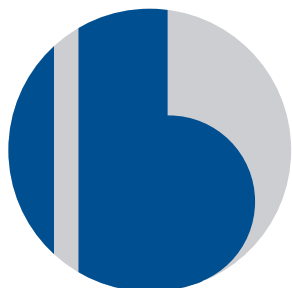


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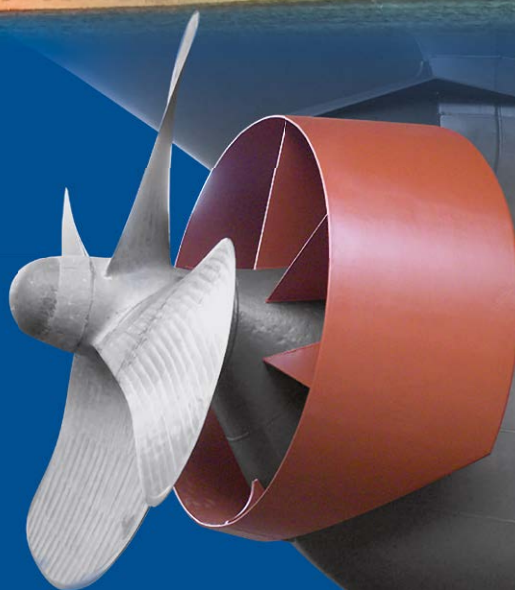
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- Our annual look at the world's major owners and operators



Front Cover - Becker Marine has continued to win orders for its innovative cost saving propeller and rudder systems.

For example, recently Mideast Ship Management (MESM), a Bahri subsidiary, ordered a Becker Mewis Duct for a VLCC. MESM already has several vessels fitted with Becker's energy-saving device. She is one of a series of VLCCs, which will be fitted with Becker Mewis Ducts in the near future. The duct will be about 6.50 m in diameter and will be installed during the middle of this year.

In addition, Ektank has ordered Becker Schilling Twisted Trailing Edge (TT) rudders to be fitted on two Ice Class 1A 18,600 dwt chemical/ product IMO II tanker newbuildings to be built at Cheng Xi.

In order to ensure best manoeuvrability and efficiency, Becker is collaborating with MAN to provide flow efficient hub caps and rudder bulb design to integrate the rudder system in an efficient propulsion set up.

Let's meet at the conference

We are coming up to the first major exhibition and conference for the year- Shipping 2017 - organised by the Connecticut Maritime Association (CMA).

This year's event, to be held at the usual Stamford, Connecticut venue, takes on an even greater significance in the light of the so called 'Trump effect'.

Just what this will mean to the shipping industry remains to be seen and will no doubt be debated both publicly and privately.

Interestingly, Trump has appointed two industry heavyweights with shipping interests to jobs in the Administration. First, ExxonMobil Chairman and CEO Rex Tillerson becomes Secretary of State. No doubt running the world's largest energy company gave him lessons in diplomacy.

Second, investor Wilbur Ross has emerged as Secretary of Commerce. His company, WL Ross, has a 39.5% stake in New York-listed Navigator Holdings, an operator of handysize LPG carriers, and investments in a drybulk company, but he has said that he will give up his interest in his firm, which was taken over by Investco in 2006.

He also has said that he will keep his interests in the Diamond S Shipping Group although resigning as Chairman - Diamond S Shipping commercially operates 12 Suezmaxes and 33 MRs. In addition, he will also retain interests in other entities, some of which are involved in shipping.

In a sea of rhetoric, Trump has threatened to block trade deals, build a wall around Mexico and go ahead with large pipeline projects originally abandoned on environmental grounds by the Obama Administration.

In promoting 'America First', Trump and his advisers no doubt have eyes on ramping up US oil and gas exports on the back of increased

production, most notably shale. He will need the money to push through all the other initiatives mentioned, if they are to get anywhere near to coming off the drawing board.

Given the mantra 'America First', the Jones Act looks safe for now, despite the horrific cost involved of building and operating the ships. Fortunately, for the tanker sector, the large US MR newbuilding programme comes to an end this year and some of the older vessels in the fleets will be scrapped.

Major US players

Despite the downturn in traditional tanker companies in the US, apart from various New York quoted concerns, there are some very big players left in shipowning, operating and broking across the US, which has been recognised by the CMA in its choice for the 2017 'Commodore'.

This honour falls to John D 'Jack' Noonan, CEO of Chembulk Tankers. The Award is given each year to a person in the international maritime industry who has contributed to the growth and development of the industry, CMA explained.

With the exception of his years at sea, his entire maritime career has been spent in Connecticut, throughout which he has been a member of the CMA.

He joins an illustrious list of shipping luminaries, including - Ole Skaarup, Jacob Stolt-Nielsen, George Livanos, Phil Loree, Thomas Moran, Gregory Hadjieleftheriadis, Helmut Sohmen, Gerhard Kurz, William O'Neil, Richard du Moulin, Per Heidenreich, Marc Saverys, Frank Tsao, Stelios Haji-Ioannou, Peter Georgiopoulos, C Sean Day, Torben Jensen, Morten Arntzen, John Fredriksen, Capt Wei Jiafu, Philippe Louis-Dreyfus, Angeliki Frangou, Øivind Lorentzen III, Peter Evensen, Robert Bugbee, Capt

Panagiotis Tsakos and last year, Paddy Rodgers.

Other conferences specific to tankers on the horizon include the 9th Chemical & Product Conference to be held in London towards the end of March (see page 21) and the first of this year's *Tanker Operator* conferences, which was scheduled to convene in Copenhagen as this issue was due to be published.

The following conferences in the *Tanker Operator* series are planned for Athens in May, Mumbai in September and Hamburg in October.

Of course, the other big one this year is Nor-Shipping to be held at the end of May. A preview of this bi-ennial will be included in the May issue of *Tanker Operator*. There are also others aimed at different themes or regions of the shipping industry.

If everyone is not conferenced out by the end of this year, then there is Marintec China, which tends to be aimed at a different audience, mainly from the Asia/Pacific region, but with a strong Western presence.

It has been proved down the years that no matter what state the industry finds itself in, either financially, political or for any other reason, the numbers of exhibitors, delegates, sponsors, etc of these events continue to grow year-on-year.

Costs seem to go out of the window. Although there has been a reduction in some of the stand sizes taken by the major players, new exhibitors have taken up the space and new halls have had to be added. Just look at SMM, which is now getting so big that a bus is needed to ferry people from one side to the other.

This is not meant as a criticism but more of an illustration that when the going gets tough, the tough get going. And with all the environmental concerns on the horizon, there will still be plenty to talk about and new ideas to sell.

TO

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A look at VLCCs and LRs courtesy of McQuilling

In the past few weeks, McQuilling Services has looked at recent DPP demand developments in the VLCC sector and also in the LR sector.

The consultancy also gave an indication of what we expect going forward taken from the '2017-2021 Tanker Market Outlook'.

The Far East is the main driver of DPP tanker demand when measured by discharge region. For example, in 2016, the region accounted for about 23 mill barrels per day of refining capacity, with an estimated utilisation of 82%, while crude production declined to 6.7 mill barrels per day.

Far East imports by ship averaged about 62.5 mill tonnes per month (or around 14.5 mil barrels per day), up from 59.5 mill tonnes per month in 2015. The geographic

range, along with growth in refinery intake (as well as SPR builds) of the feedstock, impacts on tanker demand, which, according to McQuilling's analysis, is up 6.2% year-on-year for dirty tankers carrying requirements to the region.

China, the largest producer of crude oil in the Far East, reduced output by about 300,000 barrels per day to average 3.98 mill barrels per day while domestic demand from refiners rose to 11.2 mill barrels per day. As a result, net imports to meet refinery demand rose to 7.2 mill barrels per day.

Support for crude demand has been influenced fairly strongly by growth in independent refinery usage (teapots). In

December alone, China imported 8.6 mill barrels per day, an increase of 10% both on a month-on-month and year-on-year basis, as these refiners increased purchases to fill import quotas.

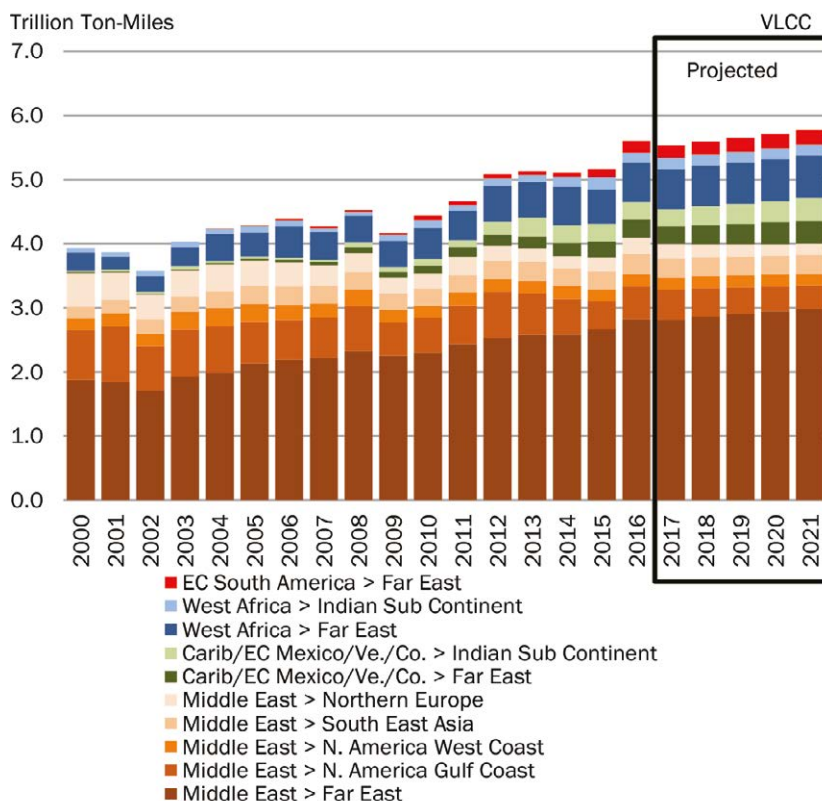
The Arabian Gulf/Far East trade is by far the greatest regional trade for VLCCs, accounting for 44.3% of demand and 25% of total DPP demand.

McQuilling noted a growth in this regional trade in 2016 by about 5.5% from 2015 levels, while over the year's five-year forecast, the consultancy believed that increasing demand for Middle Eastern crude oil by an expanding domestic refining sector may decelerate demand growth.

Due to its status as the world's largest crude oil exporting region, the 1.2 mill barrels per day reduction in OPEC output will adversely impact tonne/mile demand from the region to both East and West discharge locations. As a result, McQuilling forecasts a -0.1% result for the Arabian Gulf/Far East VLCC trade in 2017.

West African crude supply to the Far East rose by 14.7% last year, retaining the second largest trade in the VLCC sector. The impact from Nigeria's supply disruptions was largely concentrated on the West Africa/Indian sub-continent trade as Angola and the Congo are the primary sources of crude to the Far East, while Nigeria sends the majority of its crude to India.

To combat the decline in Nigerian production, India increased its imports of both Iraqi and Iranian crude, which resulted in a 13.7% rise in tonne/mile demand for VLCCs engaged in this trade, while the West Africa/India sub-continent flow dropped by 14.6%. To put the impact into perspective, West Africa to India VLCC trades measured 156 bill tonne/miles in 2016 on the basis of 21.2 mill tonnes transported, while the



VLCC Demand - Top 10 Trades Source McQuilling Service

Middle East to India was only 78 bill tone/ miles, but represented 64.7 mill tonnes. This compares to 57.3 mill tonnes for Middle Eastern crude and 25.7 mill tonnes for West Africa in 2015. As mentioned, major disruptions to tanker demand were as a result of West African supply disruptions.

Although West African crude output dropped to 5.1 mill barrels per day from 5.4 mill barrels per day in 2015, a rapid recovery in Nigerian production was seen in January, 2017 to 2 mill barrels per day. On average, it is projected that West African crude output will register 5.5 mill barrels per day in 2017 and reach 5.8 mill barrels per day by 2021.

As a result, an increase in West Africa to India flows is likely, although the probability of renewed militant attacks throughout the year remains high. McQuilling's models show the West Africa/Far East VLCC trade growing at an annual rate of 1.6% through 2021, while the West Africa/Indian sub-continent route should recover in 2017 (+9.4%).

LR sector analysis

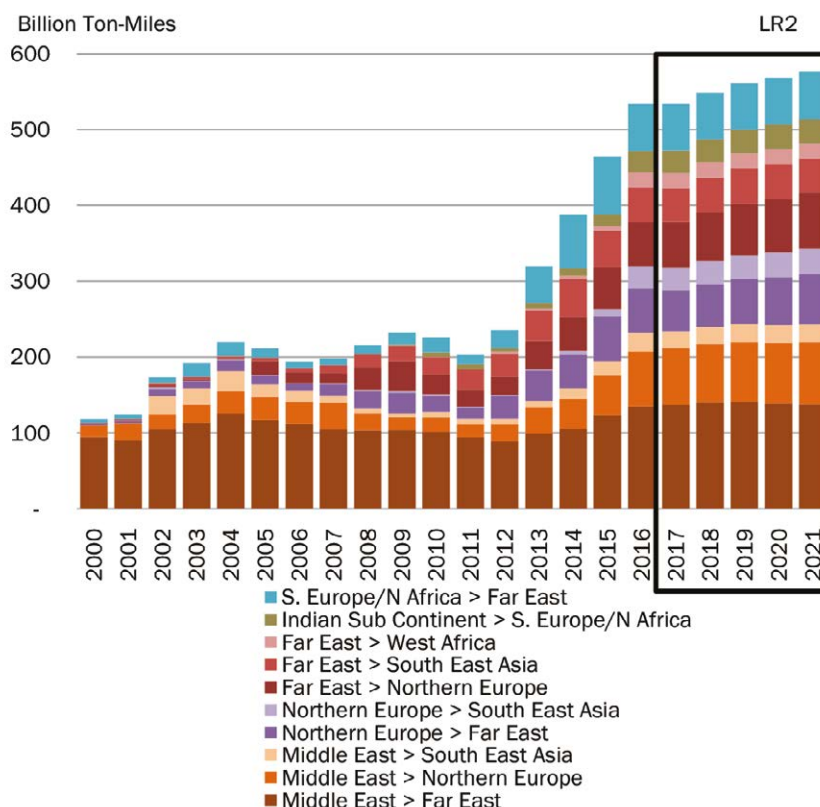
As for recent tonne/mile demand developments in the long range (LR) tanker sector. McQuilling focused on Middle Eastern exports.

