There have been some positive moves already reported out of the US. For example LOOP has exported its first VLCC cargo and Corpus Christi, Texas recently played host to a part laden VLCC on a trial basis.

As China moves away from coal for its energy needs, importers are turning more and more to oil and natural gas. However, there is a government inspired move to import raw materials in Chinese hulls, as witnessed by the rise of domestic tanker owning companies.

However, cynics say that this move is also aimed at boosting its shipbuilding industry, which probably has an element of truth attached.

Recycling has picked up this year (see page 7) but we still need a lot more tankers to hit the beaches sooner rather than later to balance supply and demand.

TO

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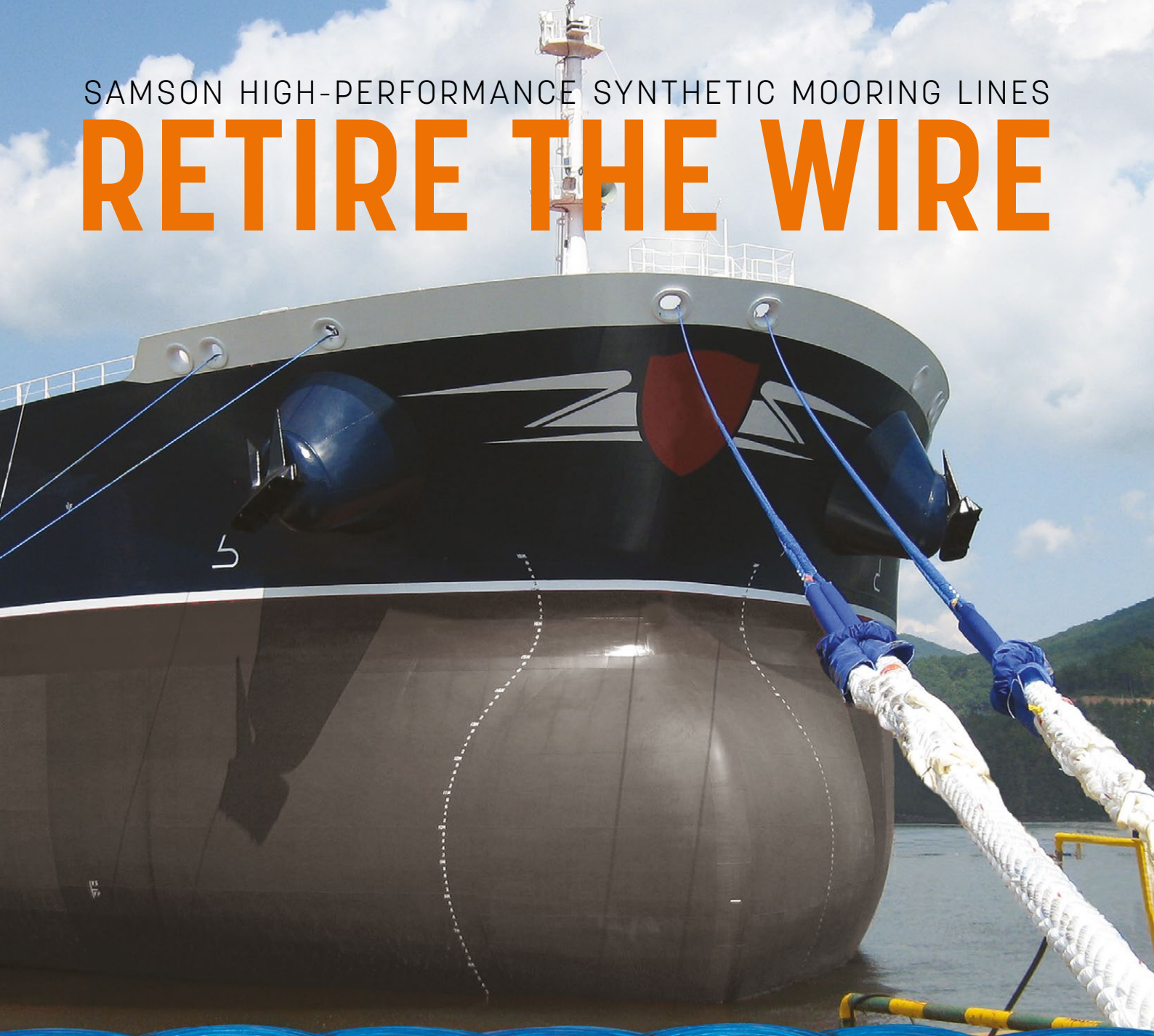

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US seaborne products exports at an all-time high

BIMCO's Peter Sand has taken a look at the US seaborne exports of oil products last year and found that following a seasonal surge in December, they reached their highest annual level in terms of volume and tonne/mile demand.

An increase in volume, combined with a marginal increase in the average sailing distance, caused total annual tonne/mile demand to surpass the previous high set in 2013.

Sand said: "The development in US seaborne exports of oil products during the last 10 years have been highly beneficial for the oil product tanker shipping industry, as a larger share of the total US oil products is transported via the sea. Since 2010 the volumes have tripled and now amounts to 10% of the world seaborne oil product trade.

"The recent development in exported oil products from the US provides the oil product tanker shipping industry with steady growth in volumes and yet again growth in tonne/mile demand. Overall, we see oil product tankers operating in an improving market in 2018, with better market fundamentals for both demand and supply.

Still, the oil product tanker sector may only break-even in 2018, if demand growth is low throughout the year," he added.

Volumes of US seaborne products exports increased by 9% in 2017, compared to 2016. This amounted to an additional 10.8 mill tonnes - equivalent to 80 mill barrels. The average exports of US oil products last year was 2.7 mill barrels per day, compared to 2.5 mill barrels per day in the previous year.

The volume of exports has increased every year since 2007, except for 2016, which was marginally down from the previous year.

Sand said: "By exporting more to countries with closer geographical proximity, the additional exports of oil products do not benefit the tanker shipping industry as much as the increase in US exports of crude oil does. For the US seaborne exports of crude oil the average sailing distance grew by 65% and the volumes grew 151% for the first 10 months of 2017, compared to same period in 2016."

US seaborne products exports saw an annual decrease in tonne/mile demand for 2014, 2015 and 2016, as the average sailing distance fell by more than the volumes increased. However, in 2017, the tonne/ mile demand was up 9%, compared to 2016, as both volumes and average sailing distances increased.

Americas imports

With 15 out of the top 20 importers based in the Americas, 76% of all oil products exported by sea are bound for destinations on the American continent, which is underlined by the short average sailing distance of 3,270 nautical miles.

Mexico's share of the imports only benefited the oil product tanker shipping industry to a limited degree. For example, Mexico imported 23% of all US seaborne products exports, however it only generates 5.7% of the total tonne/miles.

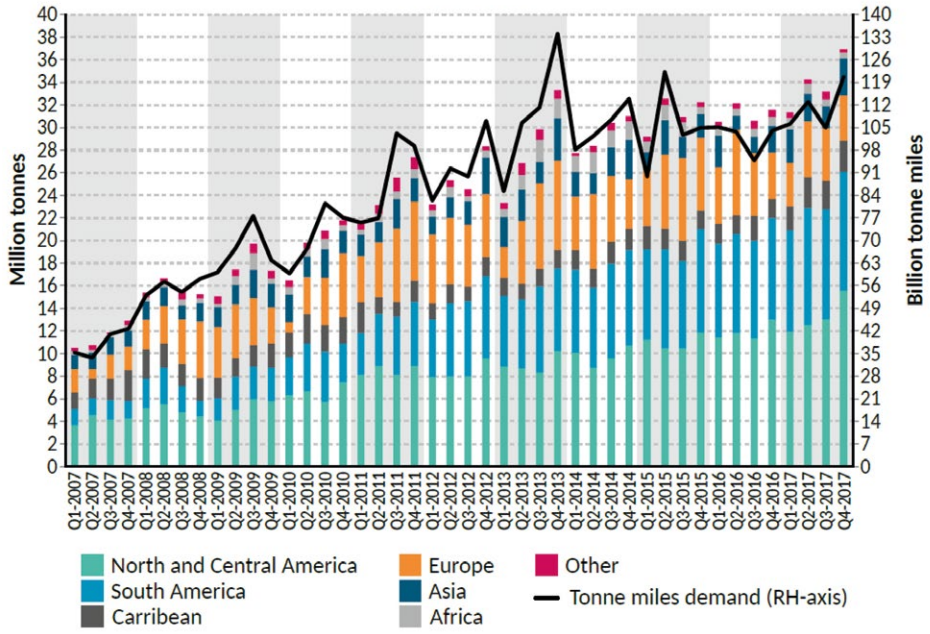
Singapore, the top 20 importer with the furthest sailing distance from US ports exporting products, generated 15.8% of the total tonne/miles, despite only importing 4.7% of all US seaborne exports of oil products.

Houston-based terminals were responsible for 27% of all exports of US seaborne oil products. The Houston area has averaged around 27% for the previous three years. Terminals in New Orleans exported the second highest volumes at 12% of all seaborne oil product exports. Corpus Christi has emerged as the third largest oil product exporting port with 10% of all US products being exported from there. In 2014, Corpus Christi ports was fifth biggest oil product exporting port in the US.

Terminals based in Texas and Louisiana on the US Gulf Coast, were responsible for 80% of all seaborne oil products exported last year. This level remained close to the average of 79% in 2016 and 2015, respectively.

US seaborne exports of oil products and tonne / mile demand

2007 - 2017



Based on harmonised system codes under 2710 Source: BIMCO, US Census Bureau

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N-KOM benefits from repeat business

To date, Qatar-based shiprepairer Nakilat-Keppel Offshore & Marine (N-KOM) has completed more than 700 marine and offshore projects, which includes a significant number of drydocking and repairs on various tanker types.

Around 70% of the tanker repair business last year emanated from repeat Greek clients, such as Dynacom, Euronav, Maran Tankers, Chandris (Hellas) and Samos Steamship. Other major tanker companies docking with N-KOM in 2017 were MOL Tankship Management and Shipping Corporation of India (SCI), among others.

N-KOM also saw a steady increase in new clients, such as MOL Tankship Management and Dorian (Hellas) and this led to a notable increase in the number of tankers undergoing repairs at the giant complex.

The tanker projects included -

- Singapore's MOL Tankship Management's VLCC involved steel renewal of the vessel's side shell plating, as well as fabrication and supply of hydraulic pipes.
- Euronav Ship Management (Hellas) docked three VLCCs in the shipyard in 2017. General drydocking repairs were undertaken, including hull high pressure washing and rudder repairs, such as fabricating and welding lugs in way of rudder position and propeller polishing.
- Major dockings were carried out on two Chandris (Hellas) VLCCs. The vessels underwent hull treatment and painting, cargo and ballast valves repairs, bottom plating steel renewal, overhauling of main engine fuel pumps and main engine turbocharger, among others.
- The Shipping Corporation of India (SCI) docked a product tanker and a crude oil tanker. SCI's product tanker underwent hull blasting and painting, coating of deck pipelines and structures on main deck, repairs of windlass, mooring winches, chain locker and void space eductors, overhauling of main engine fuel pumps and main engine turbocharger, propeller polishing, and dye checking.

Euronav has docked three VLCCs at N-KOM

Aside from the routine drydockings, N-KOM completed a number of Schneekluth and MEWIS duct retrofits on VLCCs, Suezmaxes, Aframaxes. Known to significantly reduce vibration and fuel consumption of vessels, thereby enhancing their propulsion efficiency and voyage performance, these ducts are especially popular with Greek clients and have been installed by N-KOM within a very competitive time frame, the Qatari repairer said.

Odfjell has sent chemical carriers to the yard for repair

Ballast water

In support of the IMO's Ballast Water Convention, N-KOM continued to offer its services for BWTS installations. Thus far, the yard has carried out two BWTS retrofits – for Samsung and OceanSaver equipment, respectively.

N-KOM also continued to expand its partnerships with a growing list of local and international clients. The shipyard has a number of fleet agreements in place to be the preferred shipyard in the area from shipping companies, such as Samos Steamship and the Angelicoussis Group, taking in all vessels managed by Maran Gas Maritime, Maran Tankers Management and Anangel Maritime Services.

Strategically located at the heart of oil and gas activities in the Arabian Gulf, Ras Laffan-based N-KOM claimed that it combines experience and expertise from its parent companies - Qatar Gas Transport Company (Nakilat) and Singapore's Keppel Offshore & Marine (KOM).

Spanning over 50 hectares, N-KOM's complex boasts an extensive infrastructure and a strong track record of safe, quality and timely project executions.

The shipyard is equipped with three VLCC-size docks (two graving docks and one floating dock), 15 cranes of varying capacities alongside the docks and quays (30t, 50t, 100t capacity), a berthing length alongside the quays of 3,150 m and comprehensive workshops and facilities.

A growing number of maritime service providers are now located at the yard, such as Goltens, Wärtsilä, Wilhelmsen Ships Service, Turbo Technik and Cargotec, plus others.

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To Scrap or not to Scrap

A couple months ago in Gibson Shipbrokers' commentary, higher tanker scrapping last year was reported on the back of deteriorating trading conditions.

This year to date (mid-March), 15 VLCCs were reported sold for demolition. This figure has already exceeded 2017's list. In addition, two former VLCCs, FSOs used for storage, were sold for recycling.

The age of tankers sold for demolition is coming down, relative to those demolished last year. This year's average age is 18.5 years, versus 21.5 years for VLCCs sold last year, Gibson said.

Since the beginning of this year, spot TCE earnings for modern tonnage have averaged just $8,500/day at market speed on the benchmark TD3 trade and returns for ageing tonnage are under even greater pressure, due to a smaller rate discount, more waiting time between voyages and higher bunker consumption, relative to modern fuel-efficient tankers.

Firmer scrap values have also helped stimulate recycling - lightweight prices in the Indian sub-continent have climbed above $450 per ldt in recent months, their highest level in three years.

Indication of Tanker Scrap Prices - India

Source: Gibson Shipbrokers

More candidates

Brokers have indicated that there were more VLCCs being circulated for demolition at the time of writing. In addition, a number of vintage VLCCs, used extensively for floating storage last year, have struggled to find suitable employment thus maybe demolition candidates.

There are also over a dozen VLCCs, which are due for their third or fourth special surveys later this year. For some, it would be more economical to exit trading instead of investing in an expensive $2.5 mill drydocking survey.

However, even if more VLCCs are scrapped, it is unlikely to be sufficient to offset the 46 VLCCs still scheduled for delivery this year, even if slippage is taken into account.

Further down the line, regulations such as the Ballast Water Management Convention (BWMC) and the introduction of the global sulfur cap, are widely expected to offer a further incentive to recycle older tonnage.

Although the date for BWTS installation was extended to September, 2024 if certain conditions are met, only a small part of the ageing fleet will be in position to benefit from it.

