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ANNUAL REVIEW

Front cover

Thomas Gunn is to supply an additional 43 Unicom-managed vessels with its outfit management service, bringing the total up to 78 vessels, the bulk of the company's fleet. The vessels will be supplied with both customised Russian Hydrographic Office and UK Hydrographic Office charts and publications, in both digital and paper format.

Fishermen shot dead- an accident just waiting to happen

The alleged shooting dead of two Indian fishermen off the Indian coast last month has thrown up a plethora of theories and counter theories as to what did actually happen.

The upshot was that the D'Amato managed Aframax *Enrica Lexie* was taken to Kochi where the armed guards on board were arrested and could be charged with murder.

Although at the time of writing, it was early days following this incident, the facts as stated by both the Italians and Indians do not add up, according to one US-based security concern.

At the beginning, the Italians insisted that they were approached by a boat that didn't answer to warnings, including flares and radio calls (It has since been established that both were attempted, quoting a report from Washington, DC-based C-Level Maritime Risks).

Conflicting reports of the incident have been received from both sides. For example, the Italians insisted that the event occurred 30 miles off the Kerala coast - at 12.30 hours Rome time - or 14,30 hours local Indian time. And the Italian Navy reported the encounter first - before anyone else, including the Indians.

For their part, the Indians insisted that the attack occurred at only 14 miles off the Kerala coast - which they insisted was inside territorial waters. However, even if the distance was correct, the conclusion was wrong. Territorial waters extend only 12 miles, while 14 miles is in international waters.

What was really confusing, said C-Level, was that the Indians claim that the attack occurred at 17.00 hours locally - a full 2.5 hours later than when the Italians said it occurred.

Another anomaly was, if the Italian marine infantry are to be believed, the description of the fishing boat from the Indians did not match the description of the boat they encountered. There were also conflicting reports on the number of fishermen seen on board the vessel and the number of bullets actually fired.

The official Indian story was that there are no pirates in the waters off Kerala, which the security company said is 'simply not true'.

Fishermen often approach a large vessel underway, as its wash churns up the surrounding sea and with it the fish.

Following the reported incident, someone should have accessed the AIS tracks of the *Enrica Lexie* and the other ships in the vicinity and compared them with the time and location of the Indian fishing boat.

The coastal radar of the Kerala Coast Guard should be recorded - or at least notes taken - to compare with the AIS.

An Italian report issued in mid-February called for a ballistics comparison. Unfortunately, the Indians who were shot and killed are not to be given autopsies, as the Indian authorities refused.

To help create a level playing field, C-Level Maritime Risks called for armed guard regulations to have teeth. 'If it is found that an armed guard team has fired in error, that's bad enough - but for it to remain quiet, that's really much more condemnable. And self-regulation really is not the way to go - it's a necessary but not sufficient condition', the security company's report said.

In conclusion, the report said that the IMO has to step in and start adopting regulations with teeth - this is the wake-up call that has to be noticed - otherwise more will die - and countries will again find themselves shoved into confrontations that no one wants, while pirates profit from the confusion and the new reticence of guards to use their weapons.

Another US-based security concern told *Tanker Operator* a couple of months before this incident occurred that there were many fishing vessels in the Gulf of Aden/Red Sea areas. The fishermen are mostly armed for their own protection, as they live by the gun in almost lawless states. However, they pose virtually no threat to passing shipping.

UK-based marine safety concern, BCB International has called on world leaders to rethink the self-protection measures used by commercial ships to ward off pirate attacks. The company said that it had been warning for some time about the dangers linked with the used of armed guards on commercial vessels.

While accepting that the vast majority of armed guards protecting commercial vessels are extremely well trained and highly professional; the company said that there can be no room for human error when lethal force is used.

We have also seen reports of naval units attacking innocent fishing craft with fatal results. After all, in the Indian Ocean, pirate mother ships are often captured dhows, or large fishing vessels. How do you tell the difference when put in a position where a decision has to be taken almost in a split second?

Was this particular incident caused by trigger happy marines, a shear panic reaction, or a calculated attempt to ward off an attack? Both sides differ on this.

The P&I clubs must be tearing their hair out.

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Tanker demand heading for a slowdown?

During the middle of January, BP released its long term view of energy markets to 2030.

Although the outlook covers all energy sources, for tanker markets the emphasis obviously is on oil. Gibson Research highlighted several points from the BP forecast that are closely related to the tanker sector.

Most importantly, BP expects growth in global liquids demand of 16 mill barrels per day (oil, biofuels and other liquids) over the next two decades, rising to 103 mill barrels per day by 2030. This compares with growth of 19 mill barrels per day over the past 20 years, resulting in a slowing down, from an average of around 1.2% per annum to 0.8% per annum.

However, a critical part of the outlook is that only 9 mill barrels per day is expected to come from crude oil, with the rest coming from biofuels, NGLs and other fuels (including processing gains), Gibson said. China and India would account for more than 70% of demand growth, with consumption rising by 8 mill barrels per day and 3.5 mill barrels per day, respectively. Demand in OECD countries is likely to fall by 6 mill barrels per day.

Faced with a difficult task of projecting so far ahead, BP's outlook is based on the assumption of accelerating current trends in the energy sector, such as a drive for cleaner energy and greater fuel efficiency.

For example, in the transport sector, "…..efficiency of the internal combustion engine is likely to double over the next 20 years," BP said. This incorporates that "…sales of conventional passenger vehicles, accounting for nearly 100% today…" will decline to a third of total car sales by 2030 and that sales of hybrid cars will dominate.

However, BP cautions that if there are no changes to fuel efficiency, car usage and use of alternatives, "oil demand in road transport would increase by a massive 23 mill barrels per day."

This huge difference illustrates the importance of technology combined with government/consumer policies and the bearing it will have on the tanker business, Gibson said.

On the supply side, growth in global liquids demand is expected to be met primarily by increasing OPEC production, which would rise by 12 mill barrels per day, with the largest gains in NGLs and crude output from Iraq and Saudi Arabia.

Perhaps worryingly for the tanker market, BP anticipates that the Americas will largely become energy self-sufficient by 2030, due to strong growth in Canadian oil sands, Brazilian deepwater projects and US shale oil, as well as US and Brazilian biofuels.

Overall, these trends will have major implications for the tanker markets. Although at present the immediate threat for the industry is tonnage oversupply, in the long run factors such as slowing demand, environmental concerns, fuel efficiency and technological advances will be among the main drivers that will shape the future of the oil markets and with it, demand for tanker transportation, Gibson concluded.

Iranian exports

Turning to Iran, the recently announced European ban on imports of Iranian crude oil due to come into force on 1st July could mean a significant shift in crude oil movements.

Exports of Iranian crude into Europe increased during second and third quarters of 2011, partly as a direct result of the loss of 1.3 mill barrels per day of Libyan crude during the civil war.

Gibson calculated that Iran currently exports around 0.7 mill barrels per day into the European refinery system, almost half of the Libyan pre-crisis total. Spain and Italy have been the biggest European importers from Iran in recent times.

It was also notable that France has gone from zero imports in the fourth quarter of 2010 to average 76,000 barrels per day during the second and third quarters of 2011.

With Libyan crude exports now nearing pre-crisis levels, by the time the ban is implemented, Europe will be well placed to switch supplies away from Iran.

Europe's economic growth (or lack of it) is also a major factor as demand is unlikely to rise significantly during 2012, Gibson said.

Should Europe require to source alternative crude supply, Saudi Arabia is the obvious candidate to make up any shortfall. Saudi Arabia could supply any shortfall through the Sumed pipeline taking up the capacity vacated by the loss of Iranian crude.

Currently, Iranian exports to the Far East currently represent about 60% of its crude exports. Tougher sanctions on Europe will simply mean more crude will go east. India and China will cite economic reasons for their reliance on a continuous supply, as their economies continue to grow. As a further inducement, Iran may offer crude at discounted prices in order to ensure that exports continue to their largest customers in Asia.

After 1st July, the political focus will turn east as the US and Europe attempt to ramp up more pressure on India, Japan and South Korea to join the ban. Turkey will also come under pressure as it is the fifth largest importer of Iranian crude. In the US, tougher financial sanctions are already on the agenda, Gibson said.

Several tanker operators have already stated their intention of not loading at Iranian terminals, including Tankers International and Frontline.

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Shipboard fatigue now scientifically recognised

The results of a 32-month, part EU funded, 11 - partner research project into fatigue at sea have been published. The project clearly demonstrated that certain ship watch patterns carry an increased risk of sleepiness, which should serve as a wake-up call to the industry, a leading maritime union official said at the recent launch of its findings.

One of the project's partners, Anglo-Dutch maritime union Nautilus' senior national secretary Allan Graveson said the union welcomed the results and urged the shipping industry and those who regulate it to act on the findings.

"Nautilus welcomes this research, which provides detailed scientific support to demonstrate the validity of our concerns about fatigue at sea. No other safety-critical industry would allow key personnel to regularly work up to 91 hours a week and this study offers the opportunity to move to methods of working that are based on science rather than

The participants were wired up to monitor fatigue levels.

socio-economic grounds.

"The shipping industry and those who regulate it cannot afford to ignore these findings," he said.

He was speaking of 'Project Horizon', the findings of which have provided a first benchmark for understanding and predicting how different watch systems influence the level of fatigue, or sleepiness of ship's officers.

The research project brought together academic institutions and shipping industry organisations (see table), with specialist input from some world-leading transport and stress research experts.

It made pioneering use of bridge, engine room and cargo simulators simultaneously to assess scientifically the impact of fatigue in realistic seagoing scenarios that would be encountered on board a 40,000 dwt products tanker undertaken two return voyages between Fawley in the UK and Rotterdam - a total trip of seven days.

During the simulated vessel's laden leg, two grades of cargo were carried in order to test the shipboard personnel in the simulated cargo loading and discharge operations room. The cargo tanks were 'fitted' with an inert gas system.

In total, 90 experienced deck and engineer officer volunteers participated in rigorous tests at Chalmers University of Technology in Gothenburg (50 persons) and Warsash Maritime Academy at Southampton Solent University (40 persons) to measure their levels of sleepiness and performance during the most common watch keeping patterns – four hours on/eight hours off (4/8) and six hours on/six hours off (6/6).

Some of the Gothenburg-based volunteers were also exposed to a 'disturbed' off-watch period, reflecting the way in which seafarers may experience additional workloads, as a result of port visits, bad weather, or emergencies.

Basically, Chalmers simulated the standard three bridge watchkeeping scenario of four hours on and eight hours off and a 'disturbed' 6/6 watch whereby deck officers were in a state of 18 hours continuous wakefulness.

Professor Mike Barnett, associate director (research) at Warsash Maritime Academy, Southampton Solent University, explained that Warsash simulated both deck and engine room undisturbed 6/6 routine linking the simulators. The cargo control room simulator was used while the 'vessel' was in port. Both voyages between Fawley and Rotterdam were simulated to be as realistic as possible, including a pilot coming on board. The intake of caffeine was regulated by only allowing four cups of coffee per day and no alcohol was allowed during the experiment. The two round trips were then compared.