LRs are most active on the Middle East/Far East naphtha trade, but recent paradigm shifts have caused a significant rise in flows from the Middle East/ Europe, primarily of gasoil and jet fuel.

India's expanding refinery capacity serves as a balancing tool for short product regions, such as gasoline on North America's East Coast and jet fuel in Europe. While trans Panama Canal trade between the Far East and Europe is also a demand generator for LR2s, it is highly correlated to short-term pricing dynamics, allowing for arbitrage opportunities.

The Middle East, combined with India, contributed the highest amount of tonne/mile demand growth in 2016 as the Middle East's supply of products rose from 10.99 mill barrels per day to 11.35 mill barrels per day, while demand increased by only 20,000 barrels per day. Gasoil supply growth significantly outweighed demand gains in 2016, leading to a 27% increase in total CPP tonne/mile demand for the Middle East to Northern Europe regional trade.

India's refining sector grew the most of all of the regions analysed in 2016, expanding by 340,000 barrels per day. Subsequently, refined product supply grew by 370,000 barrels per day, due to a slight pick-up in



utilisation in addition to the capacity growth.

While on one side, there was a positive story for CPP tonne/mile demand (expanding refining capacity) the same is not true when the expected demand side in India was analysed. India is one of the fastest growing economic centres in the world, with the IMF projecting 7% + GDP growth per annum over the next two years.

At the same time, product demand is expected to rise across both distillates and lighter end products, pressuring exports. Therefore, while the Middle East/India super-region is one of McQuilling's major tonne/mile demand generators in the next five years, it is a 'tale of two cities' - or regions in this case.

Tonne/mile growth

LR2 tonne/mile demand accelerated by 12% last year versus 2015 levels, as substantial growth was observed in the Middle East/Northern Europe region-to-region trade. Middle East exports to the Far East were up 10% year-on-year, as the 2015 pricing arbitrage from Southern Europe to the East was elusive for most months during the year. As a result, Southern Europe flows to the Far East were down 19%.

In total, on average the Middle East exported about 6.5 mill tonnes per month of refined products, up from 5.6 mill tonnes in 2015. Trading partners in the Far East

that recorded the highest import growth on Middle East CPP exports were led by South Korea, which increased volumes by 7%, while Japan's imports were up by less than 1% year-on-year.

In Northern Europe, the Netherlands and the UK registered strong growth. About 900,000 tonnes of Middle East clean products, primarily gasoil, were exported every month to these two countries, up from 627,000 tonnes in 2015.

The smaller LR1 types continued to demonstrate steady trade flows from the Middle East to discharge locations in the Far East and Southeast Asia with a healthy distribution of gasoil, naphtha, jet fuel and gasoline cargoes heading East.

By 2021, estimates show that Southeast Asian demand for refined products will eclipse 6.94 mill barrels per day, while regional supply is estimated at 4.84 mill barrels per day. On a net balance basis, the growth in net imports is projected at 300,000 barrels per day.

McQuilling concluded that it expected both the Middle East and Far East refining centres to increase their market share over this period at the expense of Northern Europe. The consultancy's LR1 tonne/mile demand projections show annualised returns through 2021 to be 3.2% (Far East/Southeast Asia) and 8.2% (Middle East/Southeast Asia).



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How will the regime change affect US crude exports?

It is too early to judge what the Trump effect will have on shipping in the US.

However, he has started to overturn several key pieces of legislation implemented by his predecessor, President Obama.

One item of significance to the oil trades, reports shipbroker Gibson, was the decision to give a second chance to two controversial oil pipelines. President Trump signed orders supporting two projects, Keystone XL and the Dakota Access pipelines, both of which had been opposed by environmentalists under the Obama administration and as a consequence- stopped.

In particular, the Keystone XL pipeline will run for 1,179 miles from Alberta, Canada to Steele City, Nebraska where the pipeline will join the existing network. The new section is designed to increase capacity to 830,000 barrels per day from the present 550,00 barrels per day, providing a more direct route from Canada to the US Gulf Coast via Cushing.

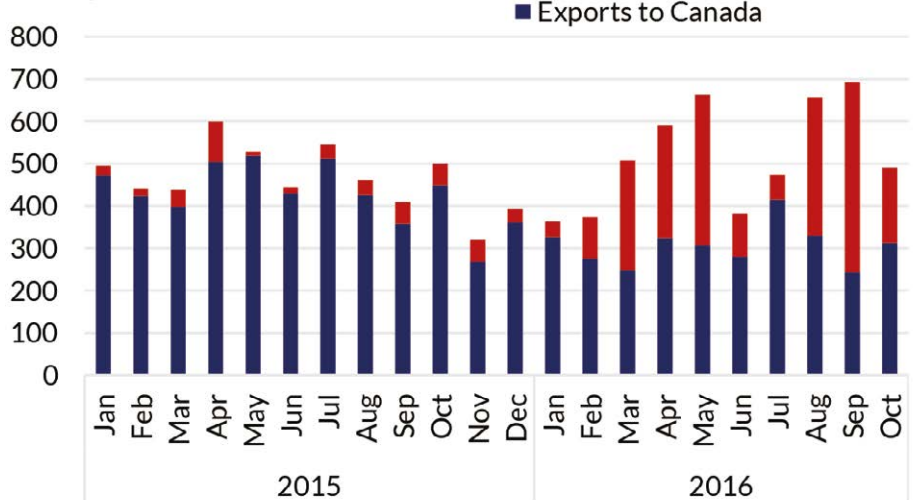
Following Trump's decision, TransCanada immediately submitted an application to the US State Department for approval to restart the mothballed privately financed project. This, coupled with the desire to use US produced pipe and labour, makes it attractive to the new administration. However, this particular project may not be a done deal as it is almost certain that opponents could again cause disruption to its progress.

Apart from the latest developments in terms of Canadian crude pipeline infrastructure to the US, we are also likely to see a significant rise in US crude exports for several reasons, Gibson said in a report.

Crude exports rose much more quickly than expected in 2016 and the benchmark US rig count is currently rising. International oil prices are also firming and more efficient US shale production techniques are providing better margins for the oil producers.

Trump's policy 'America first' and in particular, providing energy security, as well

'000 b/d



US Crude Exports Source Gibson Shipbrokers

as providing jobs for American workers was a major part of the Trump election campaign; meaning less dependence on crude imports.

To this end, another Trump proposal is to bring in a 'border adjustment tax' (BAT); which, if implemented, could add 20% to the price of imported crude and products. The proposed legislation will have a direct impact on imports, primarily seaborne, if the Canadian pipeline is built. Also, the move will boost domestic production.

Large oil surplus

Goldman Sachs said that it believed that this will lead to a ramp up in US production, resulting in a large oil surplus in 2018. Some will go into domestic refineries, but crude exports could also rise. US refineries have been running in the range 90-95% capacity for some time and, with few major enhancement projects on the horizon, any surplus of crude produced will be earmarked for sale overseas.

Putting all the above together, Gibson said the prospects for a rapid increase in US export crude is finally beginning to look a real possibility. In addition, although the

potential decline in seaborne crude imports, at first glance, sounds like bad news for tankers, existing crude exporters to the US will need to seek alternative markets, but this could benefit the market.

Venezuelan and West African barrels would probably be shipped to the Far East and India, supporting tonne/miles. Another issue to consider will be the differential between WTI and the international Brent prices, which will also influence imports/exports.

The US is also taking steps to improve its export infrastructure. One of the first cargoes, following the lifting of the export ban in December, 2015, loaded at the 2 mill barrel capacity Occidental storage facility at Corpus Christi, Texas.

Plans to upgrade the 300,000 barrels per day facility include deepening and widening the access channel to accommodate Suezmaxes. Other projects in the Gulf are also taking shape. So perhaps we will see larger volumes of US crude exports, the question is how quickly this will happen and how large the volumes will be? Gibson concluded.

OSG rises from the ashes

Late last year, Overseas Shipholding Group (OSG) completed the separation of OSG into two independent, publicly traded companies - Overseas Shipholding Group and International Seaways (INSW).



On 30th November, 2016, 100% of the shares of INSW were distributed to OSG shareholders and warrant holders. OSG shareholders received 0.3333 INSW shares common stock for every one share of OSG common stock held on 18th

November, 2016, the record date for the spin-off.

For each OSG warrant held on the record date, OSG warrant holders received 0.3333 shares of INSW common stock for every one share of OSG common stock they would have received if they exercised those

warrants immediately prior to the distribution date (or approximately 0.06332 INSW shares per warrant). OSG shareholders and warrant holders received cash in lieu of any fractional shares.

INSW common stock began 'regular way' trading on the NYSE on 1st December, 2016.

In another move,

OSG reached an agreement with the US Securities and Exchange Commission (SEC) fully resolving an investigation into the alleged failure of OSG to record certain federal income tax liabilities in its financial statements prior to the second quarter of 2012.

This agreement with the SEC will also resolve the last remaining claim in the company's bankruptcy case. The company will file a motion requesting bankruptcy court approval of the SEC resolution and will simultaneously request an order closing the company's bankruptcy case.

In the resolution, OSG stressed that it neither admits nor denies the SEC's allegations that the company violated certain provisions of the US Securities Act of 1933, the Securities Exchange Act of 1934 and related rules.

Subject to bankruptcy court approval, OSG will pay a \$5 mill civil penalty related



'Overseas Anacortes' was one of a series of Jones Act MRs delivered by Philly Shipyards



APT's Magnolia State' was a product of NASSCO

to the SEC investigation, which was fully taken into account as of 30th September, 2016. This resolution does not require

any changes to the company's historical financial statements. OSG previously restated its annual financial statements for 2000 through 2011 and for the quarters ended 31st March and 30th June, 2012.

OSG claimed that the SEC had acknowledged its co-operation with SEC staff throughout the course of the investigation, as well

as OSG's implementation of remedial measures and improvements to internal

accounting controls over its tax reporting functions and changes to the senior management of OSG since 2012.

Following last year's spin-off, OSG is now a publicly traded tanker company providing energy transportation services for crude oil and petroleum products in the US flag markets (Jones Act).

The company operates 24 tankers and ATBs in the Jones Act sector. The US flag fleet consists of eight ATBs, two lightering ATBs, three shuttle tankers, nine MRs, and two non-Jones Act MRs, which are involved in the US Maritime Security Program.

Bareboat charters

The nine MRs and one shuttle tanker are on bareboat charter from American Shipping Co (AMSC). The MRs are contracted until December, 2019, while the shuttle tanker is chartered through June, 2025.

In its annual report, AMSC CEO Pal Magnussen said that the Jones Act tanker trade remained oversupplied in the fourth quarter of last year. Interestingly, he also said that there was a trend developing whereby charterers were replacing articulated tug barges with tankers.

AMSC said that there were encouraging signs for Jones Act tankers going forward, not least the rise in the oil price on the back of OPEC and some non-OPEC suppliers production cuts, which has led to forecasts of increased US shale oil production to meet the expected global demand growth for crude oil.

While US clean product trades were stable and have increased on the back of rising domestic gasoline consumption, rising crude oil production may lead to an increase in Jones Act tanker demand.

Turning to the supply picture, AMSC said that eight newbuildings were delivered last year, while two vessels were scrapped, which led to the oversupply situation.

However, it was expected that an increase in scrapping of tankers and ATBs will be seen in the years ahead, given that 21% of the existing fleet is over 30 years of age.

Also notably, no new tankers order were placed in the last two years and the two main builders of Jones Act tankers - NASSCO and Philly Yards - are restricted due to the number of US containership orders received recently. There are no new tankers due to be delivered, once the vessels scheduled to enter service this year enter service.

SHIPOWER VIEWPOINT

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Terntank Ship Management AB, says

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AMSC said that given the above, the company expected a firmer Jones Act market over time.

Another major Jones Act tanker player is American Petroleum Tankers (APT), a subsidiary of Kinder Morgan Terminals.

APT's current fleet consists of 12 Jones Act-qualified MRs, each with a capacity to carry 330,000 barrels. Each of APT's vessels operates on long-term timecharters to major integrated oil companies, major refiners and the US Military Sealift Command.

They are operated by Crowley Maritime Corp.

In addition, APT has four more MR sisterships on order at Philly Shipyards and General Dynamics NASSCO. These vessels are due to be delivered this year.

On 17th December 2016, NASSCO christened the 'Liberty', the third ECO class MR for SEA-Vista (Seacor/Seabulk Tankers), another Jones Act tanker player.

Designed for improved fuel efficiency, the 50,000 dwt, LNG-conversion-ready ECO class tanker achieves a 33% increase in fuel efficiency through several features, including a G-series MAN ME slow-speed main engine and an optimised hull form, NASSCO claimed.