Many owners have decoupled their IOPP certificates from the special survey prior to the BWT deadline extension and so for them, the next IOPP renewal and hence the BWT final installation date, is due in 2022.

As a result, tanker demolition could peak in 2022, Gibson concluded.

All is well in the State of Denmark

Today, Denmark claims to be the sixth largest shipping nation with owners domiciled in the country accounting for 60 mill gt of tonnage of all types.

Denmark has overtaking Germany in terms of operated tonnage, which covers owned or chartered-in ships operated by Danish shipowners.

According to Danish Shipping, tankers account for around 600 vessels of 13 mill gt, ranging from small bunker tankers to large crude carriers.

Denmark is in 13th place in the ship registry list with 15 mill gt flying the Danish flag. Some 6,237 people are directly employed by Danish companies ashore in Denmark, while 16,781 seafarers are registered on Danish controlled ships of which 7,640 are Danish nationals.

A new strategy for the years 2018-2021 from the industry association - Danish Shipping - which represent all Danish shipowners, was unveiled towards the end of last year. This included a plan to grow the number of vessels flying the Danish flag by 10%, both numerically and by gt.

Under the plan, the number of Danes employed at sea should be maintained and the number of jobs ashore should rise to 7,000.

The Danish Shipping strategy was followed by a new maritime growth plan from the Danish Government - '3rd Maritime Growth Plan 2018'.

Under this plan, which was launched by the Danish Minister for Industry, Business and Financial Affairs, Brian Mikkelsen, at the beginning in January, the Danish ship registration fee and mortgage fee will be abolished to make the flag more attractive. For specialist vessels, the net salary scheme will be expanded. The registry will also be digitalised.

In addition, seafarers education is to be improved to increase the number of seafarers with a decent education. Also, certain technical requirements for Danish flag ships will be abolished.

There will be continuous benchmarking of Denmark, as a shipping nation with competitors and the marketing of Denmark to become a major global maritime hub by 2025.

As for autonomous ships, new test platforms will be developed.

Danish Shipping's strategy for 2018-2021 was launched by Danish Shipping chairman, AP Moller-Maersk's Claus Hemmingsen, at a members' meeting held last December.

He said that the shipping industry must increase its visibility as an engaged political stakeholder. To achieve this Danish Shipping should continue to develop as an influential and significant voice for the Danish shipping community - both internationally and in Denmark to ensure continued growth.

"It is our ambition that Denmark stays a leading shipping nation globally by being ahead of the curve. Danish shipping companies must continue to create value for customers, partners and locally, while also acting as responsible industry leaders.

This requires framework conditions that are best in class and an approach where we as an organisation actively influence the development of the shipping industry, thus paving the way for global shipping to grow with a minimal footprint on our surroundings," Hemmingsen said when introducing the plan.

The strategy as outlined in December, identified five objectives for Danish Shipping for the coming four years.

In addition to a further development of already competitive framework conditions, the IMO will be supported. Other objectives announced were the greater focus on competencies and new technology and maritime innovation, which has the potential to change the shipping industry.

"Education, digitisation and maritime innovation and research will take up even more of our agenda in the coming years. We must further develop our maritime competencies in Denmark, so we have a solid supply of qualified employees.

"This applies both at sea, but also onshore, where digital competencies and an understanding of the latest technological trends will be crucial to maintaining the shipping companies' competitiveness," Hemmingsen said.

As a consequence, Danish Shipping's organisation was revamped in November. With a new organisation and a larger management team, more organisational resources are being devoted to delivering on the objectives that are prioritised in the new strategy.

Global frontrunner

Basically, the Government's plan is to make Denmark a global frontrunner in testing of maritime autonomous technologies and maritime digitalisation, creating more work-experience places at sea and increasing the number of applicants admitted to the training programmes for Masters and ship officers, as well as ensuring the development of an overall maritime marketing strategy in close co-operation with the industry.

"With the 'Plan for Growth' in the Danish maritime sector, the Government has set the course for Denmark to become a global maritime power hub by 2025. Now, all forces in the Danish maritime sector must join forces, roll up their sleeves and get to work to make the vision behind the plan for growth into reality," said Minister Mikkelsen, speaking recently.

Some 36 initiatives were presented in the plan, which focus on individual challenges, as well as on more general framework conditions.

"When we strengthen the maritime sector, we strengthen the entire country. We have made several steps towards becoming an even stronger nation in the maritime sectors by reducing taxes and fees. As Minister of Taxation I am very satisfied with the new plan for growth as we continue this course," said Karsten Lauritzen, Danish Minister of Taxation.

The plan's scope covers a wide spectrum of the maritime sector, and the initiatives will be implemented on an ongoing basis towards 2025 in co-operation with the

AP Moller-Maersk's Claus Hemmingsen

industry and research and educational institutions.

Background

In May, 2016, the Danish Government established a 'Maritime Strategy Team', which was tasked with developing recommendations for supporting the international competitiveness of the Danish maritime industry towards 2025. This team presented its recommendations to the Minister for Industry, Business and Growth in April, last year.

Since then, the Government has continued working with the team's recommendations and this has resulted in the final 'Plan for Growth' in the Danish maritime sector.

On 4th October, 2017 the Government proposed a bill to amend the Danish regulations on the registration of ships under Section 2 of the Merchant Shipping Act in order to attract non-EU and non-EEA commercial shipowners and shipping and management companies to the Danish flag.

The bill passed Parliament on 30th November, 2017 and came into force on 1st January 2018.

This initiative was prompted by concerns within Denmark that the previous regulatory structure had caused uncertainties. As well as offering an appealing economic framework, the legislature recognised accessibility and transparency when registering under the Danish flag as key factors.

Before this Bill was passed, non-Danish shipowners could not register vessels with the Danish Ship Register, as under Section 1 of the Merchant Shipping Act, shipowners must be Danish for the ship to be considered a Danish ship and fly the Danish flag (ie, the owner must be a Danish citizen, a Danish state entity or municipality or a Danish legal person incorporated under Danish law or registered as a Danish company in Denmark).

In the explanatory note to the Merchant Shipping Act amendments, the Danish Government recognised that in order to maintain its competitive edge, it had to set out clear and transparent criteria for foreign shipowners entering a ship into the DIS.

Following the amendments' entry into force this year, shipowners from third countries are no longer required to satisfy the establishment criterion by primary or secondary establishment. Instead, it is sufficient for a shipowner from another country to appoint a natural or legal person in Denmark to whom the authorities can confer with in order to exercise control and, if necessary, serve a writ of summons (ie, shipowners outside the European Union or European Economic Area are subject to the same establishment requirements as EU and EEA shipowners).

It was further emphasised that the Danish flag should not evolve into an open registry.

Vessel routing

In another move, the Danish Maritime Authority (DMA) has received approval for a new ships routing proposal.

Granted by the IMO Navigation, Communications and Search and Rescue (NCSR) sub-committee, the approval paves the way for new traffic lanes in the Skagerrak and the Kattegat to enhance safety of navigation.

The DMA has co-operated with the Swedish Transport Agency and the agencies responsible for nautical charts in both countries to develop the proposals for new Skagerrak and the Kattegat shipping routes.

This initiative consists of two recommended routes between Hanstholm and the Skaw (Route A and Route B), a traffic separation system at the Skaw, deepwater routes between Læsø and Anholt and east of Grenå, a new precautionary area northeast of Læsø, a new Route S along the Swedish coast, as well as three new traffic separation systems.

The measures are to be approved by the IMO Maritime Safety Committee (MSC) in May with a view to being implemented in July, 2020.

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Fourth Danish maritime expo

From 2nd May, up to 5,000 visitors are expected to descend upon the fourth international maritime exhibition - the Danish Maritime Fair - in Copenhagen.

The 2018 Fair has been expanded, compared to the last exhibition two years ago. The area sold is claimed to be 20% higher than in 2016.

Alongside the three-day exhibition, an extensive maritime conference and meeting programme will take place.

The October, 2016, the Danish Maritime Fair was attended by more than 4,600 visitors. Every 10th person was either company owner or top manager, 120 shipping companies sent one or more employees, every fourth visitor came from abroad, and 71 countries were represented at the exhibition, the organisers claimed.

Two major international maritime conferences, and a number of smaller workshops and events, will take place alongside the Fair this year.

The first -Danish Maritime Technology Conference - will focus on digitalisation, new technologies and competences leading to increasing smarter, greener and more intelligent maritime systems. It is hosted by Danske Maritime together with several of its members, including ABB, MAN Diesel & Turbo, Wärtsilä, Alfa Laval, C-Leanship, Pureteq and Danfoss.

Second is the Opening Oceans Conference, which will focus on commercial and sustainable business opportunities in the maritime industry, and how these can be extracted through new co-operation projects and competency exchanges across industries and operators.

This event is being organised by Nor-Shipping.

At present, two workshops are planned - Maritime Logistics and Cyber Security at DTU, plus Driving Human Performance seen from an organisational perspective.

Danish tanker companies look for growth

Starting with Hafnia Management, since it was founded in 2010, the commercial pool manager has built up its CPP fleet in the three pools - Handysize, MR and Straits Pool - to 128 vessels, including two newbuildings.

The three pools are -Handysize, MR and LRs - with the latter entered into the Straits Pool run jointly with Mitsui OSK (MOL) from Singapore.

This puts the Copenhagen-based company in second place in the table of CPP tankers operated behind Scorpio (172 vessels) and ahead of fellow Danish operators, Maersk Tankers (120 vessels), NORIENT (93 vessels) and TORM with 86 vessels, although these figures can change week-on-week, mainly due to chartered tonnage.

The Handy and MR pools have 77 (35 Handies and 42 MRs) vessels, while Straits boasted 51 LR1s and two LR2s giving a 2017 turnover of $399 mill and $375 mill, respectively.

Through shipholding companies, affiliate Hafnia Tankers owns 37 product tankers, plus five long term chartered in, which are all operating in the three pools. Recently, Hafnia Tankers sold a couple of tankers to Japanese interests on a bareboat lease back basis.

In a presentation in Copenhagen earlier this month, Hafnia Management CEO, Anders Engholm confirmed that the company was looking to grow still further and was seeking more pool partners to increase the scale of the operation. This will enable the pools to maintain what he claimed was the lowest cost structure in the industry.

Engholm was positive for the CPP market going forward saying that there was an attractive supply and demand balance for 2018-2020. The demand growth is seen coming from new refineries in Asia and the Middle East and the closure of some in Asia, Australia and Europe, which could lead to longer haul voyages, ie an increase in tonne/miles.

The swing factors that need to be taken into account include arbitrage and cross trade transportation, the possibility of new orders linked to shipyard capacity, scrapping of vessels before they reach the age of 25 (possibly due to the cost of ballast water systems installations) and tankers switching from dirty to clean trading.

Other factors that could affect demand were high inventories and the use of floating storage, delays or cancellations to refinery projects, slow steaming versus increased speed.

The supply side is positive due to s declining world orderbook for CPP tonnage, helped by cancellations or postponements of current orders and increased scrapping.

Technical management

As for the owning side of the business, Hafnia Tankers, executive vice president Ralph Juhl, explained that the company's strategy is to have all of the vessels managed by third party shipmanagement concerns. Of the current fleet, the shipmanagement companies used are MMS (one vessel), Wallem (six vessels), Thome (14 vessels) and Donnelly with 16 tankers.

Each shipholding company has signed the contract with the shipmanagement company for each vessel as a 'service level agreement (SLA).

Juhl said that the company ensures the vessels are managed under a high quality standard to maintain their asset values. Through a structured and complete reporting system, full control is maintained over technical operations and the associated costs. In addition, the company tries to ensure that the seafarers are dedicated to working on board Hafnia ships.

All newbuildings are designed and built to meet the known and future requirements, including environmental impacts, to best serve commercial CPP trades, while Hafnia's technical team is an integral part of the daily commercial operations of the fleet. The company's technical staff, including the newbuilding team, amounts to around 60 people with another 1,100 at sea, employed by the shipmanagement companies.

Hafnia Tankers is also addressing the ballast water treatment system (BWTS) needs for the fleet. The company has decided to opt for equipment approved by the US Coast Guard, as its ships trade in US waters.

The cost is about $1.1 mill per vessel, excluding 10-15 days offhire time when a vessel enters drydock. At present, Hafnia's retrofit schedule calls for three vessels to be fitted this year, four in 2019, six in 2020, four in 2021 and six in 2022. A contract has already been signed with Alfa Laval for the equipment and FAYARD to carry out the retrofits.

Hafnia Tankers' Mikael Skov

As for the 2020 sulfur fuel cap, Juhl said that there remained a lot of unanswered questions, such as bunker fuel types, availability, ISO standards and price. There are also questions around seafarer awareness, fuel storage, grade separation, handling, usages, bunkering procedures and fuel analysis.

This regulation will also involve shore staff technical, bunker, operations and chartering departments, plus the contractual relations, ie what is agreed in the charterparties.

The NOx emissions problem (Tier I, II and III) is an equipment supplier/manufacturer problem, but vessel operators will have to comply with MRV reporting and the operations of an selective catalytic reduction (SCR) or exhaust gas re-circulation (EGR) equipment must be handled properly, he stressed.

As for the future, this could hold more autonomous systems and legislation, Juhl concluded.

Shipmanagement concern formed

Another new tanker venture was formed last year.

This was Dania Ship Management, which emerged on 11th May, 2017 by de-merging Nordic Tankers' technical department and

forming a partnership with V.Ships.

Today, the company technically operates 56 ships owned by Herning, Crystal Nordic, Nordic Tankers, Clipper Group, Thorco and Dannebrog.

The company has been issued with three Documents of Compliance (DOCs) for different types of vessels operating in different trades.

According to CEO, Carsten Brix Ostenfeldt, the objective is to attract clients in specialised industry sectors to create a sustainable fleet of over 75 vessels.

Last December, the company added drycargo to is portfolio by signing a partnership agreement with Clipper Fleet Management, part of the Clipper Group.

This partnership saw the transfer of 28 shore-based employees and around 1,000 seafarers to Dania Ship Management.

Brix Ostenfeldt said at the time: "Our aim when we created Dania Ship Management as a partnership agreement between Nordic Tankers and V.Group was to develop a strong Danish shipmanagement solution. Extending our capabilities to include drycargo management is an important next step and we are delighted to welcome the partnership with Clipper Fleet Management. The two companies will operate under separate Documents of Compliance to ensure we continue to meet the specialist requirements of both tanker and drycargo clients."

Dania's Carsten Brix Ostenfeldt

The company has changed the more traditional working methods ashore to respond to future requirements and the need for rapid decision making. For example, the more traditional office layout has been changed to a more performance design space from a constrained collaboration environment to a more open information and problem solving environment.

For example, the space has been re-designed from a single user focused information display to an open collaborative information display platform.

Brix Ostenfeldt said that Dania Ship Management can optimise the full value chain by being on the ground locally. The future requires scale in certain areas to create robust responses to the global challenges.