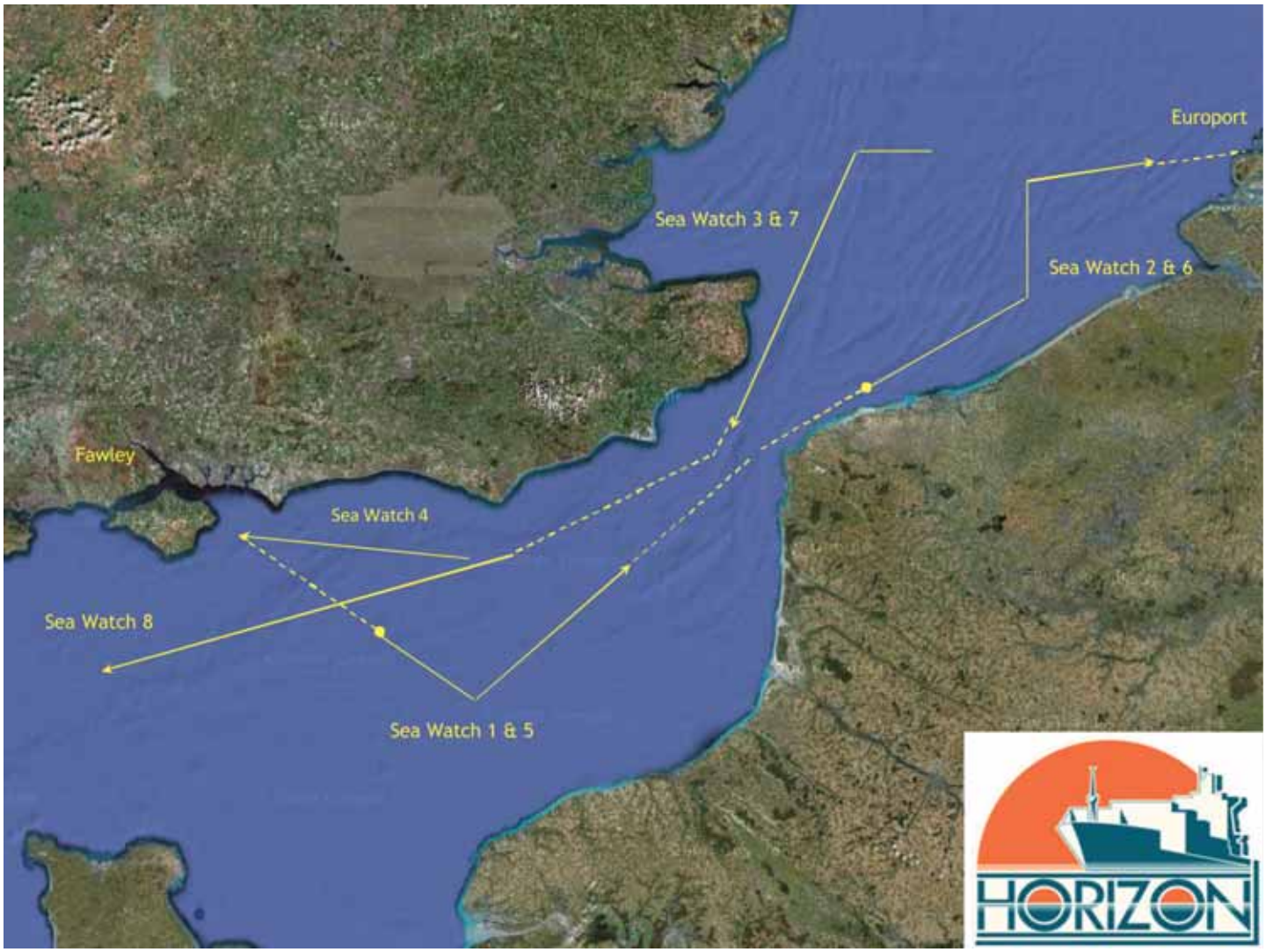
Participants came from many countries and were taken from all age groups and both male and female junior officers were used, all acting as 2nd or 3rd Mates, as solo watchkeepers, or 2nd or 3rd Engineers for engine room duties. Those in the cargo control room simulator had some tanker experience and from which communications traffic was simulated, such as when undertaking bunkering operations in port.

In addition, there was a Chief Officer and an AB on call, but they were not present on the bridge during the watches. The deck officers were not allowed to use an ECDIS and had no alarm systems to help them. A chair was placed on the bridge to see if the watchkeepers would use it with mixed results.

Key findings showed the most marked sleepiness detected was in the 6/6 team where at least one occurrence of falling asleep on watch was detected among 45% of officers on the midnight to 6 am watch and there was also one occurrence for about 40% of those on the midnight to 4 am watch in the 4/8 group.

Watchkeepers were found to be most tired both at night and the

(continued on p9)



The two simulated voyages with the different watches.

Project 'Horizon' Key findings

■ At least one occurrence of sleep was detected among 45% of officers in the 6/6 team working the 0000-0600 hrs watch at Chalmers and one occurrence for about 40% of those on the 0000-0400 watch in the 4/8 pattern.

■ At Warsash, where the watchkeepers remained undisturbed in their off-watch rest periods, the number of occurrences of sleeping on watch for officers on the 6/6 pattern varied and was up to more than 20% on the 1800-0000 watch.

■ Such incidents of sleeping on watch were found within both watchkeeping patterns, and they mainly occurred during night and early morning watches.

■ Participants in all the groups reported relatively high levels of subjective sleepiness on the KSS scale, which got higher towards the end of a watch and the end of the week.

■ Varying degrees of sleep loss were observed between the watch systems and depending on whether off-watch periods were disturbed or not. Overall sleep duration for those on the 4/8 pattern was found to be relatively normal, with around 7.5 hours per day for those in Team 1 at Chalmers and about 6 hours for Team 2 at Warsash.

■ Participants working 6/6 watches were found to get markedly less sleep than those on 4/8, and data showed a clear 'split' sleeping pattern in which daily sleep on the 6/6 pattern was divided into two periods — one of between three to four hours and the other averaging between two to three hours.

■ Reaction time tests, carried out at the start and end of each watch, showed clear evidence of performance deterioration – and the slowest reaction times were found at the end of night watches and among those on the 6/6 patterns.

■ Watchkeepers were found to be most tired at night and in the afternoon and sleepiness levels were found to peak towards the end of night watches.

■ The 6/6 regime was found to be more tiring than the 4/8 rotas and 'disturbed' off-watch periods were found to produce significantly high levels of tiredness.

In both watch systems, the disturbed off-watch period was found to have a profound effect upon levels of sleepiness.

There was evidence that routine and procedural tasks could be carried out with little or no degradation, while participants appeared to find it harder to deal with novel 'events', such as collision avoidance or fault diagnosis, as the 'voyages' progressed.

Researchers also noted a decline in the quality of the information being given by participants at watch handovers as the week progressed. ■

afternoon while sleepiness levels were found to peak towards the end of night watches.

Participants were performance tested using a hand held computer (PVT) when they came on watch and then again when they went off watch.

Performance deterioration

Reaction tests carried out at the start and end of each watch also showed clear evidence of performance deterioration – the slowest reactions were found at the end of night watches and among those on the 6/6 patterns. Routine and procedural tasks were able to be carried out with little or no degradation, but participants appeared to find it harder to deal with novel 'events', such as collision avoidance, or fault diagnosis, as the 'voyages' progressed.

It was found, however, that the deck and engineering teams developed a good working relationship. Social interaction was encouraged as was deemed very significant. It was thought that fatigue would reduce peoples' interaction with each other.

Researchers have used the data to develop a new fatigue management toolkit – Fatigue Risk Management Systems - for use by shipowners and managers, seafarers, regulators and others, to help arrange working schedules to mitigate risks to ships and their cargoes, seafarers, passengers and the marine environment. It is hoped that these can be used as part of the Safety Management System (SMS) within the ISM, Professor Barnett said.

It is hoped to develop a crisis management project, which will look at how to manage fatigue in difficult circumstances. For this project, senior officers, such as Masters, Chief Officers and Chief Engineers, will take part. ■

Project Horizon partners

Warsash Maritime Academy, Southampton Solent University – co-ordinator.

Bureau Veritas, Marine Division Research Department.

Chalmers Tekniska Hoegskola, Department of Shipping & Marine Technology.

European Transport Workers' Federation, Nautilus International.

Stockholms Universitet, stress research institute.

Charles Taylor – The Standard P&I Club.

European Community Shipowners' Association.

European Harbour Masters' Committee.

INTERTANKO.

UK Marine Accident Investigation Branch.

UK Maritime and Coastguard Agency.

US tax- Arntzen spells it out

On 21st February this year, Morten Arntzen president and CEO of the Overseas Shipholding Group (OSG) gave a testimony to the US House Ways and Means Committee Subcommittee on Oversight and the House Ways and Means Committee Subcommittee on Select Revenue Measures Hearing on Maritime Tax Issues.

In a speech championing the 'American Shipping Reinvestment Act of 2011', he said that the US maritime industry was critical to the country's economic well-being its homeland and national security.

A recent PricewaterhouseCoopers (PwC) study for the Transportation Institute about the US domestic maritime industry found that the industry overall contributed more than $100 bill in economic output to the domestic economy and employed nearly 500,000 workers.

Today, there are more than 40,000 vessels in the domestic maritime fleet, comprised of some of the most technologically advanced vessels and other assets in the world.

OSG's Morten Arntzen.

The technological advances, which have resulted from that massive commitment of capital, have greatly improved the flow of cargo, resulting in virtually seamless movement of goods from origin to destination anywhere in the world.

The US-flag industry also continues to invest in the expansion and modernisation of the fleet. For example, during the past year OSG took delivery of the last of 12 Jones Act ships constructed by Aker Philadelphia Shipyard, a huge investment that created thousands of US shipbuilding jobs and will create thousands more relating to the vessels' operation, maintenance, and commercial use. These newbuildings represented the largest commercial shipbuilding order since World War II.

OSG also has made substantial investments in its US-flag international fleet, which has been described by the Department of Defense's US Transportation Command as "a vital element of our military's strategic sealift and global response capability." These investments help to sustain a US shipbuilding industrial base, a pool of American seafarers and a fleet of US-flag vessels for time of war, or national emergency.

OSG and the US maritime sector also play a key role in maintaining a vibrant US-owned international shipping fleet, which may be called into service for our nation's defence.

American-owned companies' international ships are part of what is thus the 'Effective US Controlled Fleet (EUSCF)' that is, the fleet of merchant vessels, registered in certain foreign nations, that are available for requisition, use or charter by the US Government in the event of war or national emergency.

US fleet depletion

However, a 2002 study commissioned by the Department of Defense and performed by professors at the Massachusetts Institute of Technology found that the EUSC fleet dropped by 38% in terms of numbers of ships and nearly 55% in terms of deadweight tonnage between 1986 and 2000. Today, OSG's ships constitute a critical component of the EUSC fleet.

Despite the successes of the US maritime industry and notwithstanding the critical role US shipping companies play in the US economy and national defence, they face severe competition and challenging market conditions. Moreover, as a highly capital-intensive industry, the companies have very substantial funding needs.

"US shipping companies simply cannot thrive if we are burdened with tax code provisions, which do not apply to other US corporations, or if access to capital, particularly our own earnings, is impeded," he warned.

A recent Lexington Institute study on the contributions of the domestic maritime industry to US security found that 'the greatest danger to the role and function of the US as a seafaring nation is the decline of its maritime industry and merchant marine.'

Antiquated provision

He explained that his testimony focused HR 1031, the 'American Shipping Reinvestment Act of 2011', which would correct an antiquated provision in current law that singles out US shipping companies for less favourable treatment than other US businesses

and impedes access to their own earnings. As a result, that flaw in the tax code has impeded shipping companies like OSG from having access to their own capital, funds that otherwise could be used in the US.

By way of background, as a general rule, US corporations are allowed to defer US taxation on their foreign subsidiaries' income. Over 30 years' ago, in 1975, Section 955 was added to the Internal Revenue Code. This provided that US shipping companies could defer immediate taxation on their foreign subsidiaries' earnings from shipping operations only if those earnings were reinvested abroad in qualified foreign shipping assets.