As part of an eight tanker programme for two separate customers, last year,

NASSCO delivered a record six ships, including the first two ECO Class tankers for SEA-Vista - 'Independence' and 'Constitution'.

For its commercial shipbuilding work, NASSCO partners with South Korean shipbuilding power, Daewoo Shipbuilding & Marine Engineering (DSME), to access modern ship design and shipbuilding technologies.

In January of this year, Philly Shipyard held a keel laying ceremony for the fourth and last MR for APT.

Like her sisterships, the Tier II 50,000 dwt product tanker is based on a Hyundai Mipo Dockyards (HMD) design, which incorporates numerous fuel efficiency features, flexible cargo capability and will operate to the latest regulatory requirements.

The vessel will be constructed with the possibility of LNG fuel conversion in the future.

Philly Shipyard has delivered 25 ships in its 17-year history, including the first product tanker for APT in December, 2016.

Philly Shipyard is listed on the Oslo Stock Exchange and is majority-owned by Aker Capital, which in turn is owned by industrial investment company, Aker ASA.

APT MRs Principal Particulars

ABS Classification +A1 (E), Chemical Carrier, Oil Carrier, ESP, VEC-L, CSR AM-CM, AMS, +ACCU, UWILD, IMO Ship Type 3, CPS, RRDA, TCM, CRC, PMA+, BWT, NBL, GP

Length, overall	610 ft 1 in
Length, between perpendiculars	583 ft 10 in
Beam, moulded	105 ft 8 in
Depth, at side	62 ft 8 in
Draft, design	36 ft 1 in
Draft, max	42 ft
Speed, design	14.5 knots
Accommodations	30 persons
Gross Tonnage	29,923
Deadweight, design	36,000 LT
Deadweight, max	48,300 LT
Cargo Capacity (100%)	330,000 bbls
Cargo seg (crude, clean and dirty products)	six
Main engine	9,800 bhp MAN B&W 6G50ME
Cargo pumps	FRAMO hydraulic submerged (12 x 21,200 cu ft/hr)
Cargo tank coatings	Epoxy
Hose handling crane	9.8 LT

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New agency to concentrate on bulk trades

The launch of WaterFront Maritime Services has brought the role of the ship's agent back into focus.

Due to go 'live' on 1st April, this new venture is backed by Middle East and Asian port agencies Sharaf Shipping and Ben Line on a 50:50 basis.

Both stakeholders are family owned and are well known as regional players in the agency business but have joined together to create a worldwide agency unit to serve the wet and drybulk shipping and commodity markets.

WMS will start operations with 299 parent company propriety offices across 49 countries, supported by a network of vetted third-party agents worldwide, which are due to be announced soon.

The new agency will market its expertise to vessel owners, operators, managers, pool managers and charterers, including traders, among others, involved in shipping crude oil, clean and dirty products, chemicals and gas, as well as drybulk and project cargoes.

When announcing the launch in London recently, CEO, Terry Gidlow, said: "This is a bold move by two of the industry's most respected regional port agencies and will set a new standard in port agency. Built on solid financial, technical and historical foundations, we are offering a tailored, holistic approach to global supply chains that will set us apart from the competition.

"Clients have been calling out for a port agency that can provide the best of both worlds: an agency that has real in-depth regional expertise but a single global approach. Waterfront is a 21st century solution that gives the best local expertise possible through a single hub. By combining the unrivalled regional knowhow of Sharaf and Ben Line we can provide ship operators, managers and traders with the most efficient service possible. We can ensure the safe and efficient handling of ships, cargoes and crews through trusted regional connections and deliver the same verifiable high standards in all ports," he concluded.

Despite being owned by two major agency companies, WMS will operate as a wholly independent corporate and commercial entity. Its board currently includes Duncan Ramsay and Kristian Vandermeer, managing director

and regional director, respectively, of Ben Line and Kapil Celly and Salah Sharaf, both executive directors of the Sharaf Group. Gidlow was previously with Inchcape Shipping Services, LBH and Chemoil Energy.

The company will be headquartered in Dubai with commercial offices in Singapore and Miami, as well as operational hubs in Jakarta and the UAE and the soon to be announced third party agency tie-ups.

Population growth

Gidlow said that the directors had been working on the concept for around 12 months and the main driver was the population growth of around 86 mill per year, according to the World Bank, which, in turn, will lead to demand for more food, energy and infrastructure, ie more raw materials, ocean freight and thus maritime services.

He also explained that WMS will be volume not rate driven, as higher commodity and/or freight rates do not translate into higher agency fees. Modern solutions are needed for today's problems from the traditional service providers, such as information overload, compliance in certain countries and areas, terror threats, HSQE, geo-political events and financial upheavals.

Taking the case of crude oil, according to UNCTAD, the volume is expected to grow by 3.8% per year and according to Clarksons, the current fleet will grow by 5.7%. The key driver here was the low oil price driving tanker demand and changing vessel trading patterns, leading to more cargoes and thus again more services at the



Left to right. Terry Gidlow (CEO), Duncan Ramsay (Chairman), Sharafuddin Sharaf (Founding Shareholder) WaterFront

load and discharge points, including increased husbandry.

Gidlow claimed that one of the main reasons for setting up the agency was to save clients costs by smoothing over and reducing vessels' time in port by expediting faster documentation, demurrage and dispatch. On the money side, WMS claims to be able to provide working capital, look at counter party risk, control vendor management, bulk buy and operate FOREX services by using up to the minute IT systems, able to transfer large sums of money in seconds rather than days as before.

While providing reliable, efficient, and carefully delivered ship agency, husbandry and hub agency services in port, WMS will also be able to create significant supply chain efficiencies through the analysis of operational and market data.

This will enable WaterFront's teams at its operational hubs in Dubai and Jakarta to identify areas of weakness and opportunity in every voyage, tailored to meet the exact needs of each client using their bespoke data management and workflow system.

Clients will be provided with intelligence specific to their business, and a local, regional or global view of specific cargoes or trade routes; arming them with actionable data to make efficiency savings to their operations, the company claimed.

Weathering the crisis - organisational changes are a must

“The vetting outcome is a disaster”, “40% of the observations are related to housekeeping”, “The officers are not leading.”, “The standard of the knowledge of the crew is critical.”, “The crew seems to care more about Internet and Facebook, than about our vessel” – Does this sound familiar?*

Those are only a few of the comments heard when speaking to shipping companies and especially to the technical departments with its superintendents, purchasers and HSEQ experts who are trying hard to maintain a high standard, despite the financial drought.



Matthias Imrecke

In the years prior to 2008, we could not get crews fast enough to man the newbuildings delivered by the yards, as though on conveyor belts. The result was

fast, superficial and at times substandard officer education of those soon to run these vessels. The Generation Y symptoms augmented the situation, whereby young people stepped on board, who were lacking the passion for the sea and who seemingly cared more about the work/life balance or to maintain a connection to friends and family through the internet.

Caring about the vessel, maintaining a high technical standard, managing the voyage successfully and being part of a value chain, seemed to be of secondary importance to a vast majority of people.

In response to concerns about the decline in professional standards, ISM, STCW and MLC were evolved initiated and forced through by political and administrative pressures. Whilst the regulators meant well, they did not foresee that the shipping industry would go through a roller coaster development in the years prior to 2008 and in the years thereafter until today.

The shipping industry's crisis, which started in 2008, is still ongoing and there is no light at the end of the tunnel, with the exception unfortunately of the lights of the occasional freight train coming in the wrong direction and hitting a shipowner.

An increase in accidents, incidents, near misses, misunderstandings and a lack of understanding for each other's concerns is invariably the result, despite the introduction of ISM, STCW and MLC. The regulators seem to try to fix this by adding more and more regulations and restrictions. But this is not the answer to the problem.

All of these developments are haunting the shipping industry now, in these days of crisis. But a crisis also demands crisis management by everyone, not only the regulators.

Technical knowledge, shipping knowhow, the right organisational structure, the right personnel and the passion for the sea, is needed in order to sail through this storm and survive.

When the shipping companies fight for income to pay OPEX all involved need to step up, move closer together and form a team to weather the problems.

It is too easy to hit the crew over the head when things go wrong. Instead the shore organisation needs to play a complete new role. Remember - a fish rots from the head. But, is the shore organisation geared to manage the challenges? Does the organisational set-up cater for crisis management? Is a strategy in place how to overcome the problem and how to counteract it?

Do managers, superintendents, HSEQ managers, purchasers, etc. possess the skill set to act professionally, to communicate with the crew, to train the crew and to motivate them? Is a top-down approach in place encouraging knowledge sharing and knowledge transfer? Is

the shore organisation forming a team with the shipboard management team to ensure that the company values, the mission and the counter action during crisis mode are being propagated?

According to industry representatives, ie shipowners, banks or investment houses, a vast majority are apparently not prepared or shall I say, able to counteract the present situation. This is indeed surprising, as one would expect that the management of every company is driven by the interest in survival.

Instead, especially smaller shipping companies, ie companies with a lower turnover, a smaller fleet and limited staff, seem to be paralysed and are sitting out the crisis conducting business as usual. Often the standstill is blamed on the banks, who are not willing to provide additional loans as support. However, it is the banks who need to see a plan, a concept, an idea on how the business will be changed to survive the crisis.

Instead of running into a disaster with open eyes, willingly accepting that one cannot counteract the problems, it needs a 'change'. Change in the way how, where and with whom the business is being conducted. Change in attitude and change in the organisation to drive the company forward, to improve on quality and on profitability.

Change is only possible if there is a sense of urgency. As JP Kotter wrote in his book 'Leading change'¹, there is too much past success, a lack of visible crisis, low performance standards, insufficient feedback from external constituencies, etc. adding up to 'Yes we have our problems, but they aren't that terrible and I'm doing my job just fine.'

If the management hides the problems from those acting at the front, for example, fleet management and shipboard management teams, there is no obvious, visible sense of urgency

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and people won't make that extra effort. They won't make sacrifices to make the necessary changes.

Now, since this article is published in *Tanker Operator Magazine*, readers may be asking themselves "What is he talking about? We have Vetting and TMSA and through that we are getting our fair share of feedback from the oil companies, sometimes more than we want."

But let's not fool ourselves. The oil companies are like the banks. They are deeply concerned about the state of the shipping industry at this stage. The lack of available funds does have an impact on the technical standard of the vessels and on the standard of the crew. The oil companies would prefer to work with owners who are not affected by the economic crisis and who are able to maintain their vessels to the highest standards. But they are also realistic enough to accept that every shipowner is struggling at the moment to make ends meet.

Thus, creating the need to put their minds at rest with a structured concept on how the owner intends to overcome the problem. Again,

we are talking about communication and sharing to build confidence and get support.

At the expense of repeating myself, in a crisis, the crisis management mode needs to be switched on by the owner and the top management of the company.

Encourage 'outside the box' thinking. No cow is too holy not to be slaughtered. It needs the willingness for radical changes in the organisation and in how business is being conducted today.

Larger organisations may find it easier to make those changes, as they usually function differently than their smaller counterparts. But in general, it can be said that the management should:

- Embark on a well communicated project to change the company.
- Be frank and open in the communication, this builds confidence.
- Embrace key customers if needed, again to build confidence.
- Assess the organisation and whether the present structure is what is really needed, make the necessary changes.

- Realign the company strategy.
- Assess whether the company has the right crisis managers and the right staff to assist them, with the right skill set, attitude, education and training to pull this through.
- Assess whether the Master and Chief, being an extended arm of the shore organisation, are capable to propagate the crisis strategy on board.
- Communicate the status of the project, share success stories, set backs and challenges.
- Assess the spending philosophy short, medium and long term and develop alternatives, involve the vessel.
- Assess whether IT solutions could streamline the processes.
- Maintain a project plan to control the progress and hold stakeholders responsible for achieving the milestones.

It will be a struggle to make those changes and there will be barriers and obstacles along the way. But in the end, the overall target is to survive and overcome a crisis, which nobody knows how long will last.

TO

Imrecke Consulting

**This article was written by Matthias Imrecke*

Imrecke founded Imrecke Consulting GmbH last year. The company is located on the outskirts of Hamburg, Germany.

It offers the shipping industry strategic 360 deg consulting, as a means to improve business performance, both at an operational level and with realistic concepts, as blueprint for strategic re-orientation.

Imrecke Consulting offers comprehensive services in the area of marine consulting, management consulting and executive search. It is those three pillars, which enable a detailed analysis of potential areas of improvement., the company said.

Recommendations derived from the analysis can then be implemented as a continual process also taking into account any necessary restructuring, of the organisation and human resources.

Matthias Imrecke, the founder and managing partner of the company, is a shipbroker by profession and holds a German Master's license - Oceangoing (AG). He sailed on tankers (VLCCs, MRs), container vessels and ferries and has 25 years of management experience in liner shipping companies, shipmanagement companies and ship agencies in Germany, the UAE, Greece, Switzerland and Malta.

Footnote

¹ John P Kotter, 'Leading Change', Harvard Business School Press, 1996, page 5.



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Third party shipmanagers have their say

Tanker Operator asked three of the leading third party shipmanagement companies to comment on several issues affecting the industry today, including pressures that go with managing tankers. Their comments are reproduced below in strict alphabetical order.

Anglo-Eastern's Bjorn Hogaard said that his focus going forward remained on the availability of the right officers, at the right time, to man the ships.



Anglo-Eastern's Bjorn Hogaard

"We are fortunate to have a very deep and experience pool of tanker officers and with a retention rate above 97% and our own training centres, we are well geared to cope with further expansion," he said.