He said that Scandinavia has a well educated workforce, which has shipping in the blood and in particular, Copenhagen has opportunities as the city houses one of the world's largest bulker and tanker operation centres, much of which can be found in the recently re-generated Hellerup area.

NORDEN in profit

Drybulk and tanker owner NORDEN has reported its first positive annual result for five years with a profit of $24.6 mill, compared to a loss of $45.6 mill recorded in 2016.

Revenue for the period increased to $1.8 bill from $1.25 bill reported in 2016.

Norden's drycargo and tankers businesses each reported an adjusted result of $14 mill, against a negative $52 mill and $17 mill announced for 2016, respectively.

As for the tanker business, last year NORDEN agreed 17 short term timecharter agreements of 12 months or less. As for long term capacity additions, the company said that it had taken the opportunity to capitalise on the market downturn by ramping up the number of vessels operated, all of which are commercially managed by the Norient Product Pool (NPP).

In the future, the company said it will pursue further selected capacity additions by further expanding the short term charter policy and cover activity.

During 2017, the company purchased two MRs, agreed 14 long term MR charters of which eight were newbuildings. The charter durations were around five years per vessel, which will start from this year through 2021. In addition, a further three Handysize tankers were chartered in.

Of these, three long term and six short term MRs were agreed during the fourth quarter of last year. The company claimed that by increasing its operated fleet, it was well positioned to take advantage of the expected product tanker market improvements during the coming years.

At the end of last year, NORDEN controlled 51 product tankers, including two LR1s, 34 MRs and 15 Handies. A further 13 MRs are still to be delivered. As for NPP, a joint venture with Interorient, the pool managed 92 tankers at the end of December, 2017.

As for the future, NORDEN said it expected rates to increase gradually this year, despite a poor start. For the 2020 IMO low sulfur fuel oil cap, the general consensus is that most owners and operators will switch to MGO or ultra low sulfur fuel.

NORDEN's Jan Rindbio

This will increase MGO and ULSFO consumption considerably, which will be positive for the product tanker market, as there will be a greater need for distribution.

NORDEN has set up an internal working group to establish the best way forward to 0.5% sulfur requirements in fuel. The company said that by being a global operator, the solution must be flexible and adaptable to the fuel supply situation worldwide.

As a result, NORDEN decided to fit selected newbuildings with scrubbers, while preparing others for retrofits. However, the fleet's composition, focused on chartered tonnage, limits this possibility and as a result, a switch to low sulfur fuel will form much of the company's compliance measures.

NORDEN has also ordered a US Coast Guard and IMO approved ballast water treatment system (BWTS) to be retrofitted on its fleet. The first company owned vessel is due to be retrofitted during the first half of this year, while the final vessel is expected to be fitted by 2023.

At the end of last year, the company reached its three year target of reducing both voyage and operating costs on the owned vessels by $20 mill annually, across both drycargo and tankers. Compared to 2016, the company claimed to have managed to reduce the costs of the internally managed fleet, which accounts for 75% of opex, by 2%.

As a result, this reduction was reflected in a lower daily vessel opex, increasing the fleet's competitiveness. In the tanker fleet, the daily average MR opex was $6,273 and for Handies-$6,168 per day.

The company stressed that this cost cutting focus will continue with the focus switching to overheads and administration costs, through process optimisation and digitalisation.

Optimising vessel fuel efficiency is also being addressed. In 2017, NORDEN spent $401 mill on fuel alone. The company said it focuses on improving fuel efficiency by monitoring daily fuel consumption, ensuring timely hull and propeller cleaning and for its owned tonnage, selecting antifouling paint tailored for the

vessel's trading pattern and intensity.

To optimise voyages, the company's fuel efficiency team has developed systems to make it easy for the operations department to monitor a vessel's performance, including speed and adjust instructions to the vessel taking into consideration current market, weather conditions, cargo, et.

A vessel's past performance is available to the chartering teams and will form part of an assessment as to whether it is desirable to charter the vessel again.

In 2018, the company said it aimed for savings in two specific areas - 1) Better tools for vessel selection for short term charters; 2) Reduction in auxiliary engine use at sea and in port.

Team Tankers acquisitions

Recently, Team Tankers International announced that it has entered into share purchase agreements to acquire all outstanding shares in Laurin Shipping and Anglo-Atlantic Steamship Co.

In combination with associated ship purchases, the total estimated value of the transactions is about $206 mill. Upon completion of the acquisitions, Team Tankers will grow its tanker fleet from 37 to 52 vessels.

By acquiring Laurin Shipping, trading under the Laurin Maritime brand, Team Tankers will add an MR operator with commercial and technical expertise to the company's chemical tanker portfolio.

The purchase of Anglo-Atlantic secures a critical mass of MRs and a broad portfolio of contracts of affreightments (coas) which, combined with Team Tanker's deepsea chemical transportation expertise, will create a leading player in the long-haul shipments of chemical and clean petroleum product cargoes, the company claimed.

Team Tankers' CEO, Hans Feringa, commented: "We have communicated to the market the need for consolidation in the chemical tanker industry. As a first step towards further consolidation, we are pleased to announce this combination with Laurin Shipping and Anglo-Atlantic.

"Team Tankers will benefit greatly from Laurin Shipping's deep relationships, years of experience and Anglo-Atlantic's contracted cargo coverage. We believe that the current level of asset prices in the shipping cycle provides a favourable point of entry for this investment," he said.

The series of transactions consists of:

- Purchase of the MR 'Tosca' (completed 2nd February, 2018).
- Purchase of Laurin Shipping - MR commercial and technical operator.
- Purchase of Anglo-Atlantic - shipowning company with six owned, three bareboat chartered and six time-chartered MRs.
- Expected purchase in May, 2018 of three bareboat MRs chartered by Anglo-Atlantic with purchase options attached to the charters.

In addition to increasing Team Tankers' owned fleet by 10 MRs, the purchases should deliver significant operational synergies, including overhead savings that will reduce the company's administrative costs on a per ship day basis.

Further, Team Tankers will gain access to Laurin Shipping's in-house technical management expertise, which should lead to enhanced operational control of the fleet. On the commercial operating front, Laurin Shipping's large Atlantic basin cargo network fits well with the Team Tankers' historical strength in transpacific chemical transportation, the company said.

Financing will come from Team Tankers' cash on hand and a new $220 mill senior secured credit facility that will refinance the existing debt of both Team Tankers and Anglo-Atlantic. This facility will consist of a $200 mill term loan and a $20 mill revolver and will contain terms similar to Team Tankers' existing loan agreements. ABN AMRO was appointed sole bookrunner and agent for this facility.

The transactions, expected to close by 6th April, are still subject to the completion of the financing and the election of Mikael Laurin to the Team Tankers board.

TORM turns corner

Rival CPP tanker operator, TORM also showed a small profit, compared with a large loss reported in 2016.

Last year, TORM took advantage of what it deemed attractive prices to secure more tonnage. These included six MR resales and two LR1s. Two of the MRs were delivered last year, while the remaining MRs and LR1s will be delivered in 2019 through first quarter 2020.

Since January, 2017, TORM has taken delivery of two LR2s and two MR newbuildings and sold five older units.

TORM said that its S&P activities are conducted in-house by making use of relationships with brokers, shipyards, financial institutions and other shipowners. In addition, the technical management is claimed to have significant experience in newbuilding projects from design to delivery.

A $100 mill injection of equity capital announced in January will give TORM the financial strength to continue to pursue attractive investment opportunities this year, the company said.

In December last year, TORM claimed to have reached an important milestone by completing the dual listing on NASDAQ to add to its Copenhagen listing, which helped the company raise its equity capital.

TORM's Jacob Meldgaard

Operating in a difficult market, TORM generated what it claimed was a strong cash flow from operations of $110 mill last year, compared to $171 mill in 2016.

As of 6th March, TORM had 73 owned vessels, five tankers chartered in and eight newbuildings and is active in all product tanker classes from Handysize to LR2. This helps to meet customer demands as many clients have transportation requirements that cut across the different size ranges, the company explained,

The chartering strategy is to primarily operate the tonnage in the spot market where earnings can be optimised from voyage to voyage. TORM explained that it would only enter into long term timecharter contracts if they are deemed profitable on a case-by-case assessment. Short term charter-in agreements of less than 12 months are evaluated as an active part of the spot orientated market approach.

The company operates what it calls a 'ONE TORM platform', which includes its in-house commercial and technical teams. The company said that it believed that its largest clients prefer this integrated operating approach, as it provides better accountability and insight into safety and vessel performance. It also allows for closer control over opex.

The platform's focus on safety performance was enhanced by the introduction of a new safety culture programme in 2016, called 'One TORM Safety Culture - driving resilience'. This programme was further rolled out last year and was integrated into the company's leadership philosophy joining the other three values - performance, relations and personal leadership.

As part of the company's KPIs, fuel efficiency was improved by 5.2% last year as against 3.6% in 2016, compared with the baseline in 2015. TO

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Time bar, demurrage and other matters

We continue our series of disputes highlighted in arbitration cases, courtesy of C Demurrage (see *Tanker Operator*, January/February, page 16).

The first involved London Arbitration 3/18 [(2018) 995 LMLN 1], which is a compact and varied package containing the notorious issue of a time bar, the familiar topics of repudiation, NOR validity and damages when a fixture is not performed, and a rare attempt to argue contract affirmation.

It is unusual to find so much in one place.

A November 2012 voyage charterparty for a part cargo of about 2,000 tonnes of oil from Thailand to China included the Asbatankvoy laytime and demurrage terms and a wide choice of disport ranges with different freight rates.

There was also by specific Clause 7 a barring and waiving provision that protected charterers "unless [they received] Owner's claim ... in writing, together with all supporting documents … within 90 days after completion of discharge at last discharging port."

The vessel arrived at the nominated load port and tendered NOR, which would ordinarily have started laytime (Asbatankvoy clause 6 - NOR + 6) at 00:25 hrs on 5th December. But no cargo appeared and on 19th December, charterers sought to cancel. On 20th December, owners accepted what charterers had done as ending the fixture and reserved all their rights. In mitigation they secured a substitute lifting of 2,094.7 tonnes at $65 per tonne, giving a freight of $136,155.50.

In response to owners' claim for demurrage and damages, charterers raised a whole array of arguments. We summarised them, with the Tribunal's decision and brief reasoning, as follows:

Time bar - No claims were presented within the stipulated 90 days, so all were time-barred and waived.

This was rejected. Clause 7 pre-supposed that the fixture had been performed and there was in fact a (last) disport. There was no reason to imply a term that a notional discharge location and completion date should be used, or to apply this clause to the substitute lifting.

The Tribunal also contrasted the Hague/Hague-Visby time limitation for cargo claims, running from when the cargo was delivered or should have been, observing that if charterers had wanted to cover a situation where there was no lifting they should have.

NOR was invalid because -

1) The vessel 'could well have been' cleaning her tanks at the time - this speculation was rejected as vessel records showed cleaning as complete before tender.

2) Such was not recorded in the vessel's log - rejected, as it was not the invariable practice to log NOR tender (on the available information it is anyway unclear what relevance this could have had).

3) The vessel could not carry the minimum cargo of 2,850 tonnes - rejected because (a) the stow plan showed enough capacity and (b) insufficiency would have given charterers an action for damages but it had no effect on NOR validity.

Pausing here, we are not sure that 3(b) would always be right. For example, it is hard to see that a fully laden vessel could validly give notice that it is ready to carry more.

Affirmation - The polar opposite of acceptance of repudiation (ie, treating the other side's conduct as ending the contract and telling them so), affirmation is where someone might have done that but instead in effect says 'look, regardless of what has gone before, I want this contract to continue.'

Sometimes defaulters argue that this happened. They try to say that the other party had agreed that the contract had not ended, but instead still existed, sometimes even going on to say that that same party was itself later in breach.

When responding to a charterer who is plainly not going to perform, owners should be careful and clear in their language, and offer no opportunity for this kind of legal judo. Here the Tribunal rejected everything relied on by charterers as owners' supposed affirmation of the charterparty.

Owners' claim for 12.6 days of demurrage at $11,500 per day pro rata therefore succeeded and they recovered $145,209.35.

Damages claim - Owners compared their substitute lifting to what they said would have happened if the first fixture had been performed, claiming a loss of [A] $164,106.96 minus [B] $136,155.50, equalling $27,951.46.

However, where a defaulting party can perform a contract in several ways, the rule is to assume that the most advantageous one would be chosen, ie, that which produces the lowest damages payment.

Here charterers had not finally exercised their option on disport ranges. Assuming the one that would have yielded the lowest freight produced a figure less than B above, ie, less than what owners achieved in mitigation. On this analysis, they had suffered no loss so recovered nothing.

Discussion - As already noted, affirmation is not generally argued, and the above are probably not routine challenges to NOR validity. The damages rule outlined plainly favours a defaulting party, but might meet successful challenge if perhaps a claimant could prove that later events showed that some other route would have been taken.

However, the core point is on the time bar.

Provisions like Clause 7 are very common. Owners should consider them carefully, mark countdown dates and swiftly obtain all required information and signatures and other validation. They should also see what might apply if the fixture is not performed, always seeking advice if uncertain, C Demurrage said.

In another case analysed by C Demurrage, voyage charterparties routinely bar owners' claims unless they have been presented, together with specified documents, within a set time (often 90 or 120 days) after completion of final discharge.

These requirements are to quicken post-fixture accounting and so that any contested matters can be investigated while memories are fresh. They sometimes give rise to disputes over what documents were needed or produced, and occasionally as to whether the exact nature of a claim means that it is caught by the wording of the clause.

In a rare appeal from an arbitration award, Lukoil Asia Pacific Pte Limited v Ocean Tankers (Pte) Limited [2018] EWHC 163 (Comm) (the 'Ocean Neptune') is one example.

Under a 2013 fixture on a standard ExxonMobil VOY2005 form, incorporating widely-used LITASCO Exxonvoy 2005 terms, all as amended by the recap, charterers could load in Taiwan and discharge at between one and three Australian ports.

They could renominate before tender of NOR, paying for any additional bunkers and for all extra time "at the Deviation Rate", and subject to some familiar exceptions demurrage was payable, under standard clause 13 (d): " … for all time by which ... laytime ... is exceeded by the time taken for the loading and discharging and for all other charterer's purposes and which, under this charter, counts as laytime or as time on demurrage."

If under LITASCO Clause 4, the vessel was required to wait for orders, the time was: "to be for charterers' account and [to] count as laytime or demurrage, if [the] vessel [was] on demurrage."

Under LITASCO Clause 2, the commonplace barring provision released charterers from any claim (such as, but not limited to, deadfreight, demurrage and shifting or port expenses) unless it had been: "presented in writing … with supporting documentation within ninety (90) days for demurrage and 120 days for other claims from completion of discharge … ."