The Tax Reform Act of 1986 made matters even worse by ending deferral altogether for shipping income earned by foreign subsidiaries of US shipping companies, even if reinvested in foreign shipping assets. This loss devastated US shipping over the next two decades.

Over time, Congress recognised the extent of that damage. To help revive US shipping, the American Jobs Creation Act of 2004 (JOBS Act) restored deferral for shipping income. This change strengthened OSG's balance sheet and allowed the company to embark on the largest US shipbuilding effort since World War II.

That 2004 law also lowered the tax barriers that prevented US companies, which did business internationally from bringing foreign earnings earned prior to 2004 back for investment in the US. However, because the JOBS Act failed to address the problems created by enactment of Section 955 30 years' earlier, shipping companies could not benefit from those lowered tax barriers.

As a result, US shipping companies were denied an opportunity that the JOBS Act afforded all other US corporations and the foreign earnings reinvested in foreign shipping assets before 1987 remained stranded abroad.

Because Section 955 remains law, US shipping companies still must maintain investments in foreign shipping assets made decades ago, pre-1987. Any net decrease in those investments results in an immediate tax.

This vestigial quirk in the tax law has caused capital of US shipping companies to be left offshore, effectively preventing those companies from investing their earnings back into the US economy.

Legislation is needed to fix this problem for US shipping companies and allow those companies to redeploy their pre-1987 earnings in the US.

The American Shipping Reinvestment Act (ASRA) would repeal Section 955 and allow US shipping companies to bring home pre-1987 earnings that are stranded overseas by affording US shipping companies the same tax treatment on those earnings as the 2004 Act already extended to all other US corporations with foreign subsidiaries.

Enactment of ASRA will allow US shipping companies to be treated the same as all other companies were treated in the JOBS Act, giving them the ability to redeploy funds currently stranded abroad for use here at home.

ASRA will help US shipping companies make investments in the US-flag fleet, as well as vessels that support homeland security and the military. ASRA also will help create and sustain thousands of American jobs in the shipbuilding, seagoing and related trades. More generally, by freeing up needed capital for the maritime sector, the legislation will provide an immediate economic boost in the short-term, while creating lasting benefits for the economy in the long-term.

For all those reasons, ASRA has earned broad, bipartisan support in the House and the Senate.

It is also supported by US maritime labour, US shipyards, state maritime academies and US shipping companies.

"We in the maritime sector look forward to working closely with the chairmen and members of the Oversight and Select Revenue Measures Subcommittees to ensure prompt passage of this important legislation," Arntzen concluded. TO

A long arm for shipping's 'invisible hand'

On 7th February, 2012, business journalist Joe Nocera published in the Op-Ed pages of The New York Times an opinion piece entitled 'Poisoned Politics of KeystoneXL'*.

This article argued that given the Obama administration's decision not to approve the Keystone XL pipeline (a politically and environmentally charged decision in an election year), the Canadian government has actively been seeking alternative buyers for the oil extracted from their tar sands; namely, they have been cultivating buyers in China through a recent trade mission headed by the Canadian Prime Minister.

The Keystone XL pipeline was supposed to pour oil from Alberta, Canada, to the US Gulf refineries where it could be processed and consumed in the US. The pipeline project was rejected partially on concerns about its impact per se on the environment and partially on an orchestrated effort by environmental groups that perceive oil production from tar sands to be highly energy-demanding and environmentally dirty as to deserve a boycott at any point of the chain from investment in tar sand projects to production, transportation and consumption.

Of course, the counter-argument will be about the overall carbon footprint if the Chinese end up buying Canadian oil and the US sources oil from countries more remote than Canada (like Venezuela, West Africa, or Middle East).

The economic benefit and the potential environmental impact of the pipeline aside, a shipping executive's mind has to focus on the economic benefit from the disproving decision of the pipeline on the maritime industry alone. Canada is an extremely stable country and a staunch US ally, and traditionally, most of the Canadian oil and mineral commodities find a big market in the US. No doubt, it makes great economic sense: a bankable and insatiable consumer market located close to the producer country along a peaceful border sharing same institutional principles (unlike 'buying oil from people who hate us'). But, from a shipping executive's perspective, with international flag market interest, any prospects over this border trade were until now fully indifferent: oil from Alberta could be transported via continental pipeline, very economically once the pipeline was installed, to the Gulf of Mexico without ever touching a tanker; it will never pop the cork off of a champagne bottle! (for owners active in the Great Lakes shipping, of course, the commodity trade between Canada and the US is still a viable market).

If Chinese prove to be substantial buyers for the oil from the Canadian tar sands, logically tankers will be involved in transporting oil from the west coast of the North American continent to China. Obviously, this is inspiring news for shipping, and the tanker owners in particular. Almost like a deus ex machina intervention, a new trading route effortlessly appears on the globe map and the tonne/mile demand automatically perks up.

It's still premature to figure out what type of tankers will benefit most from such trade, but an educated guess may be that oil will be transported from Middle East to west coast US/Far East in VLCCs or Suezmaxes, which then would proceed in ballast condition to Canada to load tar sands oil for China discharge and then proceed in ballast to Middle East to load again.

Triangulation

Clearly such triangulating schedule reduces the 'ballast leg' of the overall trip, as tankers crossing westbound the Pacific Ocean are in laden condition. It's still very premature to determine that the above scenario will eventually play out as such, or if it will serve as a catalyst for a market recovery from the current slump in the tanker freight rates. For instance, the pipeline may still be approved next year once presidential elections in the US are out of the picture after November 2012. Economic efficiencies and rational decision making in the market place are the major assumptions for building economic models and market projects. Selling (and transporting) Canadian oil across the ocean to China instead of to the US, and having the US import oil from countries located further apart than next door Canada clearly is not the most efficient trade. As it turns out, in the market place there might be considerations that supersede economic efficiencies; in this instance, environmental and political concerns, whether for good or bad reasons, guide the market place toward a certain direction and toward the benefit of shipping.

There is little doubt that shipping is an industry driven by a multitude of variables and inputs, including financial, fiscal, monetary, geo-political, sovereign, social, environmental, regulatory and technological factors. In turn, each of these factors is the product of several additional sub-variables and minor nuisances; and, some of these variables may be correlated to some extent or possibly be fully independent. Any decent economic model of the industry about future projections has to deal with most, if not all, of such inputs.

The $60,000 question becomes, however, how one treats the 'long tail' of all these variables? There is a small probability that each of these variables can vary widely. Whether some of the approximately 120 VLCCs still on order will be delivered later than scheduled, or cancelled altogether may be a small aberration that an economic model can tolerate.

On the other hand, if Canada finds in China buyers for all the oil supposed to be transported to the US by the Keystone XL pipeline (830,000 barrels per day), then potentially a VLCC will be required to load almost every two days; the impact on the market, the low likelihood of such scenario notwithstanding, can be much more meaningful, as 25 VLCCs (about 4% of the entire world VLCC fleet) will be required to service such trade.

High probability events sustain the direction of the market, but it's usually low probability events that act as catalysts and 'game changers'. It's the events that seem initially infinitesimally improbable that change the markets and can be a blessing, or a boon to market participants. As the CEO of Goldman Sachs mentioned once, 'I spent 98% of my time worrying about 2% probabilities'.

Shipping, an industry well known for its volatility has, time and again, shown that low probability factors outside the industry can very well create or destroy value in shipping. It seems that the cancellation of the Keystone XL pipeline may be poised to create such value for the shipping industry. TO

** This article was written by Basil M Karatzas, chief executive of Karatzas Marine Advisors & Co, a shipping finance advisory, vessel appraisal and vessel brokerage firm based in Manhattan. Karatzas may be contacted at info@BMKaratzas.com, or at +1 713 545 5990.*

Transas supplies MMA with a full mission simulator

Massachusetts Maritime Academy (MMA) recently hosted an opening ceremony for the American Bureau of Shipping Information commons building. The 42,000 sq ft building houses the Academy's new full mission ship simulator, supplied by Transas USA.

It combines maritime tradition with the latest technology in maritime training, including the campus library, museum, archives, model ship collection, plus hi-tech simulation facilities, multimedia 'smart' classroom, and resource centres.

The new simulator and its support areas include a full mission, 360 deg bridge simulator, debriefing room, instructors control room and an ante room.

Modern navigation systems installed on the bridge, include an integrated navigation system (INS), dynamic positioning systems (DP2), ARPA/Radar multifunction displays, and ECDIS, all meeting the latest international maritime regulations.

The full mission simulator is in addition to the Transas Navi-Trainer Professional 5000 simulator systems already installed at MMA. It can operate either independently, or in joint exercises across campus for multi-vessel scenarios, with the existing tug bridge and electronic navigation laboratory.

As one of the US' six state maritime academies, Cape Cod located MMA claimed to balance a unique regimental lifestyle with a typical four-year college academic study course. ■

Industry association goes from strength to strength

InterManager, the international trade association for the shipmanagement industry, has started 2012 with a bang.

In the first month of this year, InterManager welcomed two full members – shipmanagement companies Histria and Green Wave – and two associate members – international law firm Hill Dickinson and crew communications provider SMART Link.

Histria Shipmanagement manages a fleet comprising nine modern fuel efficient 41,000 dwt oil/chemical tankers, including two newbuildings under construction at Constanta Shipyard. Future plans include the building of two 50,000 dwt shallow draft, high cubic, fuel efficient eco-design oil/chemical tankers scheduled for delivery in 2013.

Formed in 1992, the shipmanagement concern is part of the Histria Group, which encompasses a network of companies engaged in shipmanagement, chartering, operation, crewing, repairs and upgrading, technical maintenance and safety at sea for a growing fleet of tankers, bulk carriers and general cargo vessels ranging from 3,000 dwt to 164,000 dwt and totalling an aggregate of more than 650,000 dwt.

The Romanian-based concern was among the first European shipping companies awarded the International Safety Management Certificate IMO A 741(18) by Germanischer Lloyd in October 1997. The company has recently updated and restructured its integrated management system to give added value to its capabilities to manage a modern fleet.

Green Wave Shipping is a Singapore-registered company managing a small fleet of modern stainless steel chemical tankers. The company is a subsidiary of Koyo Kaiun Co.

Hill Dickinson's international marine, trade and energy practice comprises more than 100 dedicated marine legal experts based in London, Piraeus, Singapore, Liverpool and Manchester. The practice comprises four teams – yacht, shipping, commodities and cargo, freight and logistics.

Each of the marine teams works closely with an international network of maritime lawyers, marine surveyors, investigators and loss adjusters to provide the complete marine legal service 24/7.

Hill Dickinson's enrolment enables InterManager to reacquaint itself with former member Ian Maclean who has now moved to Hill Dickinson having previously been with Ince & Co.

Philippines-based SMART Link provides satellite communication for the maritime industry with an estimated 120,000 active subscribers. Backed by telecommunication company SMART Communications Inc, SMART Link serves seafarers in the Asia/Pacific region, Indian Ocean, Middle East and parts of Europe and America and is installed on some 7,500 vessels.

IMO representative

Building on this momentum, InterManager has appointed Capt Paddy McKnight to the role of its IMO permanent representative.

The organisation was previously represented at the IMO by Svein Sorlie of Wilh Wilhelmsen Holding, who has now retired from shipping.

On leaving the RN, he spent 15 years as the UK representative at The Japanese Shipowners' Association (JSA), which entailed interaction with all the leading shipping trade organizations, as well as the IMO.

In particular, he was a member of the shipowners' delegation throughout the genesis and development of the Maritime Labour Convention at the ILO in Geneva.