Hogaard explained that Anglo-Eastern operates tanker management departments in both Singapore and Hong Kong. Today, the tanker fleet exceeds 200 ships, including both wet and gas and is divided into four equal size groupings - crude, product, chemical and gas.

Large shipmanagement concerns have always sold their expertise on being able to offer scale by having a critical mass of vessels under management. Hogaard said that this applies more than ever today and perhaps most for crew.

"Having scale to manage variations in types and numbers of ships and investing heavily in training to ensure the pipeline of officers is always sufficient to meet demand remains paramount. With more than 27,000 seafarers on the payroll, we are fortunate to have the numbers to justify investing in first-class training, both for cadets and for upgrading

existing officers' skills," he said.

Finance is another concern for almost everyone today. For example, private equity owners continue to make inroads in the market, but the lines between traditional owners and private equity have become more blurred, as today private equity money is sometimes behind traditional shipowning companies. "Shipping always was about financial leverage and financed with combinations of equity and debt," he explained.

Looking at the Asia/Pacific region, Hogaard said that shipping's centre of gravity has moved east in the past 20 years. "But I would say that shipping today is well balanced across the globe, with significant clusters in many parts of the world. For sure, in terms of crewing, Asia is more important than ever. Some 90% of our crew are from India, Philippines or China," he said.

Turning to the shoreside management team, Hogaard did not foresee a problem as he explained that Anglo-Eastern has a policy of developing the majority of its superintendents in-house, by promoting people from the ships and ensuring they are trained as they go up the ladder from superintendent to fleet manager.

"This ensures they understand the Anglo-Eastern Ship Management culture of 'doing a proper job' and 'taking a long-term view'. We are blessed with 200 very bright, hard-working and diligent superintendents and, together with the long-serving officers in the fleet, they are the recipe for the company's success over the years," he stressed.

"Training is absolutely vital and that's why we have our own training centres in all our crew supply countries. We undertake more than 100,000 training days for our officers per year, and graduate 500 new officers from own academy every year," he said. "Virtual reality training is coming and we have started to see the value. We have developed the first courses using this new technology, which I am sure will grow rapidly in the years to come."

Communications is another vital area in running a company today. "In terms of satellite

communications, this is another area where trends in technology (up) and costs (down) are driving constant improvements in bandwidth. It is clear that crew today expect a minimum of connectivity and missing that will disadvantage the ship in competition for the best people. At the same time, the growing capabilities are driving a growing amount of data to be collected and analysed, so that 'smart' data management can aid vessel performance," he said.

Speaking about analysing vessel performance in real time to warn of impending condition problems and other issues by using sensors, etc, Hogaard said that this is another area where we are seeing a step change. Sensors and data management on board is increasingly helping watch-keeping officers make better decisions 'on the fly', and the larger performance management picture can then be analysed by advanced algorithms and people ashore, by collecting data over time.

Finally, Hogaard said that each Anglo-Eastern managed vessel is inspected a minimum of three times per year.

David Furnival, **Bernhard Schulte Shipmanagement (BSM)** COO, thought that commercial prospects remain a concern for the tanker sector.

This is being driven by two key factors - continued fleet expansion and OPEC's decision to reduce production output. Together, they risk creating a tonnage oversupply and cargo shortage scenario that will drive down freight rates.

He explained that BSM controls its fully-managed fleet by the use of multi-disciplined fleet teams, headed by a fleet manager and comprising of technical, marine and fleet personnel expertise.

To achieve the necessary level of ship specific knowledge, each fleet team is assigned a number of vessels of a similar type, for example one fleet team may be responsible for chemical tankers while another may have gas carriers.

BSM currently manages over 160 chemical,

product and crude oil tankers of all sizes across the company's 10 regionally based Ship Management Centres.

Answering the question regarding critical mass, Furnival said that managing a fleet of 600 vessels provides valuable economies of scale that helps BSM control vessel OPEX, though centralised negotiation and procurement functions. This justifies the creation of in-house value-added services, such as newbuilding & conversion, catering & housekeeping, seafarer & corporate travel, bespoke software application solutions and high quality training facilities.

"Our scale also allows for efficiency gains in areas of fleet performance and compliance," he explained.

Turning to finance, Furnival said: "BSM services the owned fleet of a number of financial institutions, such as private equity and banks and we see this as a strategically important component of our business. This extends to our shareholding company that has developed key partnerships from which our shipmanagement division benefits."



BSM's David Furnival

As for the growth of Asia, he said that this growth is currently providing a high proportion of BSM's opportunities and Singapore is the company's most expansive business unit at present. However, there are still opportunities developing in Europe, particularly in new areas of shipping, such as LNG bunkering and offshore windfarm services.

Recruitment

One of the challenges facing BSM today is recruiting key personnel, such as superintendents from the market, as it requires identifying those that have the appropriate expertise and experience, but more importantly the right attitude and client focused mind-set necessary to perform in a demanding service

provision environment.

"It is therefore BSM's strategy to develop more key staff internally by identifying competent candidates from the fleet and offering a properly mentored 'Seafarers Coming Ashore' programme when moving to shore-based employment. We supplement this with a programme for bringing on board graduates and maintaining a strong focus on staff employment satisfaction to continually improve retention," he explained.

BSM has five wholly-owned Maritime Training Centres across the world, and therefore the company mostly use its own facilities for classroom and simulator training. Nevertheless, the scope of training capabilities comprise a progressive mix of internal and external seminars, workshops and on board training.

Furnival added: "Further, we do take inspiration and guidance from other organisations, ie our Maritime Resource Management training, which we conduct in-house, was originally developed from the Swedish Club model and our lecturers are all formally accredited. We also work closely with professional training organisations, such as Videotel and last year became marine partners of IMarEST to deliver an extensive leadership programme via their Marine Learning Alliance College at Plymouth University.

"BSM has established an internal HiPo Academy in which 55 high potential shore employees will be provided with a leadership journey aimed at preparing them to take on broader leadership roles in the company. In addition, our collaboration with the World Maritime University will equip some of our employees with a Postgraduate Diploma in Executive Maritime Management.

"Investing in our own Maritime Training Centres has allowed BSM to develop a set of training solutions that are tailored to our specific circumstances and, where appropriate, to the vessel type we are responsible for managing. Examples include; operation and control simulators for the most modern ME and RT-Flex electronic engines; bridge team management and ship handling simulator courses are conducted using ship specific modelling and our concise navigating procedures are used as part of the training, which in turn reinforces their daily use on board – as is done in the aviation industry.

"Our Behavioural Based Safety programme has been internally developed to address the needs of our diverse range of crew nationalities and this has proven to be effective in halving the number of crew injuries per vessel over the last four years," he said.

He also said that virtual reality has an

important role to play in training and for familiarisation going forward. Apart from the bridge and engine room simulators and oil, chemical and gas cargo system simulation that BSM use extensively, Furnival believed the principle can be developed further for applications, such as ship layout familiarisation and machinery maintenance. He explained that BSM has embarked on an innovation collaboration with Microsoft to adapt their HoloLens technology for such purposes.

BSM has encouraged all of its shipowner clients to invest in effective ship-shore communications and the majority of the managed vessels already have internet connectivity that can be applied for both commercial and shipmanagement communication, including data transfer of on board IT applications, and to enhance crew welfare.

Performance analysis

All modern vessels employ some form of real time performance analysis to warn of impending problems using remote alarms and shutdowns connected to the majority of shipboard systems. On some vessels under BSM management this basic level of condition monitoring has been enhanced to cover other reliability factors, such as vibration analysis and thermal imaging. BSM's strategy is to progressively increase the deployment of condition based maintenance techniques as an upgrade to the time-based planned maintenance systems fitted on every vessel.

"As part of our in-house software advancement we are developing a fleet performance monitoring platform that will provide a significant improvement to our awareness ashore of critical shipboard operating parameters that will cover both machinery reliability and operating efficiency, allow early intervention when necessary and, ultimately, provide a predictive maintenance capability," he said.

Similar to Anglo-Eastern, BSM has a minimum vessel inspection requirement of three visits per year covering technical, marine and LPSQ auditing purposes, which can be increased where required, including training superintendent attendance to enhance any areas of weakness identified on board.

During 2017, BSM will also roll out a programme of crew self-inspection using the same reporting template, an initiative aimed at promoting a more consistent awareness of issues and to more effectively monitor condition trending, Furnival concluded.

Finally, but no means least, Matt Dunlop, V.Group Director Marine Operations also gave his views



V.Group's Matt Dunlop

He explained that across V.Group's global network of shipmanagement offices diverse fleets of wet and dry vessels are managed. Within the offices, tankers are managed by dedicated teams of tanker specialists.

V.Group's portfolio extends to all types of tankers with the largest being a 441,585 dwt ULCC and the smallest being of 1,069 dwt. "Taking our tanker fleet as a whole, VLCCs are the largest in number with over 80 vessels currently under management," he explained.

The global shortage of crew may impact in the long-term, if nothing is done. And

that's exactly why V.Group has invested in a superintendent training programme, supported by a major class society, to ensure the company has the future marine talent to meet the needs of clients going forward.

Training

For training, V.Group uses a mixture of specialist crew training organisations and in-house facilities, depending on the location. In the Group's four largest crewing offices, the company undertakes in-house resource management training delivered by its own trainers and in the smaller offices, this training is outsourced to local institutions, Dunlop explained.

Turning to the question of virtual reality, Dunlop said; "Maritime bridge and engine simulators already represent a well-established use of virtual reality and of course we are keen to explore advances that will continue to enhance the learning experience of our seafarers.

"We are investing in this technology in our smaller offices to allow verification of officer competence prior to deployment and to supplement the more comprehensive simulator

suites in our larger training centres," he explained.

V.Group has developed an expert team who are primarily focused on performance monitoring servicing around a third of the managed vessels and this is increasing all of the time. "We are making significant investments in this area to offer our clients even more visibility of their vessel performance and this combined with our planned and condition base maintenance programmes on board vessels, will assure any issues are managed quickly to prevent unnecessary costs in the future," he said.

Each vessel is inspected a minimum of three times per year to verify technical and safety integrity. A V.Group trainer will also visit each vessel every 12-18 months to conduct necessary training, which is on top of other learning requirements (through the specialist e-learning business Marlins and crewing office classroom based training) that the seafarers undertake. "We have a V.Group audit team who review both shore and on board processes to assure compliance and identify early intervention opportunities," Dunlop concluded.

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MARTHA report makes interesting reading

The final report of the three-year MARTHA project, funded by the TK Foundation, was presented at the beginning of the IMO's HTW Sub-Committee meeting on 30th January, 2017.

This is a new study into long-term seafarer fatigue. It was presented to IMO delegates who gathered to discuss, among other subjects, the revision of the IMO fatigue guidelines.

The study found that Masters suffered from fatigue and stress more than their crews; fatigue can result in long term physical and mental health issues, motivation decreases over the length of the voyage; and night watch keepers get significantly less total sleep than others on board.

Analysis of the large data set is providing new insights into the psychological well being of seafarers after long periods on board – including the finding that individual mood and social cohesion on board start to suffer after six months at sea.

MARTHA was co-ordinated by researchers at Warsash Maritime Academy, part of Southampton Solent University and partners from Sweden, Denmark, China and the UK.

The \$1 mill project resulted in a large database of new information from 1,000 seafarers, and a field study was carried out of over 100 seafarers working at sea worldwide. The study collected data on their fatigue levels, sleep patterns and psychological well being.

Of particular importance was the use of Actiwatchers for extended periods, which volunteers wore to register their periods of activity and sleep. Claire Pekcan, Professor of Maritime Applied Psychology at Warsash, who worked on the actigraphy analysis with Dr Anne Hillstrom of the University of Southampton, said: "The actigraphy analysis has been particularly interesting and demonstrates how the overall amount of sleep decreases over time on board, and how the quality of sleep, as measured through disturbances to sleep, increase the longer crew are on board."

Other important issues included the differences in perception of fatigue between

seafarers managed by European companies and Chinese owned companies; and the effects of port visits on workload and fatigue.

Capt Kuba Szymanski, InterManager secretary general, who was responsible for the dissemination of the findings to the shipping industry, said: "A series of workshop events for managers and seafarers worldwide have been conducted in locations like Singapore and Manila and more are planned for 2017. The outcomes of these workshops are included in the final report, which provides both useful guidance for companies wishing to improve their understanding of fatigue, as well as a blueprint for resolving issues."

Speaking about the future impact of the study, Emeritus Professor Mike Barnett said: "The shipping industry has been following MARTHA's progress with interest, as the momentum for revising the guidance on fatigue has grown at the IMO. Of particular interest for future research are our findings on individual mood, team working and social cohesion, all of which appear to deteriorate after about six months on board."

Capt Szymanski urged the maritime industry to take notice of the findings, as the industry recruits aspiring seafarers.

Findings of the report include:

Fatigue's effect on Masters - A Master's place on a ship is central to its performance, a claim which many would agree with. The project confirmed this and found a number of reasons for how a Master's role differed from that of other crew members, including:

- Have more weekly work hours.
- Feel that work in port is less demanding than work at sea.
- Are far more fatigued at the end of a contract.
- Are slightly more overweight compared to others on board.
- Suffer from mental fatigue, compared

to physical fatigue suffered by other seafarers.

The performance of seafarers on board is paramount to a vessel's operation and efficiency. The study found:

- During interviews, seafarers pointed out that not being relieved on time was having an effect on motivation.
- Some 48.6% of participants felt stress was higher at the end of a voyage.
- Sleepiness levels vary little during the voyage, suggesting there are opportunities for recovery while on board.