Following several periods of delay, owners submitted a large claim for demurrage.

Mostly Barred

The Tribunal ruled that this was mostly barred because, though presented in time, it lacked some of the required documents.

But this did not apply to the part that owners had re-designated as a claim for time spent waiting for orders. This was neither a claim for demurrage nor subject to the related documentary requirements of Clause 2 - awaiting orders was a passive thing, which would not ordinarily involve creating documents - so that part of the claim was in time.

Arguments - On appeal, charterers urged that a claim for time waiting for orders under LITASCO Clause 4 was one for demurrage, so Clause 2 straightforwardly applied and it was barred.

Owners sought to contrast claims for (a) demurrage, due to operational delays at loadports and disports and (b) time spent waiting for orders. Demurrage is pre-set damages for breach of charterparty by exceeding allowed laytime. LITASCO Clause 4, however gave charterers an allowance and did not involve any breach. Also, saying that a claim was to "count as" demurrage did not make it a demurrage claim.

Decision -The Judge rejected owners' attempted distinction and agreed with charterers.

A provision that time was "to count" as laytime or demurrage and thus within a demurrage claim was a common drafting technique, and moreover, the plain wording here did not just say that a claim for time awaiting orders was to be computed in the same way as a demurrage claim - it said that it was a demurrage claim.

Under LITASCO Clause 4, such time counted "as laytime or demurrage", precisely reflecting the key clause 13 (d) wording, under which demurrage was payable "for all time by which [laytime was exceeded] … and which …. [counted] as laytime or as time on demurrage." The claim had been contractually described as a demurrage claim as defined.

Clear language

Time spent under Clause 4 would use up laytime, or count as demurrage if in aggregate that state had been reached. It was thus part and parcel of a clause 13(d) demurrage claim. Furthermore, looking at the fixture as a whole, where the parties wanted to distinguish between demurrage claims and those for other types of delay they did so in clear language.

Discussion - As well as clarity on the nature of a claim under a familiar structure, this decision is a reminder that:

1) It is vital to comply with barring clauses, and ingenious retrospective argument will not readily deflect the courts from giving effect to plain words;

2) While, as the Judge observed, owners who have met their documentary requirements can usually validly change the legal description of their claim, non-compliance will bar them and attempted re-labelling will not avoid that. TO

Crude and water – a case study

The following article outlining a case of water found in an oil cargo was supplied by P&I Club Skuld's loss prevention department.

A substantial quantity of water was found in crude oil having been loaded at Angolan terminals. As the cargo documents did not reflect the water content found in the Far East discharge ports, the receivers made large cargo shortage claims against the owners.

What had happened? The vessel had loaded two different cargoes of crude.

The first parcel, consisting of Mondo Blend Crude Oil, was loaded mid-October, 2017. Apart from traces, no free water was detected upon loading following gauging with water finder paste.

The second parcel of Cabinda Crude Oil, was loaded nine days later. The on board quantity (OBQ) was minimal at 45 barrels with zero free water having been found. However, upon completion of loading 1,038 barrels of free water were detected through tank gauging with water finder paste.

This amount would have been within the range stated in the Certificate of Quality. However, the vessel's Master issued a Letter of Protest, whereby he warned that more water may be found during the voyage. In any event, following from ship total calculated volume and shore gross standard volume, this water was loaded with the cargo.

Thereafter, the vessel sailed to her first Chinese port to discharge the Cabinda Crude. During the voyage regular water dips were taken by the crew, showing the amount of free water having settled in the cargo tanks carrying the Cabinda Crude to have increased drastically to 6,703 barrels.

Subsequently, the vessel arrived at her first discharge port at the end of November, 2017. Prior to discharging, during the joint ullage survey, gauging with water paste revealed only 1,166 barrels of free water.

Free water increase

Nonetheless, after completion of discharge, a measurement survey was carried out in the respective shore tanks, which revealed an amount of 29,948 barrels of free water.

The vessel then proceeded to her second Chinese discharge port where she arrived at the beginning of December, 2017 to discharge the Mondo Blend parcel. Once again, before discharging, a joint ullage survey was carried out whereby gauging was performed with water finder paste, showing no reaction.

Too much water with an oil cargo leads to claims

Against the back-drop of the massive amounts of water found in the first discharge port, the parties decided to use a closed type portable water interface detector (a UTI) to verify the gauging result. This instrument detected 10,346 barrels of free water, which had settled underneath the Mondo Blend.

Consequentially, the receivers made substantial claims for net outturn cargo shortages in both discharge ports against the vessel.

Lessons learned

Naturally, all crude cargoes contain certain amounts of water, but the quantity is difficult to ascertain, due to settling times upon completion of loading. Accordingly, in this case, the free water increase was certainly caused by the fact that the cargo could retain free water in suspension for a longer period making it impossible to be detected shortly after loading.

Skuld was advised that the gauging methods being applied, particularly the use of water finder paste, in this case lead to different physical findings, as opposed to the use of an UTI.

What can be done to avoid resulting claims? Skuld advised that if ballast is to be discharged at the load port simultaneously to loading, it is recommended to ensure that representative samples of each type of ballast to be discharged are taken and sealed by cargo inspectors[1].

In case free water is found upon loading, lodging a Letter of Protest is of course essential in any event, regardless of the content provided by the Certificate of Quality.

However, once confronted with a claim for net outturn cargo shortage, due to excessive free water, it is crucial to be able to produce evidence showing the origin of the free water to be shore based.

Therefore, it is important to have samples retained of all free water having been found at different stages. In addition, top, middle and bottom, or running samples, should also be drawn from each tank enabling to ascertain what water was retained in suspension[1].

1) The Nautical Institute- MARS

Ship recycling – a European road map

In 2011, through the European Commission, the European Union concluded that the regulation of ship recycling activities through the European Regulation on Shipments of Waste (EC) No 1013/2006 was not effective.*

Europe, therefore decided to develop a new regulation specific to ship recycling, which, as explained below, was adopted at the end of 2013 and which will be fully effective by the end of this year.

In view of the above, the recent announcement that the Dutch Public Prosecution Service was bringing criminal charges against the Dutch shipping company Seatrade for violations in 2012 of the Regulation on Shipment of Wastes was unexpected.

The announcement on 15th March, 2018 that the Rotterdam District Court found Seatrade guilty, will be of great concern to shipowners of any flag that visit European ports with ships near the end of their life. As the regulation is currently going through a transition period in the EU, the following notes should act as a road map on the applicable requirements now, and after the end of 2018.

The provisions of the 2013 regulation did not take effect immediately, but instead it specified a schedule of application, whereby the first version of the European List of approved yards would be published by the EC no later than December 31, 2016.

Thereafter, EU flagged ships will need to: have an Inventory of hazardous materials; be surveyed; be certificated; and be recycled in accordance with the new regulation, from the earlier of the following two dates (termed as 'the date of application'): (a) six months after the European List of approved yards reaches A combined capacity of 2.5 mill ldt; or (b) the end of December, 2018.

From the date of application, European flagged ships will be excluded from the scope of the 'European Regulation on Shipments of Waste (EC) No 1013/2006', whereas non-European flagged ships departing from EU ports and destined for recycling will continue to be subject to this regulation, which forbids their export to developing countries - defined as non-OECD countries.

In addition, all ships visiting EU ports, regardless of their flag, will be required from December, 2020, to be provided with inventories of hazardous materials (IHMs).

EC's yard list

The EC satisfied its obligation to publish a list of approved yards by the end of 2016, although the first list included only yards located in EU countries (18 yards in 10 EU countries, with maximum annual recycling capacity of 303,065 ldt). However, these yards are unlikely destinations for deepsea commercial ships.

At that time, the EC had delayed issuing the formal invitation for non-EU yards to apply for inclusion in the list. Applications were received around the middle of 2016 from two yards in the US, four in China, seven in Turkey and nine in India, of a combined maximum annual capacity of around 2.5 mill ldt.

Due to further delays in the approval process, by the beginning of this year, none of the non-EU applicant yards had been inspected or approved by the EC. In view of this, it is a fair guess that the regulations' date of application will be the end of December, 2018, and not before, as it is improbable that the EC will approve yards of such capacity by the middle of 2018.

Requirements before the date of application:

(1) A ship of any flag departing on a voyage to a recycling yard from a port of a EU member is subject to the European Waste Shipments Regulation, which forbids its export to non-OECD countries. As Turkey is the only OECD country amongst the major recycling countries, this means that, practically, a ship departing for recycling from a European Union port will have to be recycled in Turkey.

Furthermore, the Waste Shipments Regulation prescribes the 'prior informed consent' procedure that must be followed.

(2) A ship of any flag departing on a voyage to a recycling yard from a non-EU port, or where the decision to send the ship for recycling is taken when the ship is in international waters, is not subject to the European Waste Shipments Regulation.

Requirements after the date of application:

(1) A ship flying an EU flag will be subject to the European Ship Recycling Regulation, which requires that it will be recycled only in a yard that appears in the EC's European list of approved yards. The port of departure of the last voyage of a EU-flag ship, or its location at the time the decision was made to recycle it, will have no relevance.

2) A non-EU flag ship departing on a voyage to a recycling yard from an EU member port will continue to be subject to the European Waste Shipments Regulation, which forbids its export to non-OECD countries

3) A non-EU flag ship departing on a voyage to a recycling yard from a non-EU port, or where the decision to send the ship for recycling is taken when the ship is in international waters, will not be subject to European legislation.

**This article was written by GMS' Dr Nikos Mikelis.*

Videotel tanker distance learning courses

Videotel has been providing distance learning courses to the maritime industry since 2001 enabling shipping companies and seafarers across the globe to complete self-study programmes in their own space and at their own pace on board ship and ashore.

This is undertaken to save the time, trouble and expense of travelling to shore-based teaching establishments to undergo equivalent training. Another great advantage of studying at sea is a seafarer's ability to immediately apply new knowledge on-the-job, minimising the knowledge and skill fade typically experienced between land and sea.

Videotel tanker courses have proved so popular that a number of maritime colleges and training centres use the distant learning programmes to support their own educational resources, the KVH company claimed.

Videotel computer based training (CBT) and assessment parallels the standards found in any reputable maritime college or university onshore. The courses and company are regularly audited by flag states to ensure the programmes are quality assured and properly managed.

Guided learning hours	
Courses	
Advanced Level	
Oil Tanker Training Course	40
Advanced Chemical Tanker Training Course	40
Advanced Liquefied Gas Tanker Training Course	40
Basic Level	
Oil & Chemical Tanker Training Course	20
Liquefied Gas Tanker Training Course	20

All Videotel tanker courses are designed to meet the standards laid down by the Maritime & Coastguard Agency (MCA), the UK authority that approves maritime training in accordance with the STCW 2010 provisions. Other flags states also endorse Videotel courses, the list of which is available on the website.

For Videotel courses, candidates should first check that they meet all the course pre-requisites, as outlined on the website. Once enrolled, a candidate is provided with course access and will follow a number of on screen modules and take on screen tests. Information is presented in text with (optional) English language voice over, still photography, video clips, animation and interactive exercises.

For advanced courses, this is supplemented by written assignments, which are completed on board or at home and submitted to Videotel for assessment. All tests and assignments must be authenticated by an appropriate person on board ship or onshore and once the documents are checked and assessed by Videotel, a course certificate will be issued.

Videotel has produced five tanker training courses, all in accordance with Chapter V of STCW 2010. There are three at the advanced level and two at the basic level, the latter replacing the previously required 'Tanker Familiarisation' course.

All courses have been developed in accordance criteria set out by the UK Merchant Navy Training Board (MNTB) to which the MCA refers. The courses are comprehensive and include all learning required to meet the certification requirements.

The basic courses aim to deliver an introduction to tankers and to provide the tanker-specific technical knowledge required by officers and ratings who are assigned specific duties and responsibilities related to cargo or cargo equipment on tankers.

Advanced courses are targeted at deck officers, engineers and other persons with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning and other cargo related operations.

As with all Videotel training titles, the courses have been produced with the assistance of a steering committee consisting of key players, including BP Shipping, IMO, OCIMF and SIGTTO.

Alongside these basic and advanced courses, Videotel's portfolio offers many tanker-specific training titles, including: 'Working Aloft on Tankers and Gas Carriers'; 'Chemical Tanker Operations Series'; 'Cargo Contaminations on Tankers', etc.

Marlink and Seagull Maritime collaborate

Marlink and Seagull Maritime have entered into a partnership to create an online, satcom enabled environment for the distribution and updating of e-learning material.

The partnership combines Marlink and Seagull's respective domain expertise to streamline and automate e-learning content distribution and management, the companies said.

Additional functionality will be offered later this year to enable fully digitalised services with the Seagull software running on Marlink's XChange centralised IT and communications management platform, to provide full on board hosting, and monitoring of Seagulls software to improve crews' knowledge and qualification.

This new solution will reduce maintenance effort for shipping companies while the crew can stay qualified and up to date on the latest safe and efficient vessel operation practices.

Offering distribution of training content 'over the air' will ensure the system is kept up-to-date with the latest e-learning modules and software versions, according to the customer's specific training requirements.

Online distribution will also eliminate manual work and physical shipments, which will reduce costs. Currently the solution is running successfully on the first pilot vessels.

"Together with Marlink, we will deliver an efficient approach to satcom based updating of Seagull software that will deliver improved efficiencies while providing a stronger platform for our customers to ensure they are providing high quality training for crew on board immediate after it has been released," explained Roger Ringstad, Seagull CEO.

"With this partnership we will strengthen both Marlink's and Seagull's positions in the market by offering efficient online updates and distribution of training material. We will digitalise training services through Seagull training software, our global Sealink network and XChange as the enabler," said Tore Morten Olsen, President Maritime, Marlink.

Environmental training programme launched

The Liberian Registry, NAMEPA, Netherlands-based ProSea Marine Education, and Maritime Training Services (MTS) of Seattle (Wash), have jointly developed a marine environmental awareness training programme for seafarers and shore staff.

This CBT-based programme provides a comprehensive overview of the complex and diverse marine environment, explaining how it is impacted by shipboard waste, discharge and spills, and by shipping generally.

It also covers marine ecology, environmental compliance plans and management systems, sustainable shipping and the role of the human element in pollution prevention.

In addition, it provides an overview of MARPOL regulations and other relevant IMO conventions, emphasising the importance of regulatory compliance in general.

Christian Mollitor, vice-president of the Liberian International Ship & Corporate Registry (LISCR), the US-based manager of the Liberian Registry, said, "This programme provides the training that seafarers and shoreside staff need in an era of strict environmental compliance and oversight.

"Environmental performance, regulatory compliance and safety awareness all play a vital role in the commercial success of every company engaged in the shipping industry.

"In keeping with its reputation as the most technologically advanced maritime administration in the world and as part of its corporate social responsibility programme, the Liberian Registry is delighted to have worked with NAMEPA, ProSea and MTS in producing this programme, which provides a framework for individuals to take an active role in balancing economic prosperity, environmental quality and social awareness in the shipping industry," he said.