In another move this year, InterManager president Alastair Evitt, has been made a Fellow of The Nautical Institute (FNI).

Evitt, managing director of Meridian Marine Management, was formally presented with his Certificate of Fellowship at the annual general meeting of the North West England & North Wales Branch of The Nautical Institute in Liverpool on 16th February.

Rear Admiral JS Lang FNI, chairman of the council's fellowship committee, said: "Fellowship of The Nautical Institute is only awarded to those who have made a significant contribution to nautical science, the nautical profession and/or the objectives of the Institute."

KPI seminars

A series of workshops is being held to promote the InterManager-led KPI Association's system of measurable standards for the shipping industry.

InterManager is using the workshops as a means of communicating a better understanding of how the measurement system works, including explanations of the performance indicators being used and the process of collecting data.

For example last month in Singapore, InterManager secretary general Kuba Szymanski, together with vice president George Hoyt and Markus Schmitz, managing director of SoftImpact, led the first full day workshop which was held at the offices of V Ships - courtesy of V Ships Singapore managing director, Capt Satnam Kumar.

Szymanski said: "This is a good opportunity for us to talk to current and potential users of the KPI system and explain the benefits first hand as well as addressing common misconceptions. It is also good to hear actual users of the system explaining how they are benefiting from it and have them share their experiences with the wider industry."

In addition, InterManager has established an Asia-based KPI support network to enable users to share best practice and other information. TO

Frontline opts for Inmarsat's new service bundle

A major tanker company has claimed to have overcome the increasing complexity and cost of communications by opting for a complete switching system.

Frontline, the world's largest tanker owner in terms of tonnage, is to enhance its ship/shore communications network by installing Inmarsat's new offering XpressLink on more than 100 vessels in its fleet, including the newbuildings.

"We evaluated the providers and made a purely commercial decision about XpressLink from Inmarsat," said Kjell Langva of Frontline Management in Norway. "The choice was made after a year of positive experience with VSAT from Ship Equip".

"The cost-benefit profile and the unmatched failover capability, which offers unlimited usage on Inmarsat FleetBroadband, were key to the decision. Also Inmarsat's ability to deliver made up the additional element in making the choice," he said.

"With XpressLink's internet and voice services, communications on board the vessel will be greatly enhanced, supporting operations and improving overall efficiency. It also allows the crew to stay in touch with family and friends and handle their personal affairs, at a very low cost, which has been an important issue for Frontline," said Langva.

Driving force

Langva explained to Tanker Operator that Frontline uses the 'always on' option as the crew's recreation was the main driver of the whole project. "The crew is the most important element of success when competing with other shipowners," he explained.

Frank Coles, president, Inmarsat Maritime, said. "The contract with Frontline is a landmark agreement for XpressLink. This is a significant endorsement by the world leader in crude oil shipping. It confirms that we have a highly-competitive product, offering excellent value for money and with the right focus on delivering reliable high-speed broadband through a combination of L-band and VSAT services."

Switching is an integral part to the XpressLink system. VSAT is used when inside the coverage, however, when outside the coverage area, or the VSAT signal is lost, communication is automatically switched to FleetBroadband and back again when the VSAT returns online.

Coles said that shipowners were increasingly looking for redundancy and communications reliability. "In the past they have been happy with one service, but today they can't take the risk," he said. "We (Inmarsat) are in charge of the service reliability to deliver a cost-effective service."

For a fixed low cost, XpressLink provides vessels worldwide with access to both Ku-band VSAT and L-band FleetBroadband services in a bundled package – with a guaranteed free upgrade to the 50 Mbps capability of Inmarsat's Ka-band Global Xpress when the service becomes operational in 2013.

"Ka-band is a game changer from a speed perspective, introducing truly high speed broadband over satellite. It is a VSAT service and will replace slower KU services currently being offered," Coles explained.

Service choice

Turning to FleetBroadband as a standalone product, Coles said that Inmarsat continued to see high take up of FleetBroadband from new customers, as well as those migrating from older generation technology and competitor products that are not as reliable.

He also explained that some of Inmarsat's customers go straight for an 'always on' service, while others opt for a choice of services. "The need for 'always on' is not always there from a (shipowner) business perspective," he said.

Coles said that there was some cost synergy for larger fleets, but it was also true to say costs depend on the type of service required. "If a customer wants fast internet broadband of course it will be more expensive than simple email.

"Most shipowners are not at the point where they are taking 'all singing all dancing' complete solutions. Like in all markets, there are the leading edge adopters, as well as the more standard shipowner who is content with the basic product," Coles said.

Langva said that with fixed annual costs, he saw the possibility of savings with a large fleet, especially with the increased need for communications. He explained that Frontline Management also looks after vessels in the Knightsbridge, Golden Ocean, Ship Finance and Sea Tankers' fleets, among others.

The installation of XpressLink on Frontline's vessels will commence immediately and continue throughout 2012.

Langva explained that most of the installations/upgrades will take place while the vessels were in port, such as Singapore, which is a favoured destination. "Satcoms installation is not a big job, as the crew can prepare the vessel before an Inmarsat technician comes on board for a few hours," he said.

In a recent presentation, Coles said that in the future, companies will be able to use the communications available to transfer more data for much the same cost.

For a tanker using anywhere between 10 GB and 40 GB per month, a bundled solution was more cost effective that a 'pay as you go' solution, he said.

With the new Global Xpress ka-band service due to be launched in 2013, tiered pricing will be offered for the amount of bandwidth used per month allowing operators a choice. Coles said; "It will depend on how much data needs to be transmitted and how much the vessel operator is willing to pay. There will be a certainty of costs at each level."

The average plans will be between 10 MB up to 5 GB, but an operator can negotiate more if he or she needs it, he explained. Global Xpress will offer downlink speeds of up to 50 Mbps, and up to 5 Mbps over the uplink, from compact user terminals. TO

AWT upgrades fleet management system

Standfirst—-Applied Weather Technology (AWT) has released GlobalView 2.0, a new version of the company's fleet management system.

This features port forecasts, tide data, tools for easy customisation and direct access to bunker pricing. According to Erik Hjortland, advisor, ship performance and bunker management, Odfjell Tankers, "With the addition of port forecasts, spot forecasts and bunker pricing, GlobalView is an even more valuable fleet management platform. Ultimately, it helps us to be more efficient in managing our fleet."

The new features of GlobalView 2.0 include the following:

- Port forecasts: Fleet managers can plan and schedule the best time for loading/unloading to avoid periods of precipitation, or strong winds. Port forecasts are available for more than 2,500 locations with hourly updates three days out and three and six hourly updates five days out.
- Tide data: High and low tide data for over 7,500 locations help plan arrivals or departures based on high tides.
- Global ice concentrations: Global ice concentration imagery is available to help ships make the safest voyage possible. Colour-coded global ice concentration imagery, based on satellite data, shows dangerous ice concentrations.
- Spot forecasts: GlobalView 2.0 provides detailed weather data for specific ocean areas. Spot forecasts are available with hourly updates three days out and three and six hourly updates five days out.
- Fuel pricing: Real-time bunker pricing is available for more than 70 locations globally. Information is updated throughout the day and includes barging rates, offered on a subscription basis. This is provided in partnership with LQM Petroleum Services.
- Easy customisation: GlobalView 2.0 allows fleet managers to send a message to multiple ships at once. Adding customised links to additional websites and data ensures that essential information is easily accessible, all in one place.
- Eco-Speed calculator: Using this tool, fleet managers can calculate the estimated cost of voyages at different speeds. Fleet managers' plug in parameters and the eco-speed calculator will show a comparison.
- Monitor vessels with BVS on board: Fleet managers can now see voyage tracks from AWT's BVS on board system to monitor their entire fleet.

TO

Wallem opts for DNV Navigator

Hong Kong-based Wallem Ship Management has ordered DNV Navigator for its managed fleet of more than 190 ships.

The contract also includes the Work and Rest Hours module allowing for compliance with international legislation on rest hours for seafarers.

This is the largest contract signed for DNV Navigator thus far. Basically, it is a dedicated decisions support tool for assisting the Master in handling the administrative and regulatory complexity of port operations, the class society explained.

DNV Navigator facilitates compliance with requirements from charterers and port authorities and is often referred to as the 'Captain's best friend'.

More than 1,200 port clearance forms are automatically filled in with ship data so that the required paper work can be prepared in a few minutes. The system includes a database of information about most of the world's ports and terminals including publications and data from UKHO, IHS Fairplay and other sources. Arrival and departure procedures for all the major ports are available as well as a comprehensive nautical library providing up-to date maritime-specific information.

Master's notes

The system is arranged for easy creation of Master's Notes, which are used for sharing port specific knowledge within the fleet and information can be shared with other systems such as gangway control systems and ECDIS.

"Wallem is striving continuously to manage their fleet in safer and more cost effective ways", said Captain Deepak Honawar, Wallem's director of safety and quality. The company tested the system thoroughly before taking this next strategic step.

As part of the system's implementation, Wallem will make use of the Work and Rest Hours module. This module demonstrates compliance with the Maritime Labour Convention 2006 (MLC) and the Standard of Training, Certification and Watchkeeping for Seafarers (STCW).

Any violation of regulations is clearly identified and the system allows user-defined reports to be generated. Crew timesheets can be generated in MS Excel and the power of the system can be increased by adding company-specific forms and by sharing data with other company-specific or third party systems.

DNV Navigator was introduced in 2002 and is already in use on over 2,000 ships worldwide. TO

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Low contracting bodes well for the future

Most operators have more faith in the chemical and products tanker markets' future than any other at present.

However, not all is rosy underlined by a Gibson Research report issued in the middle of February, which said that the product tanker market in the East has been severely depressed over the past few months.

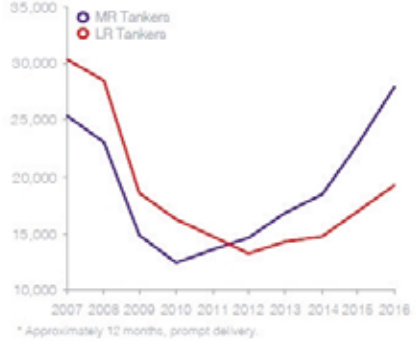
TCEs for LR2s trading on the benchmark route from the Middle East Gulf to Japan (TC1) have averaged only $6,000 per day (on a round voyage basis at design speed) since November.

TCE returns dropped to even lower levels in early February, to around $2,000-$3,000 per day at design speed. The conditions for smaller product carriers in the East were similar, with LR1 and MR TCE earnings also sinking well below fixed operating costs in recent months.

This weakness in the region across all size ranges has been primarily due to an abundance of available spot tonnage, with slow steaming becoming a common feature of this particular market sector.

Since 2005, the product tanker fleet has increased by 1,005 vessels (+65%). This is equivalent to close to an 8% per annum increase. However, the pace of growth has slowed over the past 12 months and, as a result, the total gain in supply was only 3.5% last year.

Figure 7.18 **Forecast period rates*** (5 yr old, $/day)



Source - Gibson Research.

In 2012, the expectations are for an even smaller increase in fleet numbers, not least due to anticipated delays and cancellations, as well as strong interest in scrapping amid the current weak returns.

The biggest gain is likely to be in the LR2 fleet, with net increase of 6% this year. Importantly, LR1 supply is forecast to rise by only 2% and MRs by just 1.5%. This will lead to an overall growth of only 2%. Beyond 2012, even slower expansion is projected in the product tanker fleet.

Thus, the current market is still feeling the effects of rapid fleet expansion over the past few years, but the more limited growth in supply in the future will alleviate the oversupply of product tankers.