The cultural differences. Project MARTHA sought to examine threw up some interesting results and a clear divides between European and Chinese seafarers were found:

- European seafarers worked fewer hours than their Chinese colleagues.
- There is evidence of higher levels of fatigue and stress in Chinese seafarers, rather than European seafarers.

Addressing IMO delegates, Capt Szymanski said: "I sincerely hope the results of our research will be read and acted upon by shipmanagers and shipowners who will go on to revise their attitudes and procedures. There are a number of 'low hanging fruits' which, with a little adjustment, could make a big difference. These are not necessarily costly changes - such as having seafarers relieved on time and organising work on board with humans and not regulations in mind and engaging sea staff in decisions - but empowering seafarers to take care of their lives more than it is today.

"Our people are our assets and we need to develop a strategy whereby shipping is once again seen as a career of choice for tomorrow's young talented people.

"There is no avoiding the fact that the global fleet is increasing and more

manpower is needed. However, we are demanding more from current seafarers rather than recruiting even more cadets into the market. Attracting new seafarers and retaining them will test the industry, but we cannot ignore these findings in making the industry an attractive place for aspiring seafarers," he said.

Wallem's viewpoint

Capt Fared Khan, Wallem Ship Management Marine Director, said that the report showed that fatigue at sea is a growing problem.

"Fatigue at sea (both physical and mental) can impact judgement and therefore safety and can contribute to increased stress.

This is a very serious issue which must be addressed and measures taken for it to be alleviated," he said. "The shipping industry has strict regulations in place that all shipowners and shipmanagers must comply with regarding work and rest hours.

"These regulations are only part of the story. Checks need to be in place to ensure that these regulations are being adhered to strictly by all seafarers at all times without any operational or commercial pressures, perceived or otherwise from all shore-based stakeholders," he said

He explained that Wallem has a dedicated cell (made up of several ex senior officers) for monitoring and supporting seafarers in planning and ensuring work rest hours are met. Responsibilities include:

- Working with charterers and owners to ensure that the ship complies with work rest hour requirements.
- Supporting shipboard staff to plan work (schedules).
- Taking steps to provide extra manpower when needed.
- Trending data on ship type, trade and available manpower to forecast work load and assist senior officers on board to plan work schedules for ports with simultaneous operations (SIMOPS), such as loading cargo, bunkering, storing followed by short sea passages requiring tank cleaning. Support and guidance on SIMOPS ensures proper planning and proper work rest hours to mitigate risk.

Regulations and compliance are only a small part of the equation. "Given what we know today about the effects of physical tiredness on the body and mind, it is imperative that companies have programs in place to ensure that seafarers' well being is top priority," Capt Khan said.



Wallem Ship Management's Capt. Fared Khan

"We are committed to ensuring the wellbeing of Wallem seafarers. This commitment is formalised in our Wellness@Sea programme, which was developed in conjunction with a clinical psychologist. The programme addresses mental and emotional health and covers every aspect of well being at sea, from stress management to healthy eating and the importance of quality sleep and exercise; as well as a positive working culture and behaviour," he said.

Stress management and support due to any unacceptable bullying or harassment on board is covered under the company's Dignity@Sea programme.

Awareness on work/life balance at sea is a key aspect of Wallem's pre-joining safety briefings and training sessions and hard copies of the guide (in both English and Chinese) are available on board for ready reference.

"The key to both these programmes is that we are empowering our seafarers to take care of themselves and their health, while offering them our full support. We have a confidential email portal (Seavoice@Wallem.com) that can be used without fear of bias or retribution. It goes to the highest level of management, with a clinical psychologist who is experienced with seafarers on consultation to address the more critical issues. We also extensively promote the support system from the industry to our seafarers such as the Sailor's Society's free Wellness At Sea App, an interactive way for seafarers to monitor their progress," he explained.

Family support

Support should not stop with the seafarer themselves. It is critical that support is

also provided to the seafarers' families.

"At Wallem, we are very grateful for the constant support provided to our seafarers' families by the various chapters of the charitable organisation Women of Wallem (WoW). Knowing that their families are well taken care of and have a strong support system in their absence can relieve a good deal of stress that seafarers are facing.

"As well as support for health and well being, I personally believe very strongly in the power of engagement. Seafarers who feel happy and engaged is essential to boost morale on board. Our seafarers are provided with ample opportunities to upgrade their skills and training via our in-house training portal and events such as safety dinners on board are regularly arranged to keep the crew motivated and unified towards the same goal – safe and efficient operations for themselves, the company and our customers," Capt Khan said.

Chinese seafarers

While the crew is made up of a mix of people from different cultural backgrounds, Wallem is the largest employer of Chinese seafarers outside of China. All Wallem seafarers are treated equally and with respect and not defined by nationality. Emphasis is put on the very simple concept of the 'Wallem Professional Seafarer' who is expected to have a strong safety mindset and take pride in his/her commitment to Wallem and our customers, he stressed.

Intermanger is calling for urgent industry action on this critical issue of the increasing stress and workload on board. Wallem fully supports increased compliance in this area. The safety and well being of all seafarers should be a top priority industry-wide, Capt Khan said.

"This issue is not going to disappear. At Wallem we are taking proactive steps to mitigate it and face it head on in every aspect of what we do from raising awareness, training, empowering our seafarers, embedding this into our Safety Management System and providing support required.

We believe that this is something that every responsible employer of seafarers, shipowner and shipmanager should do," he said. "This issue has to be addressed if we are to continue retaining professional high performing seafarers, attracting new seafarers and promoting this profession to the younger generation."

Operating a product tanker pool

On 1st November, 2016, NORDEN welcomed Michael Schytt Christensen, as director - head of operations - for the Norient Product Pool (NPP).

He is based at Hellerup, Copenhagen and replaced Jens Malund Jensen, who now heads up NORDEN's global dry cargo operations.

NPP is owned equally by two partners – NORDEN and Limassol-based Interorient Navigation Co.

The pool handles the operational and commercial management of the combined product tanker fleets of the two shipping companies. US-based Diamond S is also a pool participant.

Tanker Operator asked NPP CEO Søren Huscher about the pool's operations today in the current market.

Upon his arrival at NPP, Christensen was quoted as saying that he will look at optimising the many processes and decisions during a voyage. Huscher explained that, as operations managers, the company has the opportunity to affect all parts of the voyage from pre-fixture to final PDA settlement.

"We are not going to limit ourselves to specific topics in this process but we will analyse and get wiser on where our efforts can contribute best, and spend our time on optimising that which has the greatest impact,"



NPP's CEO Søren Huscher

he explained.

He added that NPP is already very focused on using systems with the greatest possible efficiency, but the organisation will continue to look at how the possible double entry of data can be minimised and get better and more usable reports and information out of the systems employed.

NPP has a large operations team in Hellerup and both the IT and communications systems are under continuous improvement, which is part of the company's culture. "In addition, we have our own PDA, claims and demurrage handling entity within Norient Product Pool, situated in Limassol, Cyprus," Huscher said.

Today, the NPP fleet is operated out of a common IT platform giving everybody 24/7

access to information.

He also said that NPP depends on a regional network of offices - in Cyprus, the US and Singapore - offering specialist knowledge, in order to provide the best and most efficient service to its clients.

Answering a question regarding the use of trainees, Huscher said that through the close bond with NORDEN, NPP accepts new shipping trainees annually in the offices worldwide. The trainees receive a two-year programme, giving them experience in both chartering and operations.

NPP operates 88 MRs and Handysize product tankers, plus possibly another four newbuildings, which provide a critical mass. "Our steady high relative performance proves this. We can certainly handle more ships, however, we are not actively looking for more partners and/or participants," he said.

NORDEN has two LR1s due to be delivered this year but it is not thought that they will join NPP at present and Huscher said that he has no plans to expand into other segments.

"Charters are negotiated predominantly via brokers, who have the capacity to add value to the deal," he concluded.

March- time for the chemical & products tanker conference

As highlighted in page 2, the conference season is now in full swing.

For the chemical & product tanker fraternity, the '9th Chemical & Product Tanker Conference takes place in London on 14th-15th March, 2017. Organised by Navigate Events with the help of IPTA, the conference will feature speakers from ABS, DNV, Ardmore, DVB, Braemar, Jotun, IMO, MISC Berhard, Drewry, LISCR and others.

The conference agenda includes:

- Freight market analysis.

- CO2 emissions.
- Challenges of the global sulphur cap.
- How to comply with EU and IMO CO2 reporting systems.
- Shipyard and ship finance analysis.
- Dealing with cybersecurity threats.
- Ballast water management systems.
- Update on MARPOL Annex II and IBC Code.

This event attracts chemical and product tanker owners and operators, as well as shipbrokers, charterers, lawyers, insurers, regulators and equipment manufacturers from around the world.

The following have so far confirmed their

attendance: ABS, Bahri Chemicals, Borealis Maritime, Braemar ACM, Concordia Maritime, DNB, DNV GL, Drewry, DSD Shipping, DVB, Eastport Maritime Europe, Energy Argus, Framo, Graypen, IBIA, IINO UK, John T Essberger, Jotun, Koyo Kaiun, Link Marine, LISCR, Lloyd's Register, Manisa Bulk UK, MISC, MRC Shipping, Nordic Tankers, Peninsula Petroleum, Repsol Vetting, RMK MARINE Shipyard, Scorpio Tankers, Seatrans Chemical Tankers, Shell Chemicals Europe, Tatham Macinnes, Trans Oleum, UCL Energy and Transport, Uni-Chartering among others.

Copies of this issue of *Tanker Operator* Magazine will be available at the conference.

LR demand difficulties

There has always been a compelling story circulating about how larger product carriers are the future, in particular the LR2s.

However, the sector has had a particularly challenging few months, with little optimism regarding a sustained recovery in earnings, Gibson Shipbrokers reported.

The LR2 story centred around the expansion of refining capacity in the Middle East, capacity reductions in Europe and wider product imbalances, driving long haul trade. In some extent that story delivered. Middle East refining capacity expanded and exports surged. Refineries in Europe came under pressure and some capacity was mothballed.

However, the story didn't quite deliver on its full potential. The Jazan refinery, which was originally due to be commissioned last year is not expected to start initial runs until 2018, leaving some of the expected demand growth on the table, whilst the collapse in oil prices saw stronger global refining margins, staving off refinery closures in Europe until later in the decade.

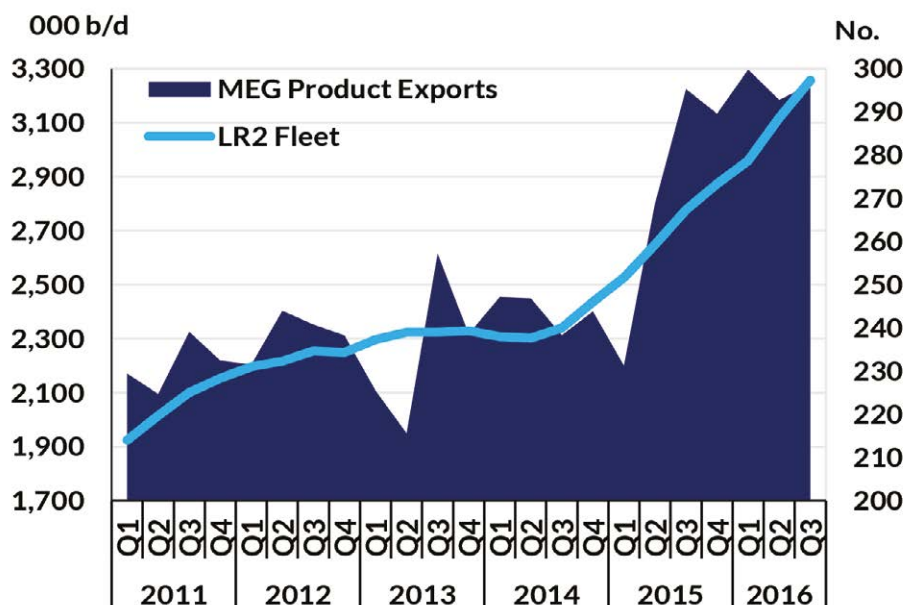
With both new and old plants competing with each other, an unexpected problem of product overhangs soon emerged, killing many arbitrage opportunities, particularly hurting product loadings in the West.

Despite these issues, the main driver behind the LR2 story (Middle East export growth) largely delivered, supporting a period of strong LR2 earnings. However, the growth was always going to be finite, as exports plateaued into 2016, whilst the fleet started to grow.

Clearly, the initial fleet expansion was manageable. However, as is often the case, it was the extent of previous ordering activity which is being felt today. Demand growth may have taken a hit from the factors described above, but was always expected to ease, compared to the past few years. On the immediate horizon with limited new capacity coming online, coupled with the headwinds currently facing the global products markets, a speedy recovery may not be on the cards, Gibson said.

So where will the next surge in demand come from? We have pointed out at length in the past about how stocks need to come down to allow for a return to normal trading conditions. However, beyond these factors some supportive developments are starting to appear just over the horizon.

Collectively, Saudi Arabia, Kuwait, Oman, Iran, Iraq and the UAE plan to add over 1.5 mill



MEG Product Exports vs. LR2 Fleet Growth Source: Gibson Shipbrokers

barrels per day of capacity between 2018-2021, which, will start to support export growth from the region once again. Furthermore, this will coincide with a major change in the global bunker specifications and shift towards middle distillates.

With more export oriented demand coming on stream and a tighter middle distillates market, larger product carriers could once again be in high demand to move huge volumes of compliant gasoil long distances. Furthermore, if ordering activity stays within reasonable limits, and scrapping begins to accelerate driven by regulatory developments, the foundations for a more sustainable market recovery could soon be laid, Gibson concluded.