Joe Hughes, NAMEPA Chairman, said, "This programme is an excellent example of a successful collaboration to protect the marine environment. Leveraging the strengths of strong partners limits the adverse impact of shipping on the environment and is a powerful step in NAMEPA's commitment to its mission to 'Save Our Seas'."

Liberia will issue a special qualification (SQ) certificate in Basic Environmental Awareness to those who successfully complete the course and submit an application and training certificate. Seafarers will receive an SQ sticker for their Seafarer's Identification & Record Books, while shoreside personnel will be issued an SQ card. TO

NSAP set up in Mumbai

MITAGS-PMI has opened a patented navigation skills assessment programme (NSAP) training centre in Mumbai, India.

The new facility is located on the campus of Anglo-Eastern Maritime Training Centre (AEMTC).

NSAP is a risk-based measurement tool using Class A full mission simulators to objectively measure seafarer skill compliance against internationally accepted STCW standards. It focuses specifically on the core skills required of licensed deck officers and includes a one-on-one discussion about the specific skills of each seafarer assessed by the programme.

"Objective simulation assessment, now a TMSA 3 requirement (5.4.2 and 5.4.3), is gaining substantial traction throughout the maritime industry. The ability to identify the specific risks within a company, and to provide tools to mitigate those risks is proving an invaluable asset for high quality shipping companies.

"The additional capability for multi-national companies to provide assessments across nationalities at locations worldwide has differentiated the NSAP from any other assessment programme in the world," claimed Gregg Trunnell, NSAP global business development.

With facilities in Mumbai, Delhi, Odessa and Manila, AEMTC is a major provider of maritime training in Europe and Asia. TO

More ice please!

There has been a lack of ordering activity down the years. Most of the recent newbuildings were Aframaxes with a mix of Finnish/Swedish Ice Class 1A and 1C.

For example, last November, Sovcomflot (SCF) announced an order for six LNG-powered Aframaxes, plus options.

A month before, Euronav ordered Ice Class 1C Suezmaxes on the back of seven year timecharters to serve Valero's Quebec Jean Gaulin oil refinery year round. They will replace older units.

Ice Class tonnage by nature is expensive to operate and costly to repair and only command a premium during the short ice season, Gibson Shipbrokers explained.

Today, 72% of the Aframax Ice Class fleet is over 10 years of age. In the Handy/MR sectors, some 70% and 78%, respectively are over 10 years old.

Around 43% of the fleet was built between 2003-2007 (10-15 years of age).

With many units from the mid-2000s heading towards their third special surveys in the next few years, this market could be heading for a shortfall.

Given that ice class tankers spend the greater part of their working lives in ECAs, the impact of the 2020 sulfur legislation will be limited.

Investments needed

However, over the next few years many owners/managers will be required to invest in ballast water treatment systems, plus the added expense associated with working in ice, in terms of steel replacement, etc.

In addition, ships now have to comply with the Polar Code's safety regs by their first renewal survey. Many of the older units may require changes to fuel tanks to comply with the code, which will come at a cost.

Trading routes are changing. For example, Russia has vowed to increase traffic tenfold along the Northern Sea Route by 2025. This route will require the highest Ice Class, similar to the new Arc7 LNGCs being deployed for the Yamal LNG project.

In addition, Transneft has announced that crude exports from Primorsk are due to fall after 2018. However, product exports from the Baltic are set to grow, due to the modernisation of Russian refineries and a favourable tax regime.

Hafnia Management's Anders Engholm agreed that Ice Class vessels are challenging from an operational point of view, due to the equipment needed.

However, he pointed out that the Hafnia Handy pool had coas with flexible rates that had a 15% premium to the normal market and the LR Straits pool had a coa at a fixed rate for Ice Class tankers, which offered a premium of up to 35-40% higher. TO

Cyber security- Now is the time to act

Cyber security problems are coming to a head, illustrated by high profile attacks during the past 12 months, including one which shut down the giant AP Moller-Maersk empire.

At an Immediasea seminar held in London this month, focusing on the maritime sector, the audience was told that the year 2016 was one of denial that cyber security was needed in a shipping company; last year was one of talking and this year action should be taken.

As digitalisation increases both at sea and onshore with increasing connectivity worldwide, so this opens the door to criminal activity by both amateur and professional hackers.

While most of the crimes are nowhere near the Maersk level, companies are being hit for up to $100,000. For example, when cyber criminals get into an accounts payable system, by creating bogus invoices.

To give an idea of the size of the problem, it was estimated that the cost to Maersk of the complete shutdown of its computer systems was $300 mill and counting. It affected 4,000 servers, 45,000 pcs and 2,500 applications.

The criminal element behind hacking are described as very sophisticated and well organised, often of Asian origin. To combat this, there are various consultancies and organisations being set up by security experts, who are often ex military personnel.

It was admitted that cyber crime or just hacking for the sake of it, is not going to go away and as the industry becomes better equipped to deal with it, so the hackers/criminals will get even more sophisticated in their response.

The shipping hierarchy is now becoming aware of the problem with the IMO bringing in regulations, as part of the ISM Code in 2021, Singapore passing a Cybersecurity BIll into law this year and oil major organisation, OCIMF now including cyber security in two elements of TMSA3.

Jordan Wylie of JWC International and leader of the campaign 'Be Cyber Aware at Sea' said for many, the situation was still confusing and controversial. Training and awareness is paramount in what he called the 'human element' side of the problem. "Mitigate the risk you can't understand. It is not a case of if, but when," he stressed, talking of the threat of a potential cyber attack.

Posters depicting cyber awareness at sea have been put on vessels and Wylie claimed 100,000 downloads by way of getting the message across in a simplistic fashion.

He did stress that there was a lot of guidelines out there from class societies, the IMO, BIMCO and others, so it was difficult for seafarers and those ashore to know, which one to follow - a danger of information overload.

Wylie has developed a training course, which has UK MCA approval and he is working with the various satcom companies and international organisations to mitigate the problem.

Recently, a plethora of satcom service providers have sprung up in the maritime world, not all of which are shipping 'savvy' and just don't understand the complexity of the shipping business, he warmed.

One of the main problems is the ships security officer asking the IT department to persuade the shipping company's board to invest in security systems when the chance of being hit is probably less that 25%. Most just say - I will take the risk rather than spend the $150,000 or so needed, especially when times are bad, such as they are today.

"Fortune favours the prepared," Wylie said. "We need to understand what the risks are in the first place."

Wylie has produced six cards, which contain advice on how to be cyber secure. Although they could be deemed as common sense, how many people adhere to the messages?

These are -

- Be wise to what lies inside- be cautious when using removable media, such as memory sticks, which can give a ship a virus.
- Keep passwords long and strong - simple

Attack vectors are mostly unchanged in 2018...

USB storage devices, e-mail and web surfing are well known.
But let's not forget social engineering, direct (wire/WLAN) access and devices connected "just for charging"!

Souce: DNV GL

passwords can be easily unlocked. Change the passwords regularly.

- Watch where you surf - Websites can collect personal data, be careful when browsing and never use the same password twice.
- Do not feed the phish - be ware of phishy emails asking for personal data.
- Loose clicks sink ships - Be ware of pop-ups, emails and websites asking for sensitive information.
- Be discreet when you tweet - Be careful of what you post on social media. You never know who is watching or what locational information you maybe sharing.

DNV GL's Jan Haul said that there was a DNV GL notation on shipboard cyber security in the pipeline. He agreed that humans were the first line of defence but at the same time, the weakest link in the chain.

He suggested that there two distinct areas on board a ship that were vulnerable to attacks - the computer systems themselves and the operations equipment, such as ECDIS, VDRs and GPS, etc. They are of equal importance when considering what could be attacked, he said.

Haul said the the number one suspect was USB sticks, followed by chargers, websites and phones with email connections. He said that cyber security affects the EU's GDPR [1], by way of human resources, crewing, marketing, online services and internal communications, including address books, emails, etc.

It will take in extra territorial reach, for example, crew managers looking after European seafarers and the marketing to European clients.

He warned that there were high potential fines for those in breach of the regulation of around whichever is the higher of 4% of group annual turnover or €20 mill. "It doesn't matter where you are, if you are processing data on EU data subjects, you may have to comply," he said.

He also confirmed that under the ISM Code, the IMO will bring in mandatory cyber security regulations in 2021.[2]

In addition, the Singapore Cybersecurity Bill was passed into law on 5th February this year and again maritime is included in this piece of legislation.

Haul advised shipping companies to consider replacing IT systems at each five year drydocking phase.

North's director (claims), Adrian Durkin, agreed that owners should be doing things and not just thinking about it.

He explained that there were no P&I exclusions on cyber crimes, unlike Hull & Machinery insurance cover as the problem was considered a crime and not an act of war.

Durkin said that some owners still operated their offices and vessels with old legacy systems, while the more modern thinking owners had multi-connectivity systems between ship and shore, which can also cause problems.

He said that owners should start to manage their preparedness with a level of diligence. Class societies should take the lead and he thought the sharing of information was a good idea.

Durkin admitted that there were a lot of claims now coming in and they would each be looked at from a premium income point of view by North. In the future, a claims handler would probably ask whether a claimant trained his or her crew in cyber security, took note of the problem and activated due diligence.

Of course, one of the problems in claims handling is that 20-odd insurance companies could have different cyber security clauses, which could become a nightmare to decipher.

North's members are now able to have access to Hudson Analytics' cyber assessment tool at a discounted rate, after the P&I club stated to co-operate with this company on the problem.

Mark Sutcliffe of the CSO Alliance said the focus was on people. He also explained that 50% of shipowners have five or less ships and therefore don't have a company security officer (CSO) or anybody looking after this sector.

Sutcliffe runs a maritime company security officer alliance, which has Airbus as a partner. Other industry supporters include BIMCO, North P&I, DNV GL,

Souce: JCW Consulting

Norwegian Hull Club, and the Marshall Islands flag state, plus others.

He described CSO as an international members only risk management platform involving all shipping sectors to drive best practice and to combat organised crime. He claimed to have a membership portfolio of 700 CSOs and said he will hit 1,000 by June.

The alliance organises workshops worldwide and has a reporting portal to gather information on actual crimes committed. He said that a complete maritime supply chain was needed to communicate information and issues regarding cyber crime and security.

"We need culture change, for instance some passwords have not been changed for years," he said.

Cyber security can be undertaken by spending little money but there is a need to invest something. Training should be given at all levels, from the seafarers on board up to top management. However, in today's world, the middle management might already have some knowledge of the problem.

Sutcliffe agreed with other speakers that 80% of the problem was human error, such as accidentally introducing malware into a system. The other 20% was committed by professional criminals, some of whom are hired out to organised crime gangs, especially in Asia.

He stressed that some of the criminals operating across borders were better resourced than many governments.

CSO Alliance was currently developing various requested tools, including analysis and regulations, port data, port features and risk data, route risk planning and country risk profiles. There was a lack of intelligence sharing and no trusted information repositories available.

One of the initiatives, due to be launched in October, is a maritime cyber crime reporting portal website with a core information system, taking the shape of an anonymous crime reporting tool generating reports, run by a server based in Iceland to keep anonymity.

He illustrated the problem by claiming that 91% of security officers believed that training and education was required to manage cyber risk; 100% of IT departments do not provide awareness or training programmes for seafarers and shore staff; 67% of CSOs wrongly believed that cyber security was not a big threat and only 53% of shipping COs had cyber related policies on board.

(1) At the seminar, mention was made of the EU's General Data Protection Regulation (GDPR) by which the European Parliament, the Council of the European Union, and the European Commission intend to strengthen and unify data protection for all individuals within the EU. The maritime sector is one of nine areas included in the regulation, which was due to enter force in May this year.
(2) At the IMO's MSC 98 held last June, the Committee adopted recommendations on the implementation of cyber risk management, which takes into account that safe operational practices in ship operations should identify risks and establish appropriate safeguards to ships, personnel and the environment under ISM.
The resolution also said that an approved safety management system (SMS) should take into account cyber risk management and encouraged flag administrations to ensure that cyber risks are appropriately addressed in SMS, no later than the first annual verification of the company's Document of Compliance after 1st January, 2021

TO

Cyber security service provider Nettitude joins LR

Another example of class societies becoming involved is Lloyd's Register's (LR) acquisition of Nettitude, a provider of cyber security services.

As can be seen from the previous article, cyber security has become a key challenge for industry, against a backdrop of high-profile and increasingly sophisticated cyber attacks on businesses worldwide.

The number of breaches is up an average 27.4% year- on- year, according to the Ponemon Institute's Cost of Cyber Crime report and 86% of companies around the world reported that they had experienced at least one cyber incident in 2017. Understandably, businesses of all sizes are looking at how they can improve their resilience.

Founded in 2003, Nettitude is a provider of cyber security assurance, risk management and managed detection and response services, to organisations across the globe.

With 140 employees worldwide, this company is a research led organisation that has developed tools and techniques to mitigate the constantly evolving cyber threat. The organisation delivers 24/7 security operations services to clients and has built a reputation in delivering assurance around sophisticated threat agents, LR said.

The class society already provides a range of cyber security services to clients, including certification, compliance, training, audit and security consulting. This acquisition strengthens LR's existing portfolio, including penetration testing, information security consulting, managed security services and incident response handling.

LR CEO, Alastair Marsh, said: "This is an important acquisition for Lloyd's Register to enhance our capability in assuring the increasingly complex supply chains in which we operate. Information and operational technology security is a key concern for our clients across all sectors, as we see increasing dependencies on technology and challenges created by Industry 4.0."

Nettitude founder and CEO, Rowland Johnson, added: "The combination of Nettitude's focused cyber security capability and LR's ability to execute across a broad range of sectors will make a formidable partnership. As the worlds of Information Technology and Operating Technology collide, the need to build integrated cyber security solutions will become essential.

"LR's geographic reach, and vision for how technology and data will influence industry will supercharge Nettitude's growth, and provide significant synergies to LR's clients and partners," he concluded.

The need for cyber security solutions and growth in cyber security is driven by three broad areas -

Increasing levels of connectivity – the move towards a more integrated and interdependent, data driven and automated economy ('Industry 4.0').

Growing risk of attacks – cyber-attacks are now targeting a broader spectrum of industries and companies, resulting in a significant increase in corporate concerns over cyber security.

More regulations – regulatory focus on cyber security has increased, with new standards being developed with more complex and wide-ranging compliance requirements.

For the acquisition, Nettitude received legal advice from DLA Piper and M&A advice from Livingstone Partners, while LR received legal advice from Squire Patton Boggs.

TO

Alfa Laval removes oily water discharge risks - addresses scrubbers

Non-compliant discharge of oily water continues to be an environmental threat – and an expensive headache for the marine industry.