At the same time, on the demand side, the prospects are for robust growth. More than 2.8 mill barrels per day of new refining capacity in the Middle East and India is expected to come on stream by 2016. This will offer strong support both to long haul and short haul products trade out of the region.

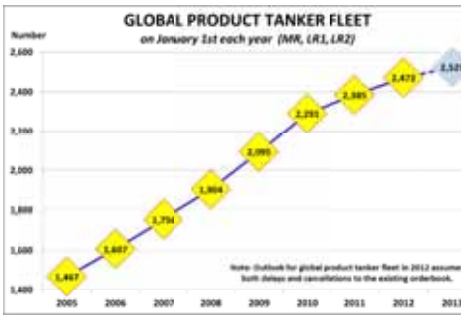
Combined, these improvements in the supply and demand conditions could provide a solid base for a substantial gain in product tanker rates in the East in the medium term, but for now product tankers will have a few more 'rough waves' ahead of them, Gibson concluded.

MRs positive

Drewry Maritime Research's latest Tanker Forecaster tends to agree, saying that while crude oil tankers will continue to suffer, product tankers, especially MRs, are expected to perform better in the coming years.

Freight rates for MRs improved in the last quarter of 2011 owing to an increase in chartering activity across major trade routes in this segment. Overall, reported spot chartering activity increased by 18% in 4Q11.

Considerable improvement was observed on the Mediterranean region where the activity increased by 49% over the quarter followed by the Northwest Europe (26%) and Singapore (17%).



Source - Drewry Maritime Research.

Of the product fleet, Drewry said that MRs stand out as having the greatest earnings potential in the long term. The consultancy said that it expected that the fleet growth is likely to be restricted on account of low ordering in this sector.

Short term

In the short term, a marginal improvement in the Atlantic trade is anticipated, although downside risks include the closure of several refineries in the US Gulf, due to a lack of cash flow and the Eurozone debt crisis. However, the demand for MRs is likely to grow steadily in Asia and Middle East regions with upcoming refinery capacity additions.

But the key for this potential rise in rates is the demand/supply gap, which will work in favour of owners to a considerable extent. The supply of MRs declined marginally by the end of 2011 to 23.5 mill dwt.

Further, with the MR orderbook equating to 8.5% of the fleet, Drewry forecasted a supply demand balance of 2.3 mill dwt (or 9.8% of supply) for 2012. However, it is the reduction of this balance to 0.5 mill dwt (or 2.1% of supply) come 2016 that will push rates up. TO

What's in your tank?

Last January, the MARPOL 73/78 Annex II and MEPC 2/ Circ. 15 Annex 10 tank cleaning regulations that came into force in August 2010 came into full effect, leaving many ship operators facing a new challenge.

It is now up to vessel owners and operators to not only meet these regulations fully, but also to continue to improve shipmanagement efficiency, reduce operational costs and promote safety at sea.

Wilhelmsen Ships Service's (WSS) director marine chemicals, Graham Hunter, believed that although these new regulations could cause headaches for some, they are entirely necessary.

Hunter said: "Tank cleaning is a vital factor in governing the success of ship operations and the majority of shipowners and traders recognise the importance of efficient tank cleaning products and adequate procedures. We know that the basis of successful tank cleaning operations is a fundamental knowledge of all aspects and at WSS our global network and service centres are confronted with a huge range of situations on a daily basis."

So how can marine chemical providers help owners and operators to meet regulatory demands while remaining efficient? Hunter said that experience is key: "We have decades of experience and can provide a comprehensive range of products designed specifically to meet regulations through our eight global tank cleaning centres in Houston, Rotterdam, Singapore, Fujairah, Durban, Busan, Santos and Algeciras."

Hunter went on to explain that last year's acquisition of Nalfleet has positioned WSS as a world-leader in the provision of environmentally-friendly marine chemicals.

All chemicals are now being produced at the same location, the Wilhelmsen Chemicals factory just outside Tønsberg in Norway with manufacturing regulated by ISO 9001 and ISO 14001.

Hunter explained that production and quality control is standardised for both product lines to ensure consistency and high quality products: "Throughout the production process we are committed to reducing waste, transport volumes, hazardous substances and recycling materials. Our aim is to keep increasing the effectiveness of our chemical portfolio while, at the same time, improving safety and reducing environmental impact."

New technology

As part of the acquisition agreement with Nalfleet's previous parent company Nalco, WSS has access to suitable technology developed by the Nalco R&D team, in

35 years

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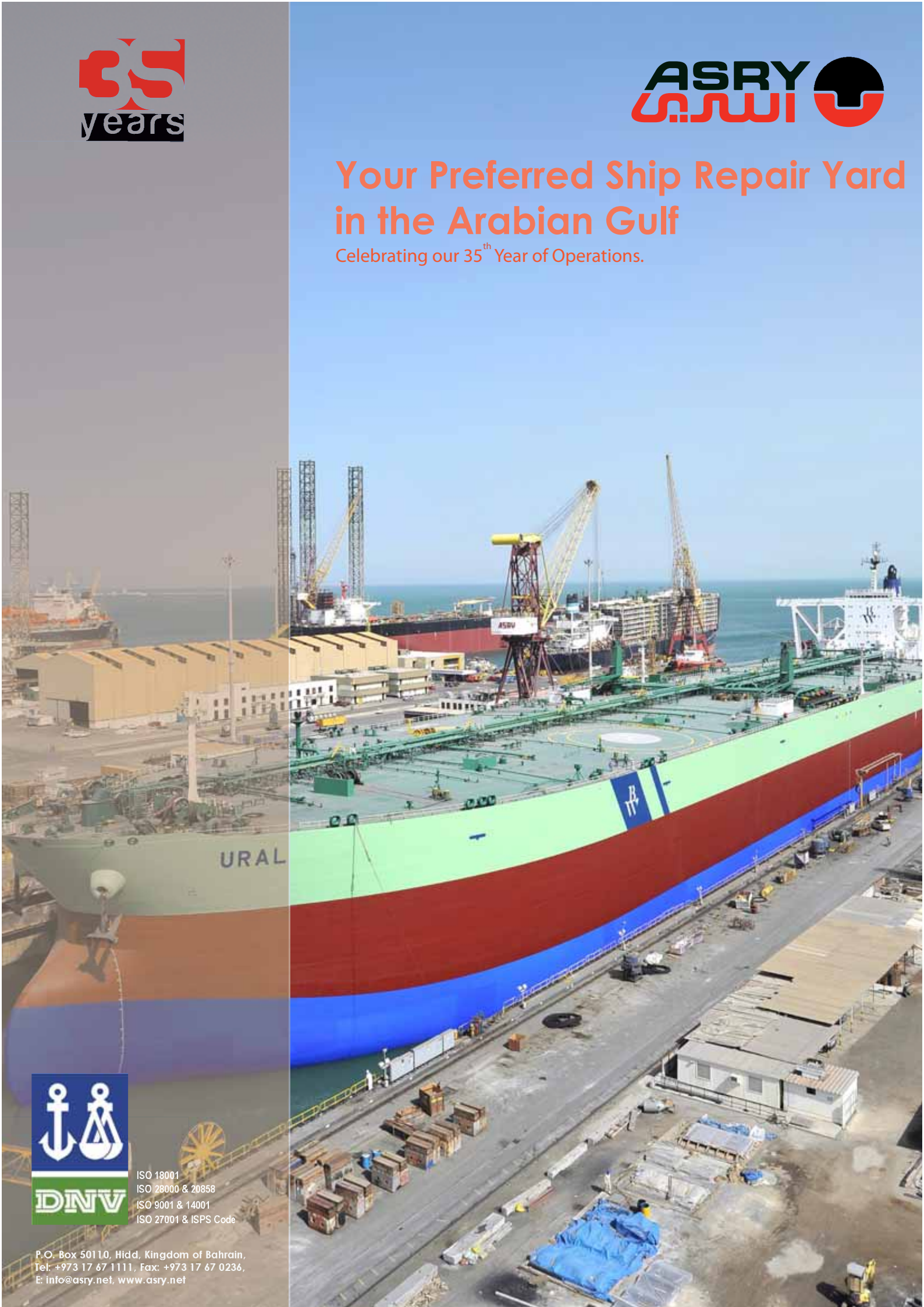

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addition to a skilled team of Wilhelmsen Chemicals scientists based at the R&D laboratory outside Tønsberg. Both teams meet on a regular basis to review the latest technologies.

And although WSS is the largest producer of marine chemicals in the world, innovation is still the prime goal. "It's not only about size," says Hunter. "We realise that customers have a choice. We need to keep innovating to lead the market."

WSS guidelines on tank cleaning chemicals:

- MARPOL Annex II regulations for the discharge of noxious liquid substances include restrictions on the types of cleaning additives allowed to be used in tank washing operations.
- WSS offered to market 20 separate IMO-approved tank cleaning products under the old MEPC/Circ.363.
- Of these 20 approved chemicals, five were pure tank cleaning products. The remainder general and multipurpose cleaners.
- Changes in IMO legislation MEPC/Circ 380:
  - New rules superseded MEPC/Circ 380 from 1st August, 2010.
  - Future products must not contain any perfume or colouring agents.
  - Components (chemicals) with Pollution Category X shall not exceed 10% of the total weight of the cleaning additive.
  - If a component (chemical) falls within Pollution Category X, it shall be readily biodegradable.
  - All chemical tank cleaning suppliers need to adopt their existing product range to these changes to comply with the new circular.

Products approved and evaluated through MEPC/Circ.363 ceased to be valid on 1st August, 2010. To maintain a listing beyond this date, a re-evaluation of the cleaning additives concerned, in accordance with the revised guidelines given in MEPC.1/Circ.590, and regulation 13.5.2.of Annex10 of MARPOL 73/78 is required.

- The new circular of Annex10 of MARPOL 73/78, (MEPC.2 / Circ.15, Annex 10) came into force on 1st August 2010.
- WSS has 10 products approved according to this circular.
- All products previously holding an IMO approval can still be used for general cleaning purposes around the vessels.
- Products used for spot cleaning in tanks can be used as previously.

WSS marine chemicals director Graham Hunter.

WSS chemicals solution:

All WSS tank cleaning chemicals are;

- Free from nonyl phenol ethoxylates or other estrogenic compounds.
- Non-flammables.
- High concentrates.
- Economical in use.
- Tested and passed paragraph 13.5.2 of Annex II of MARPOL 73/78.
- IMO approved to MEPC 2/Circ. 15 annex 10.

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ISS launches anti-piracy solution

Cost effective armour protection will provide countermeasures to safeguard vessels and crew welfare

Inchcape Shipping Services (ISS) and Vessel Protection Solutions (VPS) have launched an anti-piracy partnership. The solutions will provide customers with highly effective fully certified systems that are designed to combat RPGs and small arms fire, ISS said.

"Time and again we see bullet proof vests issued to crews without hard armour plates, and vessels using 8 mm mild steel to protect the bridge, internal doors and citadels, which will do nothing against a round from an AK47," said Edward Unwin, VPS' sales director.

"Similarly, using double layers of standard mesh fencing to counter the threat of an RPG attack will actually increase the chance of a lethal detonation," he continued.

Following extensive research and live fire testing, as well as years of consultation with the defence industry and associated partners and suppliers, ISS and VPS will provide customers with a comprehensive range of advanced, high-tech protective countermeasures, ISS said.