LRs problematic year

In a review of last year, McQuilling Services said that 2016 was a far cry from the previous 12 months for LR2s, as newbuilding deliveries flooded the market and the lack of a West/East naphtha arb limited any chance of a serious market rally.

LR2s started the year averaging WS136 (TCE \$32,000 per day) on AG/Japan before slipping to WS89 in July. An increase in activity in August caused the tonnage lists to thin and rates saw a bit of a rebound, reaching an average of WS104 (TCE \$18,800 per day), but the rally could not be sustained and rates dwindled, hitting the lowest point of the year in November with an average of WS68 (TCE \$7,000 per day).

However, the year closed out on a more positive note, as rates gained 25% from November to December, averaging WS86 (TCE \$10,000 per day).

It was a weak year for LR1s as well, closing with an annual average for AG/Japan of WS100 (TCE \$12,500 per day), compared to an average of WS163 (basis 2016 WS flat rates) or a TCE of roughly \$23,500 per day in 2015.

As for MR2s/MR1s, 2016 can be characterised as a disappointing one for owners in the UK/C as the transatlantic market did not see the kind of momentum experienced in 2015.

The Cont/USAC route averaged WS105 in 2016, yielding an average of about \$8,600 per day on a TCE basis. When compared to 2015, the TC2 route averaged WS154 (basis 2016 WS flat rates) or about \$16,500 per day on a TCE basis. TC2 rates found brief support from the Colonial Pipeline explosion in late October, as rates soared from WS65 to WS100.

The year ended on a high note, beginning December at WS85 and closing out the month at WS165 (TCE \$16,400 per day), the second highest levels recorded in 2016.

Weakness prevailed on the USG/Cont route, driven by significant tonnage oversupply. The TC14 route averaged WS82 (TCE \$5,000 per day) in 2016, compared to WS117 (basis 2016 WS flat rates) in 2015 or a TCE of about \$12,100 per day, McQuilling said.

Optimum cylinder lubrication technology demonstrated

Minerva Marine and Hans Jensen Lubricators (HJ) have been working together in recent years, to allow the tanker owner to seek the benefits of cylinder lubrication products development.

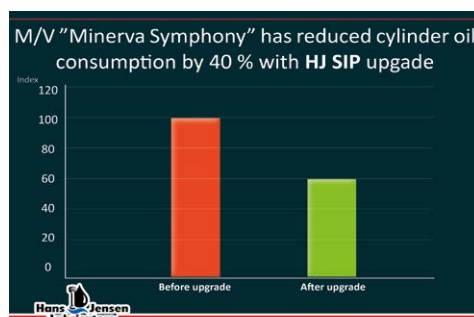
The twofold objective was to reduce cylinder oil consumption and to maintain the engine's condition to a satisfactory level in terms of abrasive/ corrosive wear phenomena.

This was achieved by fitting a HJ SIP (swirl injection principle) on a tanker engine's cylinders, the company claimed.

As cylinder lubrication is a critical part of a marine engine's operation, both from an engineering perspective, but also financially, as it represents a major expense in daily OPEX.

Minerva Marine has invested both time and effort in seeking opportunities to address the issues in a holistic manner.

The most recent project was the upgrade of the MDT Alpha lubricator on the 2006-built Suezmax 'Minerva Symphony'. The standard non-return valves were replaced with HJ SIP cylinder lubrication technology on three of the six cylinders of the vessel's 6S70MC-C engine



Source: Hans Jensen Lubricators

HJ SIP was fitted to take advantage of pairing MDT Alpha lubrication system with HJ SIP's technology as against the standard non-return valves in terms of:

- Cylinder oil consumption.
- Cylinder liner and piston rings condition.

Within the first week after installation there were clear signs of improvements, HJ said. The feed rate was reduced step-by-step on the three cylinders. After a week, the feed rate was 40%

lower than before the upgrade.

To substantiate initially claimed trouble-free performance of HJ SIP valves, both cylinder drain oil analysis and liners/piston rings wear measurements were conducted at regular intervals over a period of three months following the installation.

It was proved by the minimising wear rates that a reduction in feed rate can be attained safely with HJ SIP without compromising the engine's reliability.

Due to this success, HJ has recommended that Minerva Marine reduce the feed rate even further.

Minerva Marine has since ordered an upgrade of the remaining cylinders on board 'Minerva Symphony' and full upgrade of sister vessel 'Minerva Doxa', due to the satisfactory outcome of the trial period.

Minerva Marine and HJ are now working to extend the co-operation to include more vessels.

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The Switch targets the maritime sector

Finnish-based drive train developer The Switch is targeting a 200% growth within the marine segment in the next five years.

This figure was built on the momentum of a flurry of recent orders, its acquisition of Wärtsilä Drives, and the financial muscle of its parent company, the €3.3 bill turnover Yaskawa Electric Corp.

The Switch said that it believed its permanent magnet (PM) and frequency converter technology can have the same effect on vessels as it has had in the wind sector. The company provides PM generators and full-power converters to wind turbines worldwide.

In total, the firm boasts an installed capacity

in excess of 13 GW. The largest low voltage (690V) PM generators installed have a capacity of 8.6 MW.

"We entered the marine market four years ago," said business development manager Mika Koli. "We saw a huge potential to transfer not just our unique competency, but also the benefits that our technology can deliver to a sector facing challenges on a number of fronts. Namely, with regard to operational costs, falling profit margins and increasing environmental regulations and concern.

"Our products address all these issues. With this in mind, we believe we can make a real difference in marine – championing both enhanced efficiency, the environment and

our customers' businesses. We see this as the beginning of a new energy era," he said.

The Switch manufactures PM technology that, in conjunction with frequency converters, convert mechanical energy into electric power, which can be used for on board systems and equipment. The designs are claimed to be modular, flexible and lightweight.

PM shaft generators can be used to create cost-effective electricity and save fuel – with large commercial vessels potentially consuming 50% less energy during slow steaming. Meanwhile, vessels using electric propulsion can optimise fuel consumption and access predictable and flexible power with unmatched power density.

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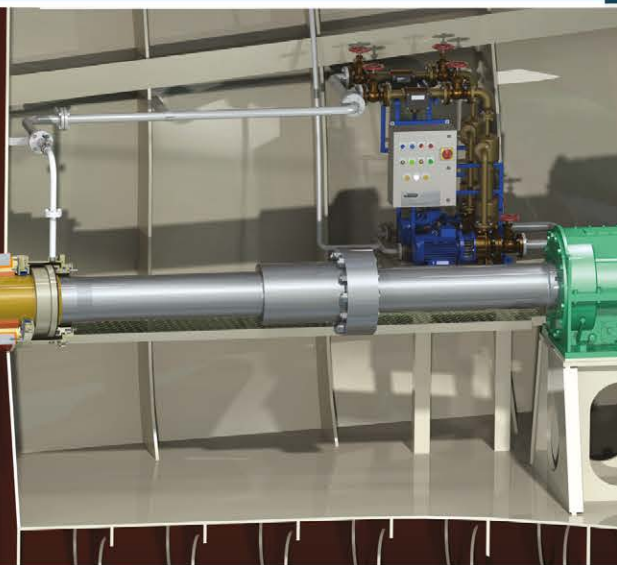
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STS operations are growing worldwide leading to more problems

Following the article entitled ‘Vessel STS clearance - a need for standardisation’, which appeared in the January/February issue of *Tanker Operator*, we asked DYNAMARINE and leading law firm Clyde & Co to comment on certain aspects of the operation.

Starting with vetting in all its forms, DYNAMARINE said that vetting on ships is an established procedure by OCIMF, which produces an input into the risk assessment undertaken by OCIMF members when considering the employment of ships.

“We consider that STS operations have the need to be supported by preparedness, as well as the confidence of senior officers. However, physical vetting will not assist towards this goal, as the STS elements on the SIRE VIQ are very few and mainly target very basic requirements,” the company said.

Vessel compliance, with respect to the OCIMF guidelines, is a thorough assessment procedure, which includes about 40 individual KPI’s. This assessment is offered by DYNAMARINE with the STS STATUS gap analysis that takes place on board. It covers procedural and maintenance aspects of the vessel.

The inspection of the STS plan and the SMS system on board are by far most important factors. The effect of the human element is controlled by procedures and training. If the correct procedures are in place, then the vessel will also be in a good order.

However equally important is the training and experience of the crew. The effect of the human element is paramount in the implementation of the procedures.

As for the service providers, DYNAMARINE said that the reputable companies undergo a vetting process by the oil majors that use their services. The frequency of the vetting process is not as regular when compared to the audits sustained by shipowners.

Through DYNAMARINE’s onlineSTS.net concept, about 60 organisations worldwide have been identified, acting as service providers. “We have noticed a lack of consistency on how STS

operations are being organised and implemented. Such inconsistencies are associated with primary and secondary fender selection, proper implementation of the Joint Plan of Operations, risk assessment, fendering and mooring plans and guidance offered to the Master,” the company said.

DYNAMARINE has set up a training academy, which received ABS certification. It offers four different STS courses, each of which has different objectives. They are categorised with respect to the trainees, the place and scope of the training.

All the courses are popular, DYNAMARINE claimed, although it noted that the e-learning, as well as the STS STATUS gap analysis, which takes place on board vessels, receive higher acknowledgement by seafarers. Seafarers competence training with the Kongsberg simulator has also added significant value, however this course is limited to high ranking deck officers, such as Masters or Chief Officers, due to restrictions within the simulator room. Finally, the shore-based training either for seafarers or officers is welcomed, due to the participants’ interaction and the discussions held using case studies.

Answering the question whether there is scope for expansion at the Academy, DYNAMARINE said that for the time being, the Academy offers a set of developed courses, which the company wanted to see become popular and known to the audience.

“From a theoretical point of view, we believe that most sections of OCIMF and other industry guidelines are covered within these courses. We envisage that in the near future we shall develop courses associated solely on case studies, associated with incidents and near misses,” the company told *Tanker Operator*.

DYNAMARINE’s onlineSTS.net service has

gained a considerable amount of knowledge from seafarers’ experiences, which will be utilised in order to disseminate lessons learned, best practices, along with reasonable risk mitigation measures. “Additionally, the contents of all our courses are continuously enhanced with the knowledge we gain from the post STS assessment of the Masters,” the company added.

OCIMF’s TMSA 3 is due to be published in April. However, DYNAMARINE said that the company did not foresee any major changes in the upgraded version associated with STS operations. The applicable changes at MARPOL chapter 8 of ANNEX I, the guidance of the FSA process, along with the procedures adopted within the SMS system of individual tanker operators, already provide a rigid base to justify the value of onlineSTS.net as a quality system.

Screening and risk assessment service, developed by DYNAMARINE, has been identified as satisfying the requirements of at least 15 elements of the existing TMSA. “For example, we could refer to element 1A-3A of the existing TMSA which mentions that ‘the safety management system encourages proactive feedback’. For our members, feedback on vessel performance at each STS operation is encouraged and requested from the participating vessel. Findings are clearly recorded and systematically discussed to extract lessons learned,” the company explained.

Another example is associated with existing element 9A-4, which mentions that ‘there is a system in place for vessel staff to communicate ideas for improving safety to shore management’. For our members, all STS post records delivered from the Master are held in a database available to shore personnel. Best practices and STS feedback from all Masters are reviewed on an annual basis, towards promoting improvements in STS operations.

DYNAMARINE currently has 50 tanker operators signed up to the onlineSTS.net service with about 850 vessels.

Currently more than 200 STS locations have been identified worldwide with the number of Far East locations growing, DYNAMARINE concluded.

Legal perspective

Turning to Martyn Haines, Master Mariner at Clyde & Co, he explained the lawyers role following an STS operation.

He said that usually the lawyers are instructed by an owner or their P&I club after physical damage to one or both vessels has occurred. Often the damage is relatively light and therefore below the hull insurance deductible, so any repairs fall on the owners to pay. The major concern for the Club is the damage to the other vessel.

The main issues are liability and quantum.

Liability is difficult to agree for a number of reasons: from the technical view point; lack of any electronic records such as AIS and VDR, course recorder and engine telegraph recorder and lack of photographic evidence before and after the incident. From the legal angle: lack of independent witnesses to the incident and the reluctance to concede that a relatively minor error does not necessarily breach the duty of care.

Both vessels are generally operating under separate contracts and therefore there is no agreement between the vessels on responsibility and liability in the event of an incident. Exercising a duty of care is the only criteria.

"Tanker owners may seek an indemnity from their charterers but often the charter party STS clause is vague on liability and does not cover all direct consequential losses," he stressed.

Quantum is a major issue, as often the relatively minor repair costs is disproportionate to the total claim when taking into consideration off-hire and potential loss of major oil trade approval until the repairs are completed and the vessel is inspected.

He explained that being required to undertake STS operations is now common, so the P&I clubs rely heavily on tankers owners expertise and experience to prevent accidents.

"We understand that part of the assessment is to ascertain what barriers and controls are in place on board to prevent collision damage during STS operations. Procedures, communication protocols and emergency systems are analysed as are the emergency preparedness of the crew for quick disconnection of hoses and emergency unberthing," he said.

He said that the greatest changes seen were the more frequent STS operations in higher latitudes, with the effect that the low temperature has on the working environment and human performance. Furthermore, weather conditions in the area are prone to rapid changes and might lead to incidents.

Analysing claims, Haynes said that most incidents are not caused by equipment failure but by human error, which results in equipment, such as mooring lines and fenders breaking. Inadequate training, familiarity with STS procedures and lack of operational control and responsibility places greater stress on the operation and equipment.