With the tamper-proof Alfa Laval BlueBox SA, a stand-alone oil content monitor and data recorder, the company claimed to be providing peace of mind to shipowners and operators.

Despite many years of strict enforcement on oily water discharge limits, there are still high-profile cases that result in extreme fines or jail terms. Naturally, no company can afford to take risks when the consequences are of such magnitude.

Finding a reliable way to prevent unlawful overboard discharge is thus a high priority. Alfa Laval said that it has made this easy with the new Alfa Laval BlueBox SA, a tamper-proof oil content monitor (OCM) and data recorder that functions as a stand-alone solution for upgrading an existing oily water system.

Discharge rules

According to IMO MEPC regulations, clean water tanks must be equipped with a stand-alone OCM to verify the water's purity before discharge. "In theory, this should be enough," said Shinya Tanehashi, Alfa Laval global sales manager for oily water treatment systems. "But the risk of foul play is increased by the fact that many oily water treatment systems – especially static coalescers – experience difficulties in rough sea conditions."

Although MEPC 107(49) improved the type approval procedures for oily water treatment, problems remain common. Since 2005, tests have been performed with oil, water and a stable emulsion containing fine particles and a surfactant chemical. However, they are performed on shore and last just 2.5 hours. This legislative loophole lets systems pass easily, simply by using adsorption filters.

"Filters are expensive and quickly become saturated in rough seas, where they merely compensate for the separator's lack of performance," Tanehashi explained. "When the vessel's costs become high or large volumes of oily water accumulate because they can't be processed continuously, it becomes tempting to dump oily water overboard."

The answer to this dilemma is to make the OCM tamper-proof and to record all data associated with overboard discharge and the monitor itself. For several years, Alfa Laval has had such a solution available as an integral part of the Alfa Laval PureBilge separator - Alfa Laval BlueBox. Now, based on this solution, the company has introduced the stand-alone BlueBox SA.

BlueBox SA, in which all components are housed in a lockable metal box, monitors the water for discharge. If the oil content is above the set 5 or 15 ppm limit, the system prevents the overboard discharge valve from opening, which ensures that no non-compliant discharge can occur. Similarly, when the door of the BlueBox SA is opened, the event is logged and the valve automatically switches to recirculation.

"For overboard discharge to take place, a whole range of conditions must be verified, such as the direction of the sample flow through the OCM," said Tanehashi. "All key operational data, including GPS position, alarms and any unlocking of the BlueBox SA cover, is logged and stored for 18 months."

Clear message

By installing the BlueBox SA to work with an existing oily water treatment system, shipowners can minimise the risk of oily water discharge. Not only does the BlueBox SA provide vital safeguards, it also sends a clear message to crews that environmental compliance is something to be taken seriously.

However, the BlueBox SA offers more than constraint. It also simplifies life for the crew by making it easy to report on oily water management and demonstrate discharge compliance, the manufacturer said.

"All of the data stored in the BlueBox SA can be exported in PDF format and downloaded to a USB memory stick," Tanehashi said. "That makes it a simple matter for the crew to show the vessel's compliance to coast guard or Port State Control authorities."

Alfa Laval's Shinya Tanehashi

Installing a BlueBox SA can have benefits beyond regulatory compliance. Currently, the MEPC has no OCM requirement for clean drain tanks, which collect steam condensate, boiler drainage, air cooler drainage, etc. But because these water sources may also contain oil, the accumulated water is often handled by an oily water treatment system.

"By monitoring the clean drain to ensure that its oil content is below set limits, vessels can avoid unnecessary use of their oily water separator," said Tanehashi. "In this way, the BlueBox SA creates an energy savings and reduces wear and tear on the separator itself. Ultimately, that translates into lower OPEX."

Simply put, Alfa Laval said that BlueBox SA is an easily installed unit whose advantages far outweigh the one-off investment. As a stand-alone solution offering the same reliability as the BlueBox used with PureBilge, it takes away the worry so often associated with oily water treatment.

"One can't put a price on peace of mind," stressed Tanehashi. "But looking at the huge fines that shipowners are paying for non-

Alfa Laval's Olaf Van Heerikhuizen

compliance, one can certainly see the value in avoiding them. Our aim with the BlueBox SA is to help shipowners and operators rest easy, no matter what oily water setup they currently have on board."

Scrubber connectivity

In addition, Alfa Laval has introduced a new connectivity programme for the company's PureSOx scrubbers, thus adding value for exhaust gas cleaning customers.

With nearly 100 systems in operation and in compliance, Alfa Laval PureSOx is already a proven solution for meeting the SOx limits imposed by trading in Emission Control Areas (ECAs) and the 2020 global sulfur cap.

With the launch of the new PureSOx connectivity programme, customers will be provided with new ways to save time and money. The programme builds on the new Alfa Laval remote emission monitor (ALREM), a data reporting and storage device that comes with all new PureSOx orders and is also available for retrofit.

"Customers want to eliminate hassle and downtime, so that they can spend more time performing," said Olaf Van Heerikhuizen, Alfa Laval's manager service gas systems. "Connectivity is the key, as we've already seen in ALREM projects with major PureSOx customers. The ALREM lays the groundwork for a range of data-driven services that will make compliance – and life on board – much easier."

SOx compliance reporting

The first service to be rolled out in the PureSOx connectivity programme is one that simplifies proof of compliance and is available on all vessels where the ALREM is installed. Rather than analysing scrubber compliance data themselves, customers receive user-friendly, graph-based reports via the Alfa Laval touch control system installed on board.

"This is immediate pain relief for customers, whose scrubbers are legally required to log around 50 data signals every three minutes," explained Van Heerikhuizen. "Instead of interpreting a hundred pages of raw sensor data for just a few days of operation, they get a finished compliance summary that they can hand over directly to authorities."

If they choose, customers can also review the data for their vessel or fleet via an online portal. Accessible on a subscription basis for a simple monthly fee, the portal allows them view their vessel's route and receive a SOx compliance summary for the dates selected.

Diagnostic data

The capabilities of the ALREM go far beyond reporting, which paves the way for additional services to come. The system can log not only the required compliance data, but also PureSOx diagnostic and performance data that can be sent to the cloud for processing by Alfa Laval analysts. This provides a foundation for condition based maintenance services and new levels of scrubber optimisation.

"In the course of testing the ALREM, we've been able to use the diagnostic information to find the root causes of an alarm and arrive on the vessel with the right parts and information to solve the issue quickly," claimed Van Heerikhuizen. "As the system grows more sophisticated, we'll be able to provide more predictive maintenance and help customers trim their scrubbers for even better performance and energy efficiency." TO

Large satcoms group takes shape

Efficiency in the satcoms business means being able to offer all types of services, including both hardware and software.

One such company is Marlink. News that it had extended its contract with Knutsen (see *Tanker Operator*, March, page 11) and with several other major tanker companies on its books, prompted *Tanker Operator* to review the company's rapid rise over the past few years.

Although being in existence for many years, Marlink really came to the fore when it was acquired by Apax Partners in early 2016. Gaining a financial backer gave the company the clout to go ahead and join together with at least five other companies.

The first was Telemar, which Apax Partners bought a few months after Marlink, thus forming the Marlink Group.

Today, the group includes, Marlink, Telemar, Palantir, Livewire Connections and Omni/Access, which gives it a fully integrated service offering, including broadband communications and IT, digital solutions, bridge electronics, plus flexible service and maintenance outlets worldwide.

The latter two are more involved in yachts and leisure brands, while the first three are strong in the commercial shipping segments.

Group CEO, Eric Ceuppens said that it was now time for the Group to grow organically without ruling out further acquisitions. He claimed that Marlink is now the leading service and VSAT provider with 5,000 systems installed thus far. The offering now covers Ku-, Ka- C- and L- band services, which are augmented through mobile and terrestrial links, plus a range of digital solutions.

Through the acquisitions and partnerships, the group has doubled in size to more than 1,000 employees in 20 countries worldwide, including a network of sales and service locations and 1,250 service points, staffed by qualified engineers. There are seven customer care centres and seven warehouses located in various maritime hubs. "Size matters," Ceuppens said pointing to market consolidation.

Last year, an agreement was signed with Radio Holland (RH), which gave Marlink the Dutch company's connectivity operation, leaving RH to focus on its core business - providing navcom, ICT and maintenance solutions. This allowed Marlink to further strengthen its global leadership in maritime VSAT.

RH is now its preferred global sales and service partner and offers the Group's satcoms connectivity portfolio in combination with its established maritime electronics solutions. Furthermore, RH and the Marlink Group have said that they were going to increase their existing co-operation in navcom sales and servicing.

RH's airtime business, VSAT and MSS (Mobile Satellite Services) customer base will run on Marlink's structure, while RH will also continue to act as an agent to sell services with Marlink. RH is known for its bridge electronics and field service and installation capabilities, having a huge network of service engineers and technicians available worldwide.

As for Palantir, the Norwegian-based maritime IT company, specialising in remote IT management solutions, was acquired by the Group in March, 2017.

Remote support

Palantir provides shore-based IT managers with access to vessels or fleets to remotely support and manage on board IT networks. Marlink and Palantir had already enjoyed a close working relationship through a strategic partnership agreement, which commenced in September, 2014, thus enabling Marlink to deliver integrated IT management services to its Sealink multi-band communications service customers, including Stolt Tankers. Today, Palantir has over 1,000 ships signed up.

A month or so earlier, Marlink had signed a joint venture agreement with the satellite connectivity business of Greece and Cyprus-based TNL Group, which resulted in the launch of a new maritime satellite communications outlet - Marlink CG.

Delivering a wide portfolio of Marlink VSAT services, Inmarsat FleetXpress, Inmarsat/Iridium MSS and integrated business solutions for customers in Southern Europe, Marlink CG operates from offices in Greece and Cyprus. This joint venture agreement followed a long-term working partnership between TNL Group and Marlink, which started more than 16 years ago.

Ceuppens explained that the Group's delivery organisation, boasting more than $500 mill annual revenue, attained an average of 20% growth year-on-year for the past two years.

He said that the satcoms sector was changing. There were two dynamics - capacity and cost per byte. In addition, high throughput satellite (HTS) technology had arrived bringing more capacity into the market and new satellite constellations will offer a more integrated communications systems as multiple satellites will be operating in the same area. This year, cyber security will reach another level, compared with 2017, he said (see page 22).

Satcoms service providers, such as Marlink, are now co-developing systems with their shipowner clients, involving regulations, including emissions control; HR and crew services, including e-learning, such as that offered by Seagull and for telemedicine, in what Ceuppens called 'Smart Connectivity'.

As a result, IT connectivity and remote IT management, including cloud-based connectivity will be undertaken collaboratively.

In 15 years time, seafarers' role will be different, as greater autonomy is developed. More bandwidth and connectivity will be needed, as will redundancy with five to 10 different methods being available for ship connections.

Smoothing over a coating problem

Shipowners can no longer afford to gloss over the marine environment issue.*

Subsea Industries stressed that its underwater coating systems provide an optimum solution for reducing fuel consumption by maintaining a smooth surface and reducing fouling in the most environmentally-safest way possible.

Independent tests carried out in the Netherlands and Canada have verified that all the company's coatings – Ecospeed, Ecoshield, Ecofix, Ecolock and Ecolast – are totally biocide-free and 100% non-toxic.

In addition, virtually zero volatile organic compounds (VOCs) are released into the atmosphere during application, unlike the massive amounts of VOC and zinc anode emissions associated with conventional hull coating or protection systems.

Zinc anodes are used to limit corrosion to metal surfaces that come into contact with seawater; the idea being that the anode corrodes rather than the steel surface to which it is fixed. Anodes can thus release highly toxic metals into the water, particularly when the hull protective coating is damaged leaving the steel exposed. As hard coatings, Subsea Industries' coatings are much more resistant to damage than conventional paints.

Subsea coating systems require only two coats of 500µm each applied to bare steel, aluminium or glass-reinforced plastic. These two layers form a homogenous protective coating capable of lasting the life of the vessel. No primers, no midcoats, no tiecoats, or topcoats are needed.

Typical antifouling paint is applied in three or four layers and needs to be reapplied every three or four years. This will reach a point where the surface becomes too uneven because of the number of layers and resulting internal stress build-up. Then a full re-blast and re-coat will be required, meaning a considerable environmental hazard is created each time, resulting in creation of potentially toxic debris during blasting and VOC emissions when the fresh paints are applied.

Many hull coatings contain biocides to prevent fouling by marine organisms, although the strongest and most effective biocide, tributyl tin (TBT) has now been banned. For the biocide to work, the coating must release toxins into the water. As Subsea Industries' products are totally biocide free no toxins are released.

If a conventionally-coated hull is cleaned to remove fouling, even more biocides are released into the water, along with surviving organisms, which are detached from the hull. This is a similar risk to that imposed by ballast water discharge. Concerns have been expressed that even more non-indigenous species (NIS) may be transported through hull fouling than through ships' ballast water.

Underwater cleaning issues

In most ports around the world, underwater cleaning has come under scrutiny out of fear that viable NIS are released and spread by the operation, rather than contained and disposed of. Several ports and countries have banned underwater cleaning out of concerns of the pulse release of biocides and an increased risk of transferring NIS.

Another important outcome of the independent test carried out by the Dutch authorities was the submission of the results to port authorities and environmental agencies worldwide in order to allow underwater cleaning of our coating systems. As a result, several important ports have made an exception to the ban and this only for our coatings.

Subsea Industries has designed special tools that can be used for regular frequent in-water cleaning of hulls coated with Ecospeed. No damage is caused to the surface of the coating and none of the coating is removed.

A fouled hull carries with it a fuel penalty. The worse the fouling, the slower the ship will sail at a given rev/min. More power will be required to keep the ship sailing at a given speed. This means higher fuel consumption. Depending on the degree of fouling, this can be as much as 85% more.

**This article was written by Subsea Industries' NACE coatings inspector Manuel Hof.*

Independent tests carried out in the Netherlands and Canada have verified that the Subsea Industries' coatings have no negative effect on the water column or the wider marine environment at any point in their use

What grace in growing old?

Similar to the dry bulk sector, many tanker owners and managers have been operating their ships on more tightly controlled maintenance budgets for several years.

Poor freight rates, high operating costs and an over saturation have contributed to what has become an extremely challenging market.

As a global provider of pre-purchase, pre-charter and condition inspection services, at Idwal Marine we frequently witness first-hand the cumulative impact of this approach to maintenance on the actual condition and value of vessels.

Primarily as a consequence of this sustained squeeze on budgets, routine maintenance and upgrades are far more carefully considered than ever before. We have witnessed a general decline in asset condition and value, despite the SIRE and oil major vetting campaigns which, unlike in the drybulk sector, provide a further level of monitoring.

In the face of very real operational and financial pressures, many have had little choice but to adjust procurement strategies for non-critical parts and to reduce the number of vessel visits by senior technical personnel.