Light armour system against shaped ordnance (LASSO). A high tensile steel mesh that short circuits an RPG projectile rendering its explosive shape charge inert. LASSO is deployed around the bridge offering protection to the crew while still allowing full visibility to the Master. The system can then be easily stowed when the vessel is not transiting high risk areas. It comprises -

Ramor 500

Specially designed light-weight, armoured steel that offers comprehensive protection to the bridge and vessel's access points. The armour is able to withstand multiple hits from high velocity rifle rounds including AK47 making it ideal for Citadel construction. The system does not require class recertification as it is lightweight and easily removable.

Composite armour

A range of ultimate lightweight armour protection that has been designed specifically for the maritime industry. Products include fully certified Lloyd's Register approved ballistic doors, weapon cabinets and removable ballistic panels. These STANAG certified products are ideal for offering enhanced protection to the bridge and internal access areas.

Anti-ballistic personal protective equipment (PPE).

Certified body armour, helmets, hard armour plates and soft armour panels, which have been specifically designed for maritime applications. These protective systems will provide significant increased survivability if the crew comes under small arms fire. These lightweight vests and helmets will also offer additional protection against fragmentation and blunt trauma.

Graham Fee, project manager, VPS hub, ISS commented: "While Best Management Practices provides useful guidelines and recommendations to combat pirate attacks, when it comes to ballistic protection, shipowners need real counsel on the kind of solutions to adopt. Budgets are tight given the current economic climate, however there's no point in just going for the cheapest material that may tick a compliance box but doesn't work during an attack and invalidates insurance; ultimately costing more in the long-term.

Claus Hyldager, ISS group CEO, said: "Piracy is one of the greatest challenges the industry faces."

"While the legislative debate continues on how to best tackle the issue in relation to armed guards, is it vital that shipowners have access to the best equipment and on board vessel and crew armour that provides appropriate protection, right now."

"Our focus is to provide solutions that save lives, are cost efficient and are proven by both military and civil agencies." TO

> "Our VPS operation and our expertise in this area is testament to our commitment to helping our customers meet these challenges that serve to impact the efficiency of their operations and the wellbeing of their crews,"
>
> **- Claus Hyldager, ISS group CEO**

Protecting your vessel by CCTV

In the latest BMP4 - Best Practise for Protection against Somali Pirates, the installation of CCTV cameras was recommended.

On Page 36 item 8.9 Closed Circuit Television (CCTV) states - Once an attack is underway and pirates are firing weaponry at the vessel, it is difficult and dangerous to observe whether the pirates have managed to gain access.

The use of CCTV coverage allows a degree of monitoring of the progress of the attack from a less exposed position:

- Consider the use of CCTV cameras to ensure coverage of vulnerable areas, particularly the poop deck.
- Consider positioning CCTV monitors at the rear of the bridge in a protected position.
- Further CCTV monitors could be located at the Safe Muster Point/Citadel (see BMP4, section 8.13).
- Recorded CCTV footage may provide useful evidence after an attack.

Singapore-based Gentay has installed the above described CCTV installation integrated with the low cost iPoP-network solutions for vessels to facilitate a rapid low cost installation of a comprehensive system.

A unnamed but claimed to be a well known oil major has completed initial trials of this system, which will now be deployed on their vessels to deliver real time CCTV images from strategic positions situated on board, directly to the monitoring and recording computer in the Citadel.

The installation includes six CCTV cameras, four internal and 2 IP67 externally mounted CCTV cameras, providing live real time images to a computer monitoring station in the Citadel (ECR). It also included the monitoring equipment, recording devices for up to 14 days recordings, as well as all required networking utilising the integrated iPoP-network solution for vessels.

The cost for this integrated solution, including installation, commissioning and training is about $23,000 per vessel, Gentay said.

This solution does not rely on WiFi technology, which has proven to be sporadic on board vessels and does not require installation of cabling, instead it utilises the existing vessel power network to transmit the CCTV signal. TO

Stealthgas completes small gas carrier newbuilding plan

On the 12th January 2012 the Vafias Group named two more gas carriers in Japan, the last in a series of a long series of newbuildings for the Vafias Group.

The two purpose built high specification, fuel efficient LPG/VCM carriers are of 7,500 cu m capacity each. They fly the Liberian flag and are classed by Bureau Veritas.

The first vessel- *Gas Husky* - was delivered on the 18th January, while the second vessel, due to be delivered in May 2012, was named *Gas Esco*.

Gas Husky is on long term charter to a Middle East state-owned company while at the time of writing, the *Gas Esco* is still unfixed.

Following these deliveries Vafias concern Stealthgas will maintain its position as the largest manager by number of owned ships in the 3,000-8,000 cu m gas segment.

These two ships represent the final pair in a series of 10 gas carriers that the Vafias group ordered for a total cost of around $250 mill at the Japanese shipyard of Kanrei Shipbuilding.

Once the final vessel is delivered, the Vafias Group fleet will grow to 62 ships, comprising 38 gas carriers, 22 product and crude tankers and two Capesize bulk carriers, making it the third largest group in terms of the number of vessels in Greece.

Moreover, despite the huge growth seen between 2008 and 2012 with the deliveries of more than 26 newbuildings at a cost of more than $1.5 bill, the total debt of the group is claimed to be below the $1 bill mark!

Stealthgas president and CEO Harry Vafias said; “We are waiting the last gas ship to be delivered in May and we are finished after a frenetic pace of taking delivery of 10 lpg carriers, nine MRs, five Aframaxes and two Capesize bulkers in the last 3.5 years.

“We want to buy a few more gas ships. as the market is quite firm and in addition, during the past three years, we sold eight older units and we need more younger vessels to keep our lead in this segment,” he explained.

All the Aframaxes and MRs are on long term bareboat charters, Vafias told Tanker Operator.

The gas fleet is 50% managed by Stealthgas in Kifisia, Athens and the rest is split between Mumbai-headquartered Selandia Ship Management and Manila-based Swan Shipping Corp.

Enhancements

The *Gas Husky* and *Gas Esco* have been upgraded compared with their near sisters. For example, they comply with Exxon/Mobil’s 2006 criteria.

In addition, the fore and aft mooring winches have been fitted with two drums each for extra safety, level alarms have been fitted in the bunker tanks; cylinder oil tanks have been added for low sulphur fuel operation, which have a capacity of about 15 days; two bilge alarm sensors have been fitted in the engine rooms; Hamworthy Svanehoj anti-rotating cargo pumps were chosen, as well as Anderson Greenwood cargo tank safety valves. Each vessel’s hull has also been coated with five years’ antifouling protection.

They have been built to US Coast Guard approval for operating in US waters and also to Japanese trading regulations.

They are fitted with two IGC Type C independent cargo tanks with a capacity of 3,750 cu m at 100% load, or 3,675 cu m at 98% load factor in each tank. They have a design pressure of 17.65 bar g (18 kg/cm2) and the valve settings have been set accordingly. The maximum vacuum obtainable per tank is atmospheric.

The maximum and minimum temperatures acceptable in the tanks are 45 deg C and 0 deg

	LPG	VCM
One tank	410	250
Both tanks	730	450

Loading rates (cu m/hour)

C respectively.

It should be noted that these figures are based on a maximum velocity of 6.5 m per sec for LPG and 4 m per sec for VCM in the liquid piping. If the cargo temperature is less than 0 deg C, a shore heater is to be used. If the vessel's heater is used then the maximum rate of loading is limited to 250 cu m per hour.

The loading is accomplished only by the terminal pumping system and a proper size gas return line is to be connected. These figures are also subject to the operation being undertaken in favourable conditions both on board and ashore.

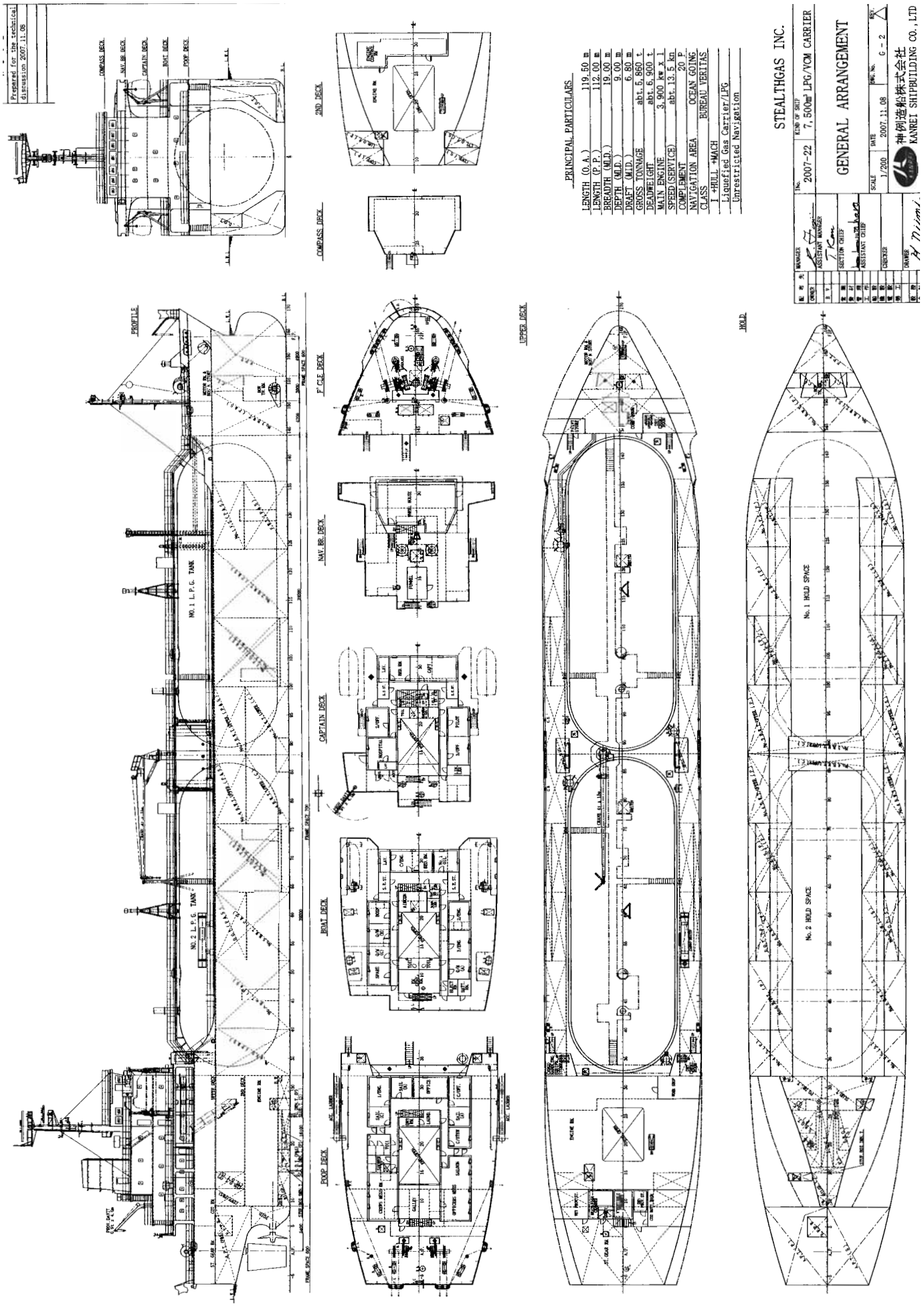
Each tank is fitted with a Hamworthy Svanehoj removable deepwell vertical centrifugal multi-stage cargo pumping system capable of 400 cu m per 120 m at SG 0.601, or 220 cu m per hour at 160 m at SG 0.948. A full liquid cargo can be discharged in about 19 hours at 1 bar pressure, or around 53 hours at 5 bar pressure.

Following discharge and before stripping, about 1.5 cu m of liquid will be left in each tank and about 40 tonnes of vapour when discharging LPG. This takes around two hours to remove.