"Rolling damage, due to operating in exposed waters is becoming increasingly common. Undertaking an STS manoeuvring operation in adverse weather conditions, due to commercial pressures on the vessel, is also a worrying development," he added.

He said that Clyde & Co feeds back the findings to the P&I Clubs and suggests improvements on STS shipboard plans and procedures, encouraging regular crew training is undertaken to avoid possible human error as much as possible and importantly, to ensure the OCIMF check lists are completed and complied with.

TO

Manage your Risk in Ship-to-Ship operations

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Justify your
Decisions

Support your
Reputation

7

365



TANKER *Operator's* Top 30 Owners and Operators



Consolidation is once again dominating the tanker scene today.

During the past few years it was the Chinese in the news, but now we are talking of a possible merger between Frontline and DHT, while Maersk Tankers' future is up in the air.

As usual, the data used to calculate Tanker Operator's Top 30 listing is compiled taking into account the total deadweight tonnage of a company's fleet, including long term chartered in tonnage, ie commercially managed.

The figures were extracted from company websites, the Equasis database and where possible, the companies themselves. In line with previous listings, we have omitted FPSOs/FSOs, LNG/LPG carriers and ATBs from the total tonnage shown for each company.

Last year, tanker tonnage across all types grew. This year looks to be no exception, barring slippage.

Based on the delivery schedule of the current orderbook, deliveries of new tankers this year will be at the highest level since 2009, which came at the end of the tanker market 'super cycle', Poten & Partners said in a January report.

In the crude tanker segment, if all the Suezmaxes that are scheduled for delivery this year leave the shipyards on time, we will add 10.1 mill dwt to the fleet, well above the 2009 record of 7.1 mill dwt, and two and a half times the total 2016 deliveries.

The recent high-water mark for VLCCs was 2011, when 65 new units hit the water (20.1 mill dwt). This year, the yards are scheduled to deliver 15.9 mill dwt (21% less than 2011, but 11% more than last year).

Aframax & LR2 deliveries this year (9.4 mill dwt in total) are likely to fall well short of the 2009 record (10.5 mill dwt), but the composition is radically different, Poten said.

In 2009, Aframax deliveries were primarily crude carriers (75%), while Aframax-sized vessels to be delivered this year will be dominated by the coated LR2s (61% of the total).

This shift towards coated vessels is even more pronounced in the Panamax/LR1 segment. Over the last five years, this vessel class has become almost exclusively a product tanker segment. Deliveries in this segment peaked in the 2005-2008 period with deliveries in excess of 3 mill dwt in each of those years. Expected deliveries for 2017 are a much smaller – but still sizeable at 2.4 mill dwt.

In the smaller product carrier segments,

the numbers due this year is more moderate, compared to earlier years. For MRs, peak delivery years were 2008 (125 vessels) and 2009 (134 vessels), equivalent to more than 6 mill dwt in each year. The advance of the 'ECO-vessel' triggered another delivery boom in 2015 (105 MRs). By comparison, the 77 vessels scheduled for 2017 look relatively modest.

The one segment where the orderbook is low is the Handysize fleet. These smaller product tankers seem to have fallen out of favour, compared to the larger MRs. Only 18 are expected to be delivered in this year.

Based on the historical variability of vessel deliveries and its apparent correlation with the freight market, 25-40% of the crude oil tanker orderbook and up to 50% of the product carriers might not be delivered this year, due to slippage. Poten said.

1 Mitsui-OSK (MOL) (15.9 mill dwt)

At the end of September last year, the latest figures available, MOL owned, managed, or commercially operated around 166 tankers of all types, excluding Suezmaxes.

The Japanese major's managed fleet included 30 VLCCs, two LR2s, five Aframax, nine LR1s, nine MRs and two Handysize tankers, according to the Equasis database.

The company's aim is to slightly reduce this figure by March 2017, the company said last year.

Other vessels are regularly chartered-in and commercially managed within the pools.

MOL has become involved in various pools, including the MR Clean Products Tanker Alliance in which, there are four partners - MOL, Asahi Tanker, Ultrana

and OSG. This pool commercially operates around 60 MRs.

In addition, MOL is a member of the LR1 Straits Tanker Pool, which includes six other partners.

A couple of years ago, MOL also entered into the shuttle tanker business by establishing a joint venture to operate five vessels with Norwegian-based Viken.

2 NITC (14.4 mill dwt, plus about 259,000 dwt newbuildings)

There is still no change to the situation as described in last year's listing, although the local news agency is describing NITC as the world's largest tanker owner.

It is still not yet known if all the fleet will come up to international standards, as many vessels have been used for storage purposes for the past few years and several are now elderly and probably in need of repair and maintenance.

For example, the VLCCs were delivered in 1996.

Earlier this year, NITC said it was seeking around \$2.5 bill to modernise the fleet but no further details have been released thus far.

Again there is also the problems to be overcome of classing, P&I and H&M insurance, drydocking, etc for the vessels used for storage, although this now looks to be in hand.

Some 'experts' claim that the vessels will remain on storage duties for the near future, as Iran does not have a lot of onshore storage capacity.

According to various registers and the Equasis database, NITC still manages up to 40 VLCCs, nine Suezmaxes, five Aframax, and three Handysize products tankers, plus an LPG carrier and a small prod/chem tanker.

In addition, there are believed to be another three 63,000 dwt tankers and two 35,000 dwt product tankers on order.

There could be others to come, as the country is still trying to build up its shipbuilding industry, a plan which has been around for many years.

3 Teekay Group (14.2 mill dwt, plus 465,000 dwt newbuildings)

Fleet disposals have led to Teekay and its affiliates losing its top spot during the past 12 months.

The company operates 107 tankers, both shuttle and conventional split between the daughter companies. This total includes wholly-owned, technically and commercially managed vessels, including those chartered in long term.

Although some of the vessels are owned by Tankers Investments (TIL), they are technically managed by Teekay and thus are included in the figures.

The total includes shuttle tankers, a VLCC, Suezmaxes, LR2s, Aframax and a Handysize products tanker. In addition,

the various subsidiaries own FSOs, FPSOs, floating accommodation units, AHTS, LNGCs, plus LPG carriers, which have not been included in the figures.

Last year, Teekay Offshore ordered three, plus one optional 155,000 dwt DP2 shuttle tankers for a total of \$365 mill on the back of long term charters to provide a shuttle tanker service for Eastern Canada oil production.

The three newbuilding vessels are expected to be delivered in the fourth quarter of 2017 through the first half of 2018.

In September last year, Teekay was awarded a new three-year shuttle tanker CoA, plus extension options, with BP, Royal Dutch Shell and OMV Group, to service the new

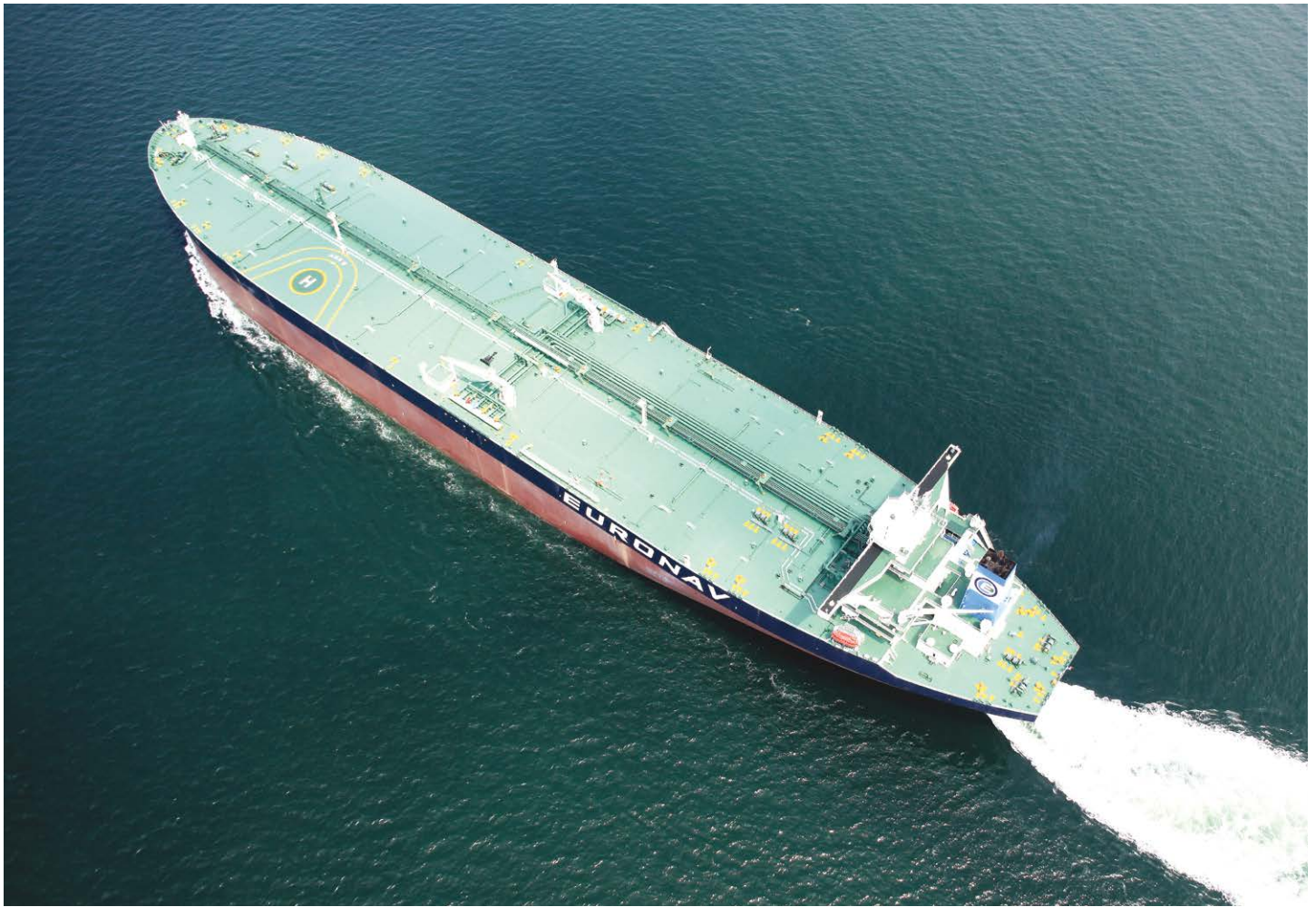
'Glen Lyon' FPSO located west of Shetland in the North Sea.

This CoA is expected to commence in the first quarter of 2017 and will make use of two shuttle tankers from the existing CoA shuttle tanker fleet.

In addition, Teekay Tankers secured two 24-month lightering contracts with major oil companies, enabling the employment of up to three Aframax per year.

In the third quarter of last year, Teekay announced that it had agreed to sell its last remaining MR and two older Suezmaxes for a total of around \$47 mill.

Also last year, it was announced that the VLCC 'Shoshone Spirit' was to be sold.



Euronav's 2016-built VLCC 'Anne'

Euronav

(13.4 mill dwt, plus 913,000 dwt newbuildings)

4 Euronav controls 31 VLCCs and one ULCC, of which two VLCCs were recently delivered, plus 19 Suezmaxes, plus two still to be delivered plus four chartered-in vessels.

In addition, Euronav has a 50% stake in two V-Plus FSOs jointly owned with OSG. A third sister, a conventional 440,000 dwt V-Plus type operates in the spot market within the Euronav-managed Tankers International pool and is 100% owned by the Antwerp-based company.

On 16 August, 2016 Euronav agreed to purchase two VLCC yard resales, which were completing construction at Hyundai Heavy Industries. The aggregate purchase price was \$84.5 mill per ship.

However, on 13th October, 2016 Euronav agreed with Hyundai to defer the delivery of the two VLCCs to the first quarter of 2017.

These vessels were previously expected to be delivered between October and November, 2016 but have now been delivered and are included in the figures.

They were named 'Aquitaine' and 'Ardeche', respectively.

On 3th October, 2016 the company signed two seven year timecharter contracts with Valero Energy for Suezmaxes with an Ice Class 1C capability.

In order to fulfil this contract, Euronav ordered two Ice Class Suezmaxes from Hyundai Heavy Industries. Delivery of these vessels is expected in early 2018 when each of the timecharter contracts are due to begin.

On 27 October, 2016 the 2007-built VLCC 'KHK Vision' was redelivered to her owner, following the ending of her timecharter to Euronav.

Bahri

(12.7 mill, plus 3 mill dwt newbuildings)

5 Bahri and Vela's amalgamated fleet now stands at 36 VLCCs, one LR2 and four MRs, plus 25 managed chemical carriers.

In July 2015, the company announced that it had ordered a further five VLCCs, joining the five previously ordered at Hyundai Samho.

These highly efficient, environmentally friendly vessels will be delivered during 2017/2018.

In addition, through subsidiary Mideast Ship Management, the company manages 25 chemical carriers - three Handysize, 21 MRs and one 81,300 dwt LR1, which are all operated in co-operation with SABIC.

The company also operates one single hull VLCC FSO and a series of conros and drybulk carriers and has an interest in LPG carrier operator Petredec.

Sovcomflot Group

(12.1 mill dwt, plus 51,000 dwt newbuilding)

6

As at the end of November last year, the SCF Group owned two VLCCs, 15 Suezmaxes, 42 Aframaxes, nine LR2s, nine LR1s, 27 MRs and four Handysize tankers.

In addition, the group's shuttle fleet consisted of eight Aframaxes, five Panamaxs and two MR tankers. Another MR was due to be delivered by Samsung.

Last year, during the third quarter, SCF completed the acquisition of nine Ice Class

tankers - three LR2s, one Aframax and five MRs - formerly owned by Primorsk International Shipping (PRISCO), which boosted the group's total tonnage.