It would be unfair to suggest that any owner or operator has not done all within their power to exercise due care and attention to the safety, quality and condition of their vessels. The reality is that times have been tough, and this is unlikely to change any time soon. Ultimately, managers can only work with what resources are made available to them, and with increasingly vigilant financiers and shareholders overseeing their investments, every expense has to be justified.

Unfortunately, as a consequence of time, the cracks are not only beginning to show, but the problems now run deep. The challenge that owners now face is in justifying investment in the costly equipment and upgrades required for all vessels to meet impending environmental regulations. This should be one of the most pressing issues on every shipowner's boardroom table in the near future.

Adapting to changing environmental and operational requirements is nothing new to the shipping industry, which has demonstrated its (at times reluctant) ability to adapt to new rules and regulations at many stages throughout history. The major concern at present, however, is that several impending environmental regulations with require significant capital investment within the next few years.

Idwal Marine's Nick Owens

First, the IMO's Ballast Water Management Convention requires ships to install a costly ballast water treatment system prior to their next IOPP renewal survey. Similarly, there is MARPOL Annex VI – the global requirement to burn fuel with 0.5% sulfur emissions (SOx) limits from 2020. Both of these have significant capex requirements, for which owners and financiers must be aware.

Officially over-the-hill?

Regarding the BWMC, the IOPP renewal deadline for most will fall within the next five years, which may lead to an increase in the scrapping of vessels currently aged 19 years or above. Assuming a nominal 25-year life cycle, there may not be enough time left in an older vessels trading capability for a considerable return on the investment required to fit an approved BWTS.

As the implementation dates creep closer, the ability to secure the required finance to the most suitable and viable compliance method will become increasingly difficult. To best manage the challenge, shipowners and financiers need to work together to investigate and analyse the ROI required to bring their vessels in line with future compliance requirements.

For many, it may be more prudent to simply sell or scrap the asset rather than pay for equipment that would only be useful for a few years.

Costs vary, but the average approved BWTS can cost anywhere between $350,000 to $1.5 mill, to include the purchase and installation of the unit. A sulfur emissions abatement system, or 'scrubber', requires upfront investment of roughly $1 mill or more.

For banks and financial institutions trying to manage their asset portfolios, understanding the consequences of these key regulatory requirements and their available options will be critical to mitigating risk as the shipping sector adapts.

They have a vested interest in understanding the most appropriate compliance methods for a fleet, or each vessel, and it is recommended they conduct a forensic analysis of the facts for each of their shipowning clients. This analysis should encompass a complete fleet review to assess the 'true' operational condition of each ship.

This is why the ship inspector's role is critical, providing a reliable, unbiased assessment of a vessels condition and future trading potential whilst considering the age of the asset.

Having an independent expert to consult with during the process of determining if investment in expensive regulatory items is of any value is important, because whilst the onus is on the owner to identify the right fuelling and BWTS solutions for their commercial requirements, their financiers or shareholders also need to be convinced of their investment decision.

**This article was written by Nick Owens, Director of Idwal Marine.*

Fuel regulations to fundamentally change market

Requirements for ships to collect data on their fuel oil consumption entered into force on 1st March this year.

The ship fuel oil consumption data reporting requirements are the latest mandatory requirements aimed at enhancing shipping's energy efficiency, the IMO said in a statement.

Data collection will begin on 1st January, 2019. The data will need to be reported at the end of each calendar year to the IMO.

This data collection system is intended to equip IMO with concrete data on fuel oil consumption, which should assist member states in making decisions regarding any further measures needed to enhance energy efficiency and address ships greenhouse gas emissions.

The mandatory requirements were adopted by IMO's Marine Environment Protection Committee (MEPC) in 2016, through amendments to chapter 4 of MARPOL Annex VI.

Under the new Regulation 22A, ships of 5,000 gt and above are required to collect consumption data for each type of fuel oil used, as well as other, additional, specified data, including proxies for transport work. These ships account for around 85% of ships CO2 emissions, the IMO claimed.

The aggregated data will be reported to the relevant flag state after the end of each calendar year and the administration, having determined that the data has been reported in accordance with the requirements, will issue a Statement of Compliance to the ship.

Subsequently, flag states will be required to transfer this data to an IMO Ship Fuel Oil Consumption database. IMO will then produce an annual report to the MEPC, summarising the data collected.

In addition, on or before 31st December, 2018, in the case of a ship of 5,000 gt and above, the mandatory Ship Energy Efficiency Management Plan (SEEMP) will include a description of the methodology used to collect the data and the processes to be used to report the data to the ship's flag state.

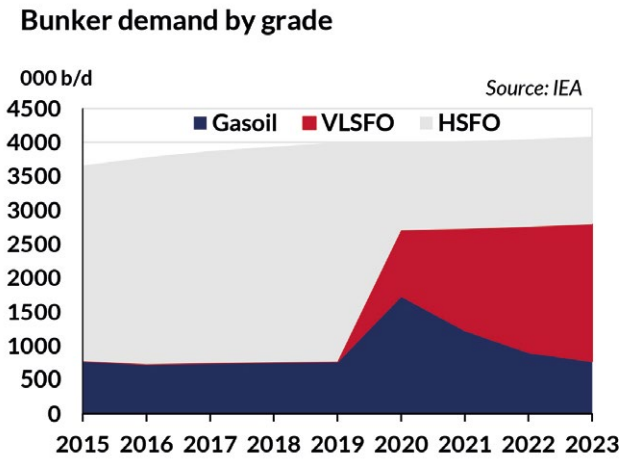
The IMO explained that this new mandatory data collection system is intended to be the first in a three-step approach in which analysis of the data collected will provide the basis for an objective, transparent and inclusive policy debate in the MEPC, under a roadmap agreed in 2016 (through to 2023) for developing a 'Comprehensive IMO strategy on reduction of GHG emissions from ships'.

The next stage in this process will see an initial GHG strategy expected to be adopted by MEPC 72 (9th-13th April, 2018). MEPC 72 will be preceded by the third session of the Intersessional Working Group on Reduction IMO of GHG Emissions from Ships (3rd-6th April).

The initial strategy is expected to include, inter alia, a list of candidate short-, mid-, and long-term further measures, with possible timelines, to be revised as appropriate as additional information becomes available. The data collected under the mandatory reporting system will help inform the MEPC when it comes to adopting a revised strategy in 2023, the IMO explained.

In 2011, the organisation became the first international body to adopt mandatory energy-efficiency measures for an entire industry sector with a suite of technical and operational requirements for new and existing vessels that entered into force in 2013 and as a result, by 2025 newly built ships will be 30% more energy efficient than those built in 2014, the IMO claimed.

In addition, much debate has raged over how shipowners will fuel their vessels come 2020.



VLSFO having taken share from HSFO.

Gibson Shipbrokers said that it has maintained its view that scrubbers will only play a minor role by the implementation date. With that view in mind, there will be a significant demand shift across the barrel in less than two years' time, resulting in the fuel oil trade being fundamentally affected.

IEA view

Recently, the IEA released its respected 'Oil 2018' report, which analysed oil market developments to 2023 - the first edition of the report to be released since the IMO committed to the 1st January, 2020 implementation date.

The IEA has thus been forced to offer its view of how the market will evolve. Come 2020, the agency expects a near 1 mill barrels per day swing from HSFO to MGO. Interestingly, the IEA has assumed a large uptake in a new 0.5% fuel oil blend - very low sulphur fuel oil (VLSFO), which is estimated to take almost another 1 mill barrels per day of demand away from HSFO. The result is a near 2 mill barrels per day decline in HSFO demand.

For tankers trading in fuel, this may seem alarming to see such large volumes of fuel oil demand stripped from the market, Gibson said. However, VLSFO will be shipped in

dirty tankers, thus reducing the demand shift to clean from dirty to 1 mill barrels per day.

Furthermore, the IEA estimated that from 2020 to 2023, VLSFO will claw back market share from MGO, with eventual VLSFO demand of around 2 mill barrels per day, complimented by 1 mill barrels per day of 'scrubbed' or possible non-compliant HSFO demand.

In effect, this scenario returns the clean/dirty bunker demand split to where it was prior to 2020, but with VLSFO having taken a share from HSFO.

The IEA also revealed interesting insights into where the surplus HSFO might go, which has implications for tanker trade flows. The agency estimated that spare capacity in the power generation sector could absorb nearly 0.5 mill barrels per day of HSFO demand, predominantly to destinations in the Middle East and Africa, which would support longer voyages.

In addition, by considering HSFO and VLSFO as dirty products, the total market share lost to MGO is just under 1 mill barrels per day, which is likely to be reduced to 0.5 mill barrels per day when new sources of demand, (ie power generation) are considered.

Over time, refinery upgrades will gradually come on stream, suggesting more VLSFO will be produced at the expense of HSFO. Assuming compatibility issues are overcome by this stage, higher availability of VLSFO should support a demand shift from MGO to VLSFO. This would see the volume of dirty bunker fuel cargoes being transported on tankers move close to pre-2020 levels.

Further, if refiners are to invest in upgrading capacity, and if sufficient volumes of VLSFO will eventually be produced, what are the longer-term benefits of scrubbers? Will the spread between VLSFO and HSFO be enough to make the investment viable in the longer term?

Undoubtedly, the short repayment horizon would appear to make scrubbers effective for those who install them ready for 2020. But, as time progresses post-2020, the spread between MGO and HSFO is likely to narrow, whilst refinery upgrades could see HSFO supply tighten, Gibson concluded.

Fuel composition

In another presentation in Copenhagen, BV VeriFuel's global technical manager, Charlotte Rojgaard explained the complex subject of fuel composition.

She warned that residual fuel can contain components from almost any refinery processing units. Marine fuels are also blended in tank farms where components from a wide range of sources can be added.

Residual fuels are very complex and no two batches are the same with small or large variations, depending on the location and the components available to the blender. Also components might not emanate from a refinery.

Rojgaard said to meet the demand, more crude could be run to meet distillate needs. However, it was not possible to match all of the distillate needs. "What do you do with the residue?" she asked.

Another method was to process crudes with compositions to closely match all distillate requirements. However, here the crude costs will be high as there are no crudes that exactly match the the distillate demand barrel. Again what do you do with the residue, which exceeds demand?

Heavy distillate residues can also be converted into lighter components, which would make it possible to match supply and demand. However, there would be a high cost associated with the conversion unit, higher refinery consumption, resulting in extra costs.

She said that the 0.5% sulfur cap is applicable to 75% of marine fuel demand worldwide. Some 3 mill barrels of HSFO sold per day will need to be converted to the lower sulfur limit together with the improved logistics and segregations involved.

Looking at the alternatives, she said that MGO of a maximum of 0.1% sulfur is already widely used and thus there is operational experience. There is no need for purification or heating. However, it comes

at a higher cost and there could be technical issues.

As for ULSFO of 0.1% sulfur content, the price is lower than distillates, there is limited availability and it is of variable quality. There is no dedicated ISO 8217 grade and there are compatibility problems, plus cold flow issues.

Turning to VLSFO of 0.5% sulfur content, the price is expected to be lower than the above and there should be no modifications needed to existing vessel, but it might be of variable quality. In addition, there were only a few suppliers, thus far and like the above, no ISO 8217 grade, plus compatibility problems as well as cold flow issues.

Some owners and operators have already opted for scrubber technology, mainly in the ro-ro and passenger ship sectors. Here Rojgaard thought that their use might not be viable in smaller ports. Major bunkering ports might stock HSFO if there is a perceived demand. However, maintaining barges specifically for HSFO might be problematic on economic grounds. She advised that if fitting a scrubber, try to procure an HSFO barge for the long term. "HSFO could become a 'niche' fuel in some ports," she warned.

She quoted BP, ExxonMobil and Shell as saying that there would be enough compliant fuel available, while the IMO expected that sufficient refining capacity would be available to produce LSFO. However, some fuel might have to imported to areas of need from the Middle East, Europe and/or Latin America.

Also to be taken into consideration was experience with (new) 0.1% ULSFO use, current and future fuel systems and machinery arrangements on board ship, the crew and technical managers understanding the term 'fir for use' and HSFO being considered for exhaust gas circulations systems and for shore power operators.

Finally, Rojgaard said that the revision of the ISO W6 (2417) had been started at the IMO's request to look into other methods/criteria to better evaluate stability/compatibility as a result of the diverse formulations expected for the maximum 0.5% fuel oil and also to evaluate options/possibilities of adding further requirements to predict potential stability issues.

New software

20|20 Marine Energy and BunkerMetric have signed of a Memorandum of Understanding (MoU), to launch a new predictive analysis tool.

20/20 Marine Energy's Adrian Tolson

This will enable shipowners, operators and fuel buyers to understand the financial and operational impact of the impending MARPOL Annex VI global 0.5% sulfur cap on their fleets when it comes into force on 1st January, 2020.

The technology will enable stakeholders in the marine fuel value chain to assess and implement the most effective strategy to minimise costs, mitigate risks, and ensure compliance, the companies said.

The 2020 SEER (Sulfur Emissions Evaluation and Risk management) software is being designed to provide shipowners and operators with a number of capabilities in relation to marine fuel procurement.

At a tactical level, fuel buyers will be able to optimise their fuel procurement strategy on a vessel-by-vessel basis to minimise total bunker costs. The tool will consider a range of factors that impact bunkering decisions, including fuel price forecasts, trade patterns, vessel speed, consumption, product specifications, time spent in ECAs, and tank sizes.

Using proprietary simulation and optimisation algorithms, SEER will generate an optimal bunkering plan, specifying the amount of each fuel type to purchase at each port call, thus reducing fuel costs and increasing efficiencies. The tool could also be used to benchmark existing fuel procurement practices.

SEER will also generate a comparative economic analysis of different vessel configurations for operating under the new sulfur rules. For example, a shipowner will be able to compare the economics of a conventional vessel burning distillates, to a vessel equipped with a scrubber, or using LNG.

This analysis will take into account the capex and opex of each variant, as well as a detailed consideration of range, tank sizes, margin, preferred fuelling locations, and geographical fuel price spreads, among others. The results generated will enable the user to make the most informed decision in terms of what compliance strategy is adopted on a vessel-by-vessel basis, which can be extended to a fleet wide risk and cost management strategy, they said.

Adrian Tolson, Senior Partner, 20|20 Marine Energy, commented: "The reality is that fuel buyers – the shipowners, operators and charterers - need to drill down into the real detail on what their fuel procurement strategy will be post 2020 for each and every vessel they own or operate. Based on certain trading routes, distillates might be appropriate for one vessel. For another, a scrubber might be more applicable.

"To do this, they need to be able to look into the future; to see what a 2020 world looks like, and the impact that it will have on their businesses, both financially and from an operational perspective. With this clarity they can develop the right fuel procurement strategy that will keep costs as low as possible, mitigate risks and ensure compliance.

"As well as creating a more efficient and profitable operation, and ensure business continuity, they will also be more competitive in the eyes of their customers," he claimed.