Each tank is also fitted with a Tanabe Pneumatic Machinery cargo compressor and an inert gas system. The vessels can produce their own inert gas and use nitrogen plants and fans for tank inerting. Cargo heaters have been fitted of the shell and tube type. In case vapour gas is needed to feed the

Principal particulars – *Gas Husky, Gas Esco*

Length, overall	119.5 m
Length, bp	112 m
Breadth	19 m
Depth	9 m
Summer draft	6.8 m
Summer deadweight	6,900 t
GRT	5,860 t
Capacity	7,500 m3
Main engine	3,510 kW @ 203 rev/min
Auxiliaries	2 x 485 kW @ 1,200 rev/min
Speed	13.5 knots (CSR)
Fuel consumption	
(HFO)	14.9 t/d
(MDO)	2.36 t/d
Tank Capacities	
(HFO)	610 m3
(MDO)	100 m3
Fresh water	140 m3
Cargo tanks (max)	2 x 3,750 m3



General arrangement drawings.

***Gas Husky* is chartered to a Middle East state-owned concern.**

compressors, each vessel can supply the gas.

A float level type gauge is fitted at each tank dome and the vessels are both fitted with a starboard and port manifold for cargo operations and a 4 tonne lifting capacity hose handling crane located amidships.

CEO Harry Vafias pictured at the shipyard during the naming ceremony.

Main machinery

The *Gas Husky* and *Gas Esco* are powered by a Makita B&W type 6L35MC Mark 6 diesel engine, developing 3,510 kW at 203 rev/min (90% MCR) burning heavy fuel oil. Two auxiliaries have been fitted per vessel of Yanmar manufacture type 6N165L-SN burning marine diesel oil. These are 4-stroke engines developing 485 kW at 1,200 rev/min.

The main propulsion unit gives the vessel a speed of around 13.5 knots (at CSR) with a 15% sea margin. The fuel consumption figures work out at around 14.9 tonnes per day of HFO and 2.36 tonnes per day of MDO.

A Deutz emergency generator has also been fitted as has a Miura boiler and gas economiser, plus two Matsubara air compressors and a Sanwa emergency air compressor.

The two fuel and one luboil purifiers were supplied by Mitsubishi. A Miura Protec evaporator for waste heat recovery with a capacity of 10 tonnes per day was also installed. The same manufacturer supplied the waste oil incinerator.

The oily water separator was of Taiko Kikai Industries make, as was the sewage treatment plant.

TO

GAC opens up off Sri Lanka

GAC's in-house ship-to-ship (STS) transfer concern GAC Transfer Services (GTS) has opened a new fully-equipped base in Sri Lanka.

The company said that this move was in response to the growing demand for LPG imports and exports of clean products in the Indian Subcontinent.

STS equipment, such as fenders and hoses, in accordance with industry standards, is stored at GAC's base in Galle, which is strategically located at the southern tip of the island and is ready to be transported by tug to different locations, according to demand and conditions.

Experienced GTS operators work in conjunction with their GAC Sri Lanka counterparts to take care of all local arrangements, such as government permits, clearances, storage and transportation.

Lars Bergstrom, GAC Group vice president – Indian Subcontinent, said the choice of Sri Lanka as the regional base for STS operations offered a logical solution for principals without incurring high costs, or getting caught up in red tape.

"India is a very important market with growing demand for STS, but there are logistical issues due to bureaucracy and high costs of locating there.

"Thanks to its proximity to that market and its key geographical position close to major east-west shipping lanes, Sri Lanka was a natural choice for the expansion of STS services to the region," he explained.

Safety compliance

The main commodities handled include LPG (-50 deg C), crude oil, fuel oil and gas oils, all in line with OCIMF and International Chamber of Shipping (ICS) guidelines and in strict compliance with the GAC group's HSSE policy, quality management system and all local and international safety, security and environmental regulations.

Most operations will be carried out off port limits (OPL) without any port authority intervention. During the southwest monsoon season between June and October, STS operations will be concentrated in the more sheltered areas OPL Trincomalee and at OPL Galle and Colombo during the December to April northeast monsoon season.

All operations are supported by boats owned and operated by GAC Sri Lanka according to the highest safety standards, the company claimed.

In 2009, three decades of civil war officially came to an end and in 2010 the London-based joint cargo committee of the Lloyd's insurance market removed Sri Lanka from the War Risk Rating.

That opened the way for the expansion of GAC's STS operations to complement existing services such as ship agency, bunker supplies and the ship supply service (SSS), which uses a fleet of 10 modern high speed service craft to deliver supplies and personnel to vessels in international shipping lanes without them having to deviate from their course.

Agency, STS, SSS, bunker supplies and other services can be provided as part of an integrated package of shipping, logistics and marine solutions that GAC provides from the ports of Colombo, Galle, Trincomalee and, most recently added - Hambantota.

GAC currently offers STS transfer operations from over 10 bases, including Rotterdam, Amsterdam and Flushing in the Netherlands, Gibraltar in Spain, Frederikshavn and Kalundborg in Denmark, Gothenburg in Sweden, Malta, Cyprus, Malaysia, Vietnam, the Arabian Gulf and Indian Ocean.

TO

Beware of LOIs

The OnlineSTS team has issued the following warning about the issuing of LOIs.

Before conducting an STS operation, some service providers issue letters of indemnities (LOIs) to the Masters of the vessels and request that they should be signed on behalf of the owner and prior to the commencement of an STS operation.

The Port of Rotterdam has set up dedicated ship-to-ship transfer areas within the Europoort complex.

Following several contacts, as well as discussions with P&I clubs, the following procedure is recommended to be adopted by the shipowners as a standard policy.

1) Masters/managers should avoid signing LOI's given by STS service providers.
2) If the STS service provider insists, then the P&I club should be immediately informed and consulted. It is of utmost importance that the P&I club should be made aware of the LOI, otherwise, the owner may not be covered in case of an incident.
3)Masters/ managers should only sign the LOI, incorporating any suggestions from their P&I club.

Managers should be able to provide evidence, such as email communication, with STS service providers, supporting their rejection of signing the LOI's, according to Step 1 above, as this evidence is highly essential for the P&I clubs.

Indeed, the signing of LOIs without prior consultation with their P&I club might result in conflict with managers' coverage.

Furthermore, in some LOIs, contractual duties with reference to the third party indemnity are included, which appear to be out of the scope of the P&I coverage, as agreed with the shipowner.

STS service providers may accept partial liability on condition that the shipowner provides evidence that the incident occurred due to gross negligence by the provider/ POAC (person in overall advisory control) etc. In this case the owner bears the burden of proof.

It should be noted that P&I clubs understand the commercial implications and time constraints in STS operations and endeavour to support their clients provided that they have been fully informed in advance, OnlineSTS concluded.

TO

UK P&I CLUB

24/7/365

Our ability to provide local knowledge and response is unmatched. In 350 ports around the world on-the-spot help and local expertise is always available to members.

Gearing up for IMO PSPC COT

Approved at MSC 87 in May 2010, the IMO's Performance Standard for Protective Coatings of Cargo Oil Tanks (IMO PSPC COT) becomes effective on 1st January 2013 for new tankers.

The main paint manufacturers have been undergoing laboratory tests in order to gain certification for their products under the watchful eyes of the class societies to ensure that they are suitable for application in cargo tanks.

The background to the new performance standards, according to International Paint (IP), was that the move from single hull to double hull crude oil tankers resulted in a number of vessels experiencing accelerated corrosion in cargo oil tanks, principally due to the double hull promoting a more aggressive corrosive environment.

While it had become common practice to apply protective coatings in the upper and lower areas of cargo oil tanks, the IMO PSPC COT regulations mean that certain areas of the tanks must be coated on crude oil tankers greater than 5,000 dwt at newbuilding, where:

- The building contract is placed on or after 1st January 2013 or, in the absence of a building contract,
- The keels of which are laid, or which are at a similar stage of construction on or after 1st July 2013,
- Or the delivery of which is on or after 1st January 2016.
- The minimum areas of the cargo oil tanks that must be protected in accordance with the regulations are:
- Deckhead and structure, including brackets connecting to longitudinal and transverse bulkheads.
- Longitudinal and transverse bulkheads to the uppermost means of access level.
- For cargo tank bulkheads without an uppermost means of access, the coating must extend to 10% of the tanks height at the centreline, but need not extend more than 3 m down from the deckhead.
- Flat inner bottom and structure to height of 0.3 m above inner bottom.

IP has announced that its principal anti-corrosive primers and shop primers have successfully passed what the company calls "….these very demanding IMO PSPC COT laboratory tests in accordance with the IMO MSC.288 (87) SOLAS regulations for cargo oil tankers."

Similar to the requirements of the IMO PSPC for sea water ballast tanks, these regulations are designed to ensure the longevity of cargo oil tanks and stipulate that applied coatings must remain in 'good' condition for a minimum of 15 years, as defined by IACS.

For a cargo oil tank coating to comply, all coatings must be tested by class society approved testing facilities and have a class society Type Approval Certificate (TAC). The award of a TAC means the product has demonstrated the expected in service performance, the quality of the supplied material is assured and the product supply location has met regulatory requirements.

The successful IP products passing laboratory tests included key products from the Interbond, Intergard, Interplate and Intershield product ranges.

Approved laboratories carrying out the testing include COT bv based in the Netherlands. COT was the first laboratory in the world with specific Lloyd's Register approval to carry out testing in accordance with the IMO MSC.288 (87) regulations for cargo oil tankers.

TACs for the successful IP products will be formally issued in due course, the company said.

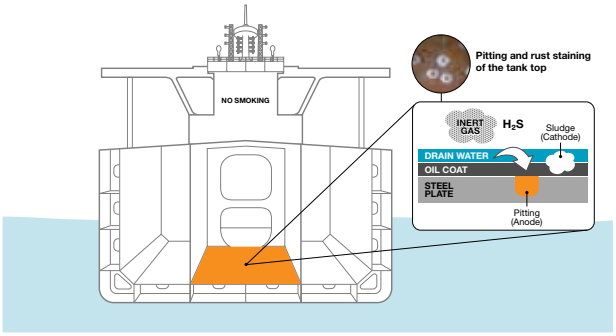
Another coatings manufacturer to successfully complete the tests was Jotun.

These tests were also carried out by COT bv in the Netherlands on several of the Norwegian company's tank coatings systems.

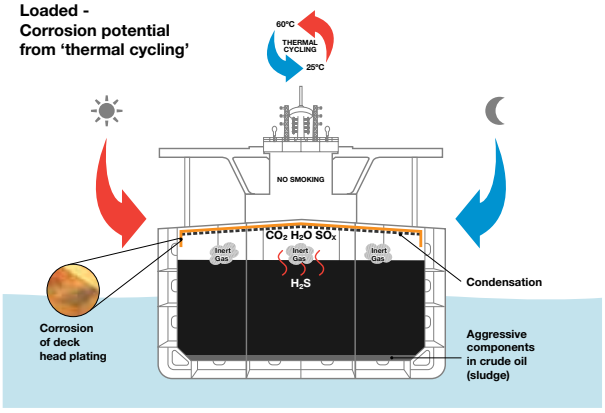
Two test methods were utilised. The first test simulated the composition of the vapour phase in crude oil tanks, both in ballast and in fully loaded condition. The second test simulated immersion in a crude oil tank with a model liquid developed to replicate some of the most corrosive crude oils.

According to Jorunn Holdhus Skovly, Jotun's product manager for tank coatings, the coating systems performed well in these rigorous tests. TO

Unloaded - Corrosion potential from 'pitting' in tank bottom



Loaded - Corrosion potential from 'thermal cycling'



Source - International Paint

Ariston merges with Scanjet to offer turnkey solutions

Swedish tank cleaning equipment supplier has acquired Ariston, manufacturer of cargo and ballast control systems.