This acquisition has also allowed Sovcomflot to further consolidate its position as the world's biggest owner and operator of Ice Class tankers.

In addition, the newly delivered Ice Class shuttle tanker 'Shturman Albanov' lifted her first cargo of crude oil from Novy Port field

to Murmansk during the third quarter of last year.

Sovcomflot also owns LNGCs, LPGCs, OSVs (IBSVs and IBSBVs), tugs and drybulk carriers, which have not been included in the figures.

During 2016, the SCF Group's technical management subsidiaries were consolidated under a single governance structure - SCF Management Services.



'Svet' - one of two Sovcomflot VLCCs

China VLCC

(11.7 mill dwt, plus 1.6 mill dwt newbuildings)

7

China VLCC was set up in 2014 to operate VLCCs managed by Associated Maritime Corp (China Merchants) and Nanjing Tanker.

It was formed as a joint venture between China Merchants Energy Shipping (CMES), owning 51% and Sinotrans who had the remaining 49%. However, the two companies were due to merge last year.

Once it commenced trading, China VLCC

immediately started operating the 10 VLCCs purchased from cash strapped Nanjing Tanker for \$681 mill, bringing the total to 28 VLCCs, including two newbuildings delivered in 2014.

At present, Associated Maritime Corp technically or commercially manages 40 VLCCs and five Aframaxs, according to the Equasis database, under the banner of China VLCC. Two 1998-built Aframaxs were sold

for scrap last year.

In addition, a further 13 newbuilding VLCCs are due to be delivered this year and next.

No doubt this fledgling company will continue to climb *Tanker Operator's* list, as more VLCCs are ordered and delivered, as part of China's policy to operate vessels using its own companies and further consolidation in China takes place.

Frontline

(10.7 mill dwt, plus 2.7 mill dwt newbuildings)

8

As of the end of November last year, the company's fleet consisted of 20 VLCCs, 16 Suezmaxes, 15 Aframaxs and three MRs.

These included tankers that were commercially managed and chartered-in.

Frontline delivered the last of its five wholly owned MRs to her new owner during November, 2016, having sold the vessels.

In addition, the company has 16 newbuildings, comprised of three VLCCs (excluding four VLCC newbuilding contracts that were cancelled in October, 2016), six Suezmaxes and seven LR2s.

As for the cancellations, in October 2016, Frontline agreed with STX Offshore & Shipbuilding to terminate the contracts for four VLCC newbuildings, due for delivery this year.

The contracted price of these vessels was \$364.3 mill, of which the company had paid instalments of \$45.5 mill. Frontline has now received all instalment payments made to STX, less a \$0.5 mill cancellation fee per vessel.

The company recorded a loss of \$2.8 mill on this transaction recorded in the third quarter of last year.

In November 2016, Frontline agreed with Ship Finance to terminate the long term charter for the 1998-built VLCC 'Front Century', which was simultaneously sold. The charter was due to terminate in the first quarter of 2017.

Following this charter termination, the number of vessels on charter from Ship Finance will be reduced to 12, consisting of 10 VLCCs and two Suezmaxes.

Early this year, Frontline made an unsolicited bid for the shares in DHT. This was rebuffed, but no doubt this is not the end of the story.

Maran Tankers Management

(10.7 mill, plus 2.5 mill dwt newbuildings)

9

MTM will no doubt rise up the rankings this year upon the delivery of several newbuildings.

At the beginning of December, MTM boasted 31 VLCCs, including seven on bareboat charter to ChevronTexaco; six Suezmaxes and two Aframaxs.

The company's newbuilding portfolio consisted of five VLCCs and six Suezmaxes, due for delivery this year and next.



AET's 2011-built Aframax 'Eagle Kinarut' (see overleaf)

AET

(10.5 mill dwt, plus 996,000 dwt newbuildings)

10

As of December last year, the fleet consisted of 12 VLCCs, four Suezmaxes, 48 Aframaxes (including two specialist Modular Capture Vessels), four DP shuttle Aframaxes, three LR2s, one Panamax, five clean product tankers, one LPG and 13 chemical carriers.

In October 2015, the MISC subsidiary announced it had ordered another four Aframaxes at Samsung, plus two LR2s and two Suezmaxes at Hyundai to be delivered in late 2017 and early 2018.

The contracts were said to be worth around \$500 mill in total. The two LR2 newbuildings were tied to long term timecharters, while the six other newbuilds will replace older tonnage in the fleet, the company said.

In April last year, AET announced that it had acquired the remaining 50% of Paramount Tankers that was originally jointly owned (under a 50/50 joint venture agreement) with Golden Energy Tanker Holdings. Paramount Tankers operated six Aframaxes, which are now under the

ownership, technical and commercial control of AET.

In addition last year, MISC Berhad merged its chemical fleet with the clean petroleum products (CPP) fleet operated by AET. AET took over the ownership of 13 chemical vessels and one LPG tanker owned/operated by MISC.

MISC Berhad continues to provide technical management for the chemical tankers and LPG vessel.

Gener8 Maritime

(10 mill dwt, plus 600,000 dwt newbuildings)

11

Gener8's 42-vessel fleet includes 26 VLCCs, including two newbuildings, 10 Suezmaxes, four Aframaxes and two Panamaxes.

On a fully-delivered basis, Gener8's fleet has a total carrying capacity of about 10 mill dwt and an average age of less than five years on a dwt basis.

Following the completion of its

newbuilding programme, Gener8's fleet of VLCCs will be the youngest among its public peers and will be comprised primarily of 'ECO' VLCCs that provide the company with an inherent competitive advantage, Gener8 told *Tanker Operator*.



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NYK Group

(10 mill dwt, plus 100,000 dwt newbuildings)

12

NYK manages 29 VLCCs, four Aframaxes and 18 MRs and has another two MRs on order for

delivery this year.

Similar to the other Japanese majors, NYK has interests in almost every type of vessel

and has joint ventures with other prominent players and is very active in the charter market.

Dynacom

(8.9 mill dwt, plus 1.9 mill dwt newbuildings)

13

Dynacom has started to take delivery of a series of 13 Suezmaxes ordered from

New Times.

At the end of last year, the company had 14 VLCCs, 23 Suzmaxes, one Aframax, 10

LR1s and six Panamaxs, plus another 12 Suezmaxes to come.

COSCO Shipping Tanker Dalian

(8.6 mill dwt, plus 2.2 mill dwt newbuildings)

14

COSCO Shipping Tanker Dalian is the main tanker arm of China COSCO Shipping and was

formerly known as COSCO Dalian.

The company currently manages 24 VLCCs, three Suezmaxes, three LR2s and eight Panamaxs.

In addition, there are another five VLCCs,

five Panamaxs and three MRs shown as on order.

The company claimed that once its newbuilding programme is finished at the end of 2018, it will control almost 12 mill dwt of tanker and LPG carrier tonnage.

Several joint venture and subsidiary companies have been formed, some of which cater for the tanker market.

Ocean Tankers

(7.7 mill dwt)

15

Singapore-based Ocean Tankers has sold around three VLCCs since the last listing and is now shown as managing 14.

In addition, the company has one Suezmax, 12 LR2s, one Aframax, five LR1s, 15 MRs and six Handysize tankers, plus four smaller IMO II chemical carriers, and 21 of what it calls 'general purpose' vessels.

Being an active player in the local Singapore market, Ocean Tankers also has a fleet of bunker barges, lube oil carriers, tugs and other craft.

China Shipping Tanker Shanghai

(7.6 mill dwt, plus 1.9 mill dwt newbuildings)

16

The former fleet of China Shipping Development is now being shown under the banner of China Shipping Tanker Shanghai.

Some of the vessels are managed by China International Ship Management.

The fleet consists of 14 VLCCs, seven Aframaxs, 14 LR1s, 16 MRs and 16 Handysize tankers.

In addition, another four VLCCs and four Aframaxs are believed to be on order.

SK Shipping

6.6 mill dwt)

17

South Korean conglomerate SK Shipping owns or manages 20 VLCCs, two LR2s and three MRs.

In addition, the company has interests in LNGCs, LPG and drybulk carriers, plus some smaller tanker tonnage.

International Seaways

(6.5 mill dwt)

18

International Seaways, was spun off from Overseas Shipholding Group (OSG), and is now responsible for the international crude and product tankers fleet worldwide.

As at the end of September last year, International Seaways owned or operated a fleet of 55 vessels with a combined capacity of around 6.5 mill dwt, which included one ULCC, eight VLCCs, eight Aframaxes/LR2s,

12 Panamax/LR1s and 20 MRs.

Through joint venture partnerships, International Seaways also has interests in four LNGCs and two FSOs.

Tsakos Energy Navigation

(6.5 mill dwt, plus 0.7 mill dwt newbuildings)

19

TEN has moved up a few places on the back of newbuilding deliveries.

The company has three VLCCs, 15 Suezmaxes (including two DP2 shuttle tankers), 15 Aframaxes

(including three LR2s), 11 LR1s, six MRs and seven Handysize vessels.

In addition, TEN owns and operates two modern LNGCs and expects to take delivery of another DP2 shuttle tanker and five Aframaxes in 2017.

Minerva Marine

(6.4 mill dwt, plus 800,000 dwt newbuildings)

20

Minerva Marine owns five VLCCs, five Suezmaxes, 28

Aframaxes, 17 MRs and two Handysize tanker.

In addition, the company has two Suezmaxes and four Aframaxes on order.

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TEN's 2016-built Aframax 'Elias Tsakos' (see page 33)

DHT Holdings

(6.1 mill dwt, plus 300,000 dwt newbuilding)

21

DHT has moved up the ranking slightly, due to its newbuilding programme gradually entering the fleet.

The company has 19 VLCCs and two Aframaxes in service, plus another VLCC still to come.

Early this year, DHT became embroiled

in a takeover bid from Frontline, the result of which was not known by the time Tanker Operator went to press.

Maersk Tankers

(6.1 mill dwt, plus 500,000 dwt newbuildings)

22

There are question marks hanging over Maersk Tankers' future as the AP Moller-Maersk subsidiary has said it is looking to spin-off or consolidate with another player.

Included in the Maersk Tanker figures are the commercially managed tonnage operated within the LR2, Handytankers and Brostrom pools.

This gives a total of 18 LR2s in the LR2 pool, 26 MRs and 69 Handies in the Handytankers pool.

In addition, managed by Brostrom are 16 smaller tankers in the Intermediate Clean pool and 11 in the Intermediate Dirty pool.

In addition, Maersk Tankers is in the middle of taking delivery of newly built MRs of which there are about 10 still to come.

Oman

Shipping Co.
(5.8 mill dwt)

23

OSC confirmed that it operates 16 VLCCs and 17 product tankers (13 MRs, two LRs and two chemical carriers).

The MRs were ordered on the back of long term charters to Shell, which has also recently concluded an agreement with OSC to take some of the VLCCs on a coa basis.

OSC also operates VLOCs, general cargo ships, LNGCs and LPG carriers.

Navios Group

(5.7 mill dwt)

24

In Angeliki Frangou's diverse grouping, the tanker players are Navios Maritime Acquisition Corporation (NNA) and Navios Maritime Midstream Partners (NAP).

Together they own a fleet of 42 vessels - NNA owns eight VLCCs, eight LR1s, 18 MR2s and two Chemical tankers, while NAP accounts for six VLCCs.

During the first quarter of 2017, NAP, entered into new charter contracts for the 'Nave Celeste',

'Shinyo Ocean' and 'Shinyo Kannika' with third parties, which provide for index linked charter rates or pool earnings.

Navios Acquisition has agreed to provide backstop commitments for a two-year period at a net rate of \$35,000 per day for 'Nave Celeste', \$38,400 per day for 'Shinyo Ocean' and \$38,025 per day for 'Shinyo Kannika'.



Navios' 2013-built LR1 'Nave Atropos'

Thenamaris

(5.2 mill dwt plus 1.6 mill dwt newbuildings)

25

Thenamaris manages three VLCCs, six Suezmaxes, 23 Aframax, 10 MR2s and seven MR1s.

The newbuildings include two VLCCs, two Suezmaxes, plus six Aframax.

BW Group

(5.2 mill dwt, plus 1 mill dwt newbuildings)

26

BW Group has nine VLCCs, 16 LR1s, 22 MRs and seven stainless steel chemical tankers.

In addition, its newbuilding portfolio includes two VLCCs, three LR1s and eight

stainless steel chemical tankers.

The Group is also involved in LNG, LPG, drybulk carriers and FPSO operations.



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Formosa Plastics (4.7 mill dwt)

27

The Taiwanese conglomerate's shipping division accounts for 11 VLCCs, two Aframaxes, six LR1s, 16 MRs and three Handysize tankers.

TORM (4.5 mill dwt, plus 420,000 dwt newbuildings)

28

The now London-based products tanker owners now has 10 LR2s, seven LR1s, 53 MRs and 11 Handysize vessels.

In addition, there are another four LR2s on order.

BP Shipping (3.7 mill dwt)

29

BP Shipping is undergoing a fleet replacement programme and at the beginning of February operated two VLCCs, 19 Aframaxes, 10 MRs and five Handysize tankers.

Shipping Corporation of India (2.9 mill dwt)

30

SCI owns six Suezmaxes, 13 Aframaxes (including two LR2s), six LR1s, four MRs and two Handysize tankers.



TORM's MRs seen fitting out at Sungdong last year



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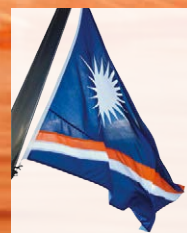


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