SEER will be an intuitive software tool that is consistently updated in line with changes to fuel price spreads, as well as supply and demand scenarios on a regional and global basis.

It will be made available to customers on a bespoke basis, and used via a web portal or as a dashboard within their own systems infrastructure, where they can input and manipulate data accordingly to optimise their fuel procurement strategies.

Fernando Alvarez, co-founder of BunkerMetric, said: "There is a very high level of uncertainty and concern amongst fuel buyers surrounding the implementation of the global sulfur cap and its impact on their operations. This uncertainty extends to fundamental questions, including pricing and availability of compliant fuels, the viability of abatement technologies, and the degree of adoption of alternative fuels.

"With all that is at stake, it is critical to have a disciplined evaluation of the different scenarios and risks that they will face to inform the best possible decision making. This is precisely what SEER delivers," he concluded.

TO

Monjasa gears up for 2020

As has been well documented, the shipping industry will have to contend with the IMO's fuel oil cap of 0.5% sulfur, effective 1st January 2020.

This means a sulfur reduction from 3.5% to 0.5% in a 300 mill tonne market, and an expected ban of the carriage of non-compliant fuel, Monjasa Group COO, Svend Molholt said at a presentation in Copenhagen earlier this month.

Despite the industry saying that there are three options to comply with the mandatory sulfur limit - compliant MGO or LSFO, scrubbers, or LNG - there is a fourth, non-compliance, he said.

Governance will be key to achieving environmental benefits, which includes Port State Control, the use of sniffer technology, satellite tracking and bunker delivery receipt (BDR) regulations. "The cost of non-compliance must be made clearer," he stressed.

He referred to the Skagen 0.1% SECA zone, pointing out that this area is one of the most regulated markets in the world in regard to fuel compliance. "However, we have only seen a handful of fines being issued and none of them directly related to sniffers or on board inspections when taking bunkers at anchorage. This could therefore be a sign of across the board compliance or the fact that this is truly a difficult area for the authorities to control," he said.

Answering the question whether a bunker supplier could become liable if a ship operator is caught with non-compliant fuel, Molholt explained; "From what we understand, it appears from the ongoing IMO work committees that once the purchasing vessel has officially notified the bunker supplier whether a scrubber is installed or not - and thereby if it is allowed to carry HSFO on board - all liabilities are removed from the supplier.

Monjasa Group's Svend Molholt

"This is exactly one of the elements which Monjasa would like to discuss further with all relevant shipping and bunkering stakeholders leading up to 2020," he added.

He thought that adjustments were needed for bunker companies to support global trade. Operating models and company culture should converge and digital end-to-end compliance solutions used, while existing work procedures should be looked at to close any gaps.

He warned that fuel suppliers will enable or disable a successful transition.

As an integral part of Monjasa's existing quality management systems, independent laboratory sampling/testing of fuel is recommended and all Monjasa operated vessels are equipped with mechanical flow meters. "We welcome all initiatives, which can help improve operations transparency within the industry," he said.

One of the company's major areas of operation is off West Africa where the 2011-built chartered Aframax 'SKS Darent' is used as a storage vessel off Lome.

Molholt said that Monjasa operates both owned and chartered vessels in West Africa where hijacking is a risk factor. "In order to minimise the risk of personal injury, as well as operating losses due to an assault, we have implemented an anti-piracy strategy, which includes an extensive description of how the crew and the offices should act in case of hijacking and/or piracy.The safety of personnel is the premise for all our precautions.

"This strategy comprises measures to be taken both during and after a possible assault, and it includes practical security initiatives on board each vessel. Our decade of experience in West Africa and the build-up of security procedures and contingency measures is a significant factor enabling operations in the region," he said.

Monjasa primarily carries out ship-to-ship operations in EEZ waters, but also occasionally completes bunkering operations in territorial waters pending local case-by-case approvals and also in port cargo operations for onshore energy facilities.

Some experts have predicted a need to charter in Handysize/MR tankers to move LSFO around from storage to bunkering location. However, Molholt cautioned that it was premature to go into this scenario, until more is known about the actual product availability in 2019/2020. TO

Monjasa- a potted history

Monjasa can trace its history back to 2002 when a small office was opened in Kolding, Denmark by company founders, Jan Jacobsen and Anders Østergaard.

The inaugural bunkering operation took take place in Dubai.

In 2005, Monjasa acquired the first small wholly-owned supply tanker in South Africa, which was named 'Monjasa Pioneer', and the company moved to a new office in Fredericia, Denmark.

Thereafter, offices in Singapore and Dubai were established and bunkering operations experienced rapid growth in West Africa and the Arabian Gulf.

On the back of the growth, Monjasa built new headquarters in Fredericia. In addition, a third international office was opened in Stamford, Connecticut, resulting in Monjasa being present across all major time zones.

In 2014, Monjasa received its first quality, environment, and working environment ISO certifications.

Today, the total workforce on land and at sea is more than 600 skilled bunker traders and maritime specialists, and the global fleet totals 25 ships offering all bunker blends, including HSFO, LSFO, ULSFO, MGO and MDO.

Drone surveying technology takes off

With four drone types in its portfolio, DNV GL has adapted its survey technology to various ship structures and recently the class society carried out its first offshore drone survey.*

Since DNV GL carried out its first production drone survey in June, 2016, it has become the leading provider in this field, the class society claimed.

"When we started out, we wanted to find a safer, more efficient and cheaper way of fulfilling the requirements of close-up surveys. During these inspections, a surveyor has to be able to touch a surface to check the condition of the material," explained Cezary Galinski, Senior Principal Surveyor and Head of the DNV GL drone squad. "So instead of taking the surveyor to the component, we bring the component to the surveyor, on 4k, high-definition video."

This global team is headquartered in Gdynia but also works out of Dubai, Shanghai, Singapore and Houston. So far, the team has conducted more than 25 drone production surveys around the world. Typical ships include tankers, bulkers and, more recently, semi-submersibles and jack-ups. "These are the vessel types that require close-up surveys," Galinski explained.

As mentioned, DNV GL operates four drone types - Custom drone, DJI Phantom, Mavic drone and the Flyability Elios drone – each with different capabilities and areas of application.

What they all have in common is that they were modified in the Polish workshop. This cellar room, filled with carefully catalogued shelves, spare cables, batteries, soldering irons and a variety drones in different stages of construction, is where DNV GL customises off-the-shelf drones to make them fit for inspection purposes.

"Commercially available drones are built for users who fly them outside in open spaces and shoot footage of objects below. So, one of the first things we do is change the drone's software settings for adjusting the camera angle. This enables us to film objects that are in front of or above the drone," Galinski explained.

Adding protective gear is the next step. "We have to fly the drones close to ship structures, therefore we developed a special cage for the DJI Phantom drone. And we equipped the Custom drone with a protective wire to shield its propellers, the camera and the lighting systems we attach to it, to enable it to operate in dark spaces," said surveyor Leszek Alba.

Galinski's team has also fitted the Custom drone with a zoom camera. This means that instead of having to fly within distances as short as one metre from the structure, the drone can take high-definition images from further away.

This is of particular importance when surveyors fly the drone in open seas, and has proved to be incremental to the success of DNV GL's first offshore drone survey, which was carried out on the semi-submersible vessel 'Safe Scandinavia' in July, 2017.

This tender support vessel (TSV) owned and operated by Prosafe supports Statoil's drilling operations off the coast of Norway. "It was a great opportunity for us to demonstrate our drone's ability to check the condition of remote external components in challenging offshore conditions. The inspection only required the semi-submersible to de-ballast.

"We flew the drone approximately 25 m below the main deck to check the condition of the fairleads and their connections to the columns that hold up the TSV. With wind speeds of about 15 knots, this went very well and the survey showed that the fairleads and their connections were in a good condition," said Galinski.

It was also a first for Prosafe. "Innovation is one of our core values. We are very pleased to have chosen to try the drone survey, as it helped us optimise our survey requirements and allowed us to save significant amounts of time and money.

"Normally this kind of operation would cause a disruption of several days to our client. The drone survey took only a few hours and was just as effective," said Ian Young, Prosafe COO.

DNV GL's Cezary Galinski

The challenges

To get to this point, Galinski's team had gone through years of experiments, modifications and practice runs. And even after optimising the technology, flying drones on maritime structures comes with its own set of challenges.

"When inspecting the cargo hold of a large oil tanker, for example, you have to fly the drone about 30 m away in the dark. In addition, the pilots are surrounded by thousands of tonnes of steel, which means that the drone's GPS and magnetic compass, which usually help it identify its position, don't work – nor does its positioning support. This makes its behaviour somewhat unpredictable," Galinski explained.

"If you fly a drone in your garden with

the position-keeping function enabled, you can push it away and it will automatically return to where it was before. On a ship, any sudden input may cause the drone to become unstable and require the pilot to correct its position manually," he added.

During an offshore survey, the pilots have to manoeuvre the drone along structures at distances of up to 180 m. "In this kind of environment the wind is the greatest risk factor. We chose the DJI Phantom drone for the 'Safe Scandinavia' survey, because it can be fitted with a cage. Protecting the drone was important, since we were operating it close to obstacles such as anchor chains and wires. What is great about the DJI Phantom drone is its compact size. It fits into a backpack, making it convenient to take offshore by helicopter," explained Alba.

The successful survey demonstrated that the Custom drone was up to the challenge: it not only survived the inspection but also delivered valuable results, DNV GL claimed.

The future

Looking ahead, Galinski expects drones to revolutionise the inspection regime. "I am confident we will see the introduction of autonomous drones. This would open up many new possibilities. For example, they could be dropped into inerted compartments where humans cannot enter," he explained.

The surveyor could stay outside while the drone would follow a predefined flight path to check the condition of the compartment. "This would enable us to carry out inspections without lengthy preparations, while keeping the surveyors safe," he added. In future, it might even be possible for an autonomous drone equipped with artificial intelligence to carry out a survey independently, monitored by the surveyor from the shore office using a virtual-reality headset.

For the time being, the autonomous functionality still requires further development. "Outside drones can follow a predefined flight path using a GPS signal. But for confined steel compartments we need to find an alternative approach," said Galinski.

In a joint research project, DNV GL and the University of Trondheim, Norway, are developing an autonomous drone. With several options under consideration, Galinski expects to see the first autonomous surveys of inerted compartments in the near future.

"Two of our drone pilots have completed the BVLOS (Beyond Visual Line of Sight) certification, allowing them to operate drones beyond the line of sight. So while drone inspections remain a niche for now, more advanced models with AI capabilities could soon transform ship surveys. We want to be ready for this," he stressed. TO

**This article was taken from DNV GL's Maritime Impact Magazine.*

DJI Phantom: The DJI Phantom drone can operate for about 20 mins and is lighter than the Custom drone. It is used for external surveys but can also be flown inside spaces, such as tanks. When fitted with its protective shield it is more resistant to damage.

Framo joins oil spill group

Norwegian pump supplier and service company, Framo, has joined Maritime Partner, Norbit Aptomar, and NorLense to create OSRV (Oil Spill Recovery Vessel) Group to offer an oil spill response solution.

"Our aim is to be a one-stop-shop where we pool our efforts and act as a total systems supplier of safe, highly functional, and well-tested technology. The emergency response equipment has undergone thorough testing and quality assurance drawing on 40 years of oil spill response experience," says Jørgen Brandt Theodorsen, Framo's Area Manager, Oil & Gas Pumping Systems.

OSRV offers a packaged solution that covers spill detection and containment to recovery.

The companies in this Norwegian cluster are all specialists in their particular fields. They can also convert conventional supply vessels to emergency oil-spill response support units.

"The customer only has to deal with one of the partners to get access to a complete system that covers everything and is fully adapted in terms of functionality, volume and size." explained Roy Arne Nilsen from the international sales team at NorLense.

Aptomar's radar and infrared camera identifies and produces an overview of the oil slick, whereas Maritime Partner's high-speed vessels are claimed to be perfect for pulling equipment such as booms in place.

The oil is contained with booms from NorLense, and then recovered onto a vessel with the Alfa Laval subsidiary Framo TransRec Oil Skimmer system.

This equipment is already in use worldwide, and the technologies are tested annually as part of realistic drills.

Offshore Vessels

There are many offshore vessels still laid up and without assignments, despite a slight pick up in the market.

"Oil spill response is a complex operation," said Lars Solberg, Sales and Marketing Director at Norbit Aptomar. "This is a turnkey solution where customers have access to emergency preparedness expertise without themselves having to acquire this. With our package solution, supply vessels can easily be upgraded and used as part of new emergency response tenders. It is quick and easy for shipowners to convert existing vessels in order to offer new services to oil companies."

"Going forward, delivery lead-times will be of utmost importance. When the assignments start ticking in, getting the mandatory equipment on board could become a time-critical issue. As the OSVR Group, we will ensure that an emergency oil-spill response system reactive, responding quickly," said Peder Myklebust, Managing Director of boat-building specialist, Maritime Partner. "We operate with a delivery lead-time of a mere eight weeks for the full package of Norwegian-manufactured, high-quality equipment."

Handling of the equipment requires minimal manpower. This reduces the need for crew members, is cost-effective for the shipowner, and increases the safety level as there are fewer people involved. Thorough training of operators helps extend the lifespan of the equipment.

The OSRV Group offers potential customers visits to the suppliers in Bergen, Ålesund, Trondheim, and Lofoten. Customers also have the option to lease the equipment from OSVR. For Norwegian shipowners abroad, the GIEK financing scheme could also be of help.

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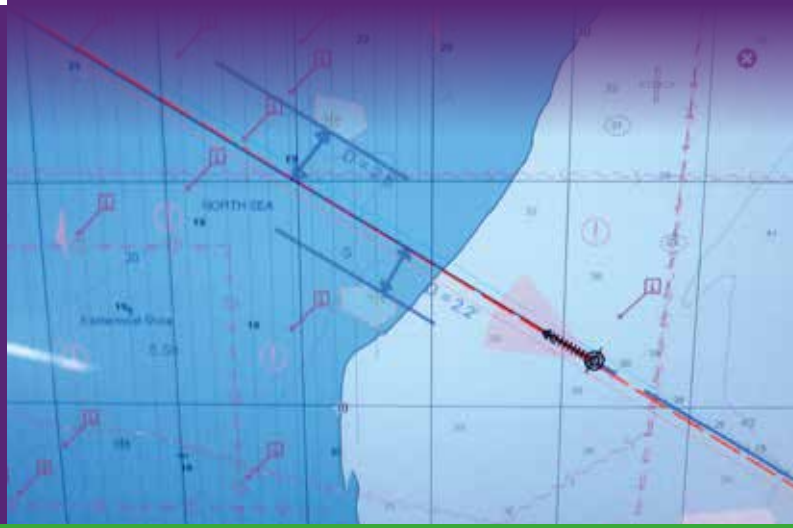

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