The merged company has been renamed Scanjet Ariston."Joining the group means the Scanjet Ariston multipurpose monitoring & control system, already installed on over 550 projects worldwide, is now available to Scanjet's customer base of 3,500 installations," said Stavrin Bosnov, Scanjet Ariston sales director.

Magnus Wallin, group CEO and architect of Scanjet's rapid growth in recent years, said: "The Ariston team, products and expertise complete the Scanjet ability to offer customers turnkey solutions from our global network of offices and service partners. When combined with our Scanjet Macron products already used on over 400 installations, the Scanjet range gives our group the class leading global capability for cargo and ballast monitoring combined with integrated tank cleaning."

The Scanjet Group product portfolio to the marine and industrial market now comprises:

- Fixed and portable tank cleaning machines (turbine, air or hydraulic-driven).
- Cargo tank level monitoring (radar or electric pressure sensors) with VRC & pump control.
- Ballast tank monitoring (air purge type or electric pressure sensors).
- Overfill alarms (floats or acoustic).
- Water ingress monitoring systems.
- Automatic oil-water interface detection system for oil/product tanks.
- Vapour emission control systems.
- MPS anti-piracy systems (passive non-lethal).

TO

Portable liquid-level gauge for fuel tanks

Mitsui OSK Lines (MOL) and Musashino have jointly developed what is claimed to be the world's first portable liquid-level gauge for vessel fuel tanks.

This reduces the workload needed to measure a ship's fuel level during bunkering and enables more accurate measurement. This will reduce the crew's workload, and help prevent incidents such as fuel spills from overfilling.

Its features include -

- Compact main unit (24 cm wide x 37 cm high x 31 cm deep), lightweight (about 4.5 kg).
- Power source of the main unit is 9V dry cells.
- Digital readouts and superior operability.
- Wireless function enables simultaneous monitoring of liquid levels in several tanks.
- Bubbles sometimes occur on surface of fuel oil during bunkering. This is called the 'cappuccino phenomena' and may cause misleading readouts with conventional equipment. The new liquid-level gauge does not register misleading readouts.
- Sounding tape and gauge can be used simultaneously.

MOL said that even on vessels equipped with fixed liquid-level gauges, crews measure the liquid level manually by hanging sounding tapes into sounding pipes located on the deck, to help prevent overflow and to check bunkering volume during refueling.

This operation must be done by a skilled crew member, which creates additional burden on the crew as he, or she must measure several tanks simultaneously.

With the new liquid-level gauge, the pressure sensor, which is suspended into the fuel tank, senses changes in liquid-level pressure and detects the fuel level in the tank quickly and accurately.

In addition, because of the function of wireless transmission, several tanks can be monitored on the ship's computer at the same time. This improves the efficiency of fuel level measuring operations, reduces workload, and helps prevent overflows, thus reducing the risk of fuel spills and environmental damage from fuel tank overfill.

Portable liquid-level gauge with wireless function.

In December 2011, MOL invited several shipowners and shipmanagement companies to a demonstration of the system on a vessel under construction. Overflow problems during bunkering and the 'cappuccino phenomena' are common issues in the deepsea shipping industry. TO

Ultra high solids epoxy for on board maintenance and corrosion control

Fixing minor corrosion spots before they lead to major drydock repair work and at same time meeting IMO's 'GOOD' ballast tank coating condition are big advantages for shipowners.

Hempel's new moisture tolerant and fast-curing Hempadur EM 35740 is the ideal solution for this task, the Danish coatings manufacturer claimed.

Ballast tank corrosion is a major worry for shipowners, as it can lead to structural failure. But corrosion repair usually means taking a ship out of service for drydocking. With Hempadur EM (Easy Maintenance) 35740 corrosion spots can easily be fixed - even at sea, the company said.

Hempadur EM 35740 is a new ultra high solids (96% VS) and damp surface tolerant epoxy coating primarily for on board maintenance and repair of ballast tanks. The product, available in 2.5 litre cans, is intended for brush application and it is particularly well-suited for spot or smaller area maintenance, or repair in hard-to-reach areas where climate control and surface preparation are difficult.

Another plus is the short drying time that leaves the painted areas immersion-ready in eight hours, at 20 deg C, thus ensuring a quick return to service.

With its very low VOCs and ease of use, the coating is ideal for on board maintenance work to keep the ballast tank coating in 'GOOD' condition (according to new IMO guidelines for maintenance and repair of ballast tank coatings, MSC.1/Circ. 1330).

Ultimately, the product can help shipowners to avoid costly annual inspections schemes and reduces the need for repair work at the next drydocking - all without disturbing vessel operation, Hempel said.

While Hempadur EM 35740 has been specifically developed for on board ballast tank maintenance, it is also suitable as a general on board maintenance primer for most other areas of the vessel.

Major advantages -

- The easiest way to keep corrosion down while at sea.
- Helps keep your ballast tank coating in 'GOOD' condition (according to IMO guidelines).
- Reduced need for repair work at next drydocking.
- Short drying/curing time (immersion-ready in eight hours, at 20 deg C).
- Easy handling and less waste, thanks to handy 2.5 litre cans.
- Easy application reaching sufficient film thickness by brush.
- Surface-tolerant for reduced preparation time.
- Moisture-tolerant for application on damp surfaces.
- Extremely low VOC for maximum convenience and care for crew and environment.
- Minimal PPE (personal protection equipment) required.

Hempel also supplies ballast tank coatings that comply with IMO-PSPC type approved products, to ensure optimum ballast tank performance and optimised efficiency during application in the shipyard.

For optimal performance and service life, the coating should be reviewed during maintenance checks in drydock, as well as during on board maintenance carried out by the crew. TO

A TANKEROperator supplement

Tanker shipping review

March 2012

Contents

One of Teekay's North Sea Shuttle tankers
Photo credit - Seagull.

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Déjà vu - are we re-living the 80's?

A leading industry commentator recently said that this decade would be a 'decade of cost management'. The question is, if this is the case then what will the industry look like at the end of it?*

Those of us who have some grey hair will remember the last time things looked like this. The 1970s was a decade that started with high rates and large shipbuilding programmes only to progress to low rates by the mid-70s. In the 1980s, low rates continued, which resulted in a change to the structure and standards within the industry. This was reflected in some of the incidents occurring in the 1980's and 1990's.

Could we see that again boom in the early years of the new century, followed by low freight rates in the teens and incidents in the late teens and twenties?

History seldom repeats itself exactly, but there are lessons to be learned from the past. So what is the same as last time and what is different.

Today, we have low freight rates and oversupply of tonnage. We are facing slow growth in large parts of the world, so overall demand for shipping services is down. Energy costs are high and energy demand is not growing as quickly as previously forecast.

The things that are different from the 1980s are the most interesting:-

- Interest rates are low while they increased over the 80's. This suggest that depending on finance arrangements and build cost, the drain from finance costs may be less of a problem that the 1980s.
- The industry structure is more complex leading to more complex regulation and requirements.
- New requirements related to air quality, security, ballast exchange and greenhouse gases are being introduced without reference to the ability to fund.
- We already have a shortage of quality officers worldwide, which combined with the complexity of modern vessels suggests a hunt for new cheaper sources will have limited benefit without affecting quality.

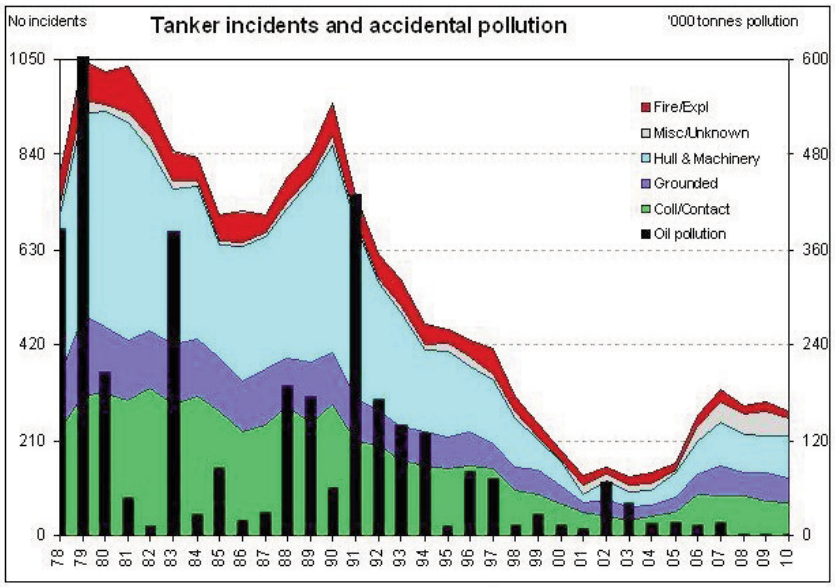
Most importantly though is the tanker industry's concern for quality safe ships. This is a concern that is shared by owners, charterers and by port state organisations. When combined with the increasing sophistication of the way information is gathered and disseminated, a decline in quality will soon be noticed.

With the many new requirements mentioned above it is easy to be distracted from what has been the industry's main aim – reducing oil pollution.

The annual Intertanko casualty statistics (see below), which also includes data from ITOPF, is a useful indicator.

The graph shows the improvement from the 1990s to the mid 2000s. It is difficult to think of another industry that has enjoyed such an improvement. We should all be proud of that.

The increase in casualties since the mid 2000s is a worry even though it has not resulted in an increase in pollution. Presumably double hull has done what is supposed to in reducing pollution from low energy collisions and groundings.



Source: Intertanko.

The catch is that as the industry has improved the tolerance for spills has reduced at the same time as the visibility has increased. The increase in incidents is worrying as they are a leading indicator of the danger of a bigger spill. The wrong set of circumstances, even with double hull, could produce a large visible spill, which would set the industry back years.

There are a variety of reasons why there has been this increase. I claim no detailed analysis but here are some thoughts:-

- Larger fleet although other analysis corrected for size of fleet shows there is still an increase when that is taken into account.
- Predictable teething problems in the large number of new ships increasing hull and machinery incidents.
- Linked to the above, a lack of familiarity with new equipment in the new vessels.
- Competence and experience gap particularly in senior ranks carried forward from reduced training and recruitment in the last recession.

Could there also be the 'laws of diminishing returns? I believe the development of safety

management systems with their focus on continuing improvement was a major contributor to the improvement shown above. In the early days of the system it was easy to generate 'quick wins' - improvements that would have a wide and deep benefit while not generating excessive effort and cost to implement.

As time passed, the need to react to incidents and continuously improve may result in more onerous, less effective solutions. These solutions may have the opposite effect to that desired because they absorb more of the limited on board capacity. In some cases that capacity may already be exceeded with the result that corners are being cut just to get through the day.

Where does this leave the shipowner? I would say in the eye of a perfect storm:-

- Rates are low, so limiting funds available.
- New requirements mentioned above that will cost money to implement and absorb shipboard workload.
- The need to focus on maintaining and indeed improving the operating standards created to avoid pollution.
- The possibility that just 'pedalling faster' will generate more expense and less improvement in the safety management system. Tomorrow isn't just yesterday squared!!

The shipowner is subject to the same advice that Charles Dickens' character Mr Micawber gave David Copperfield: "Annual income £20, annual expenditure £19, result happiness: Annual income £20, annual expenditure £21, result misery."

To avoid 'misery', the shipowner has to make changes to deal with the current market. It is fair to say that after a period of boom then there will be some potential to cut costs, but at what cost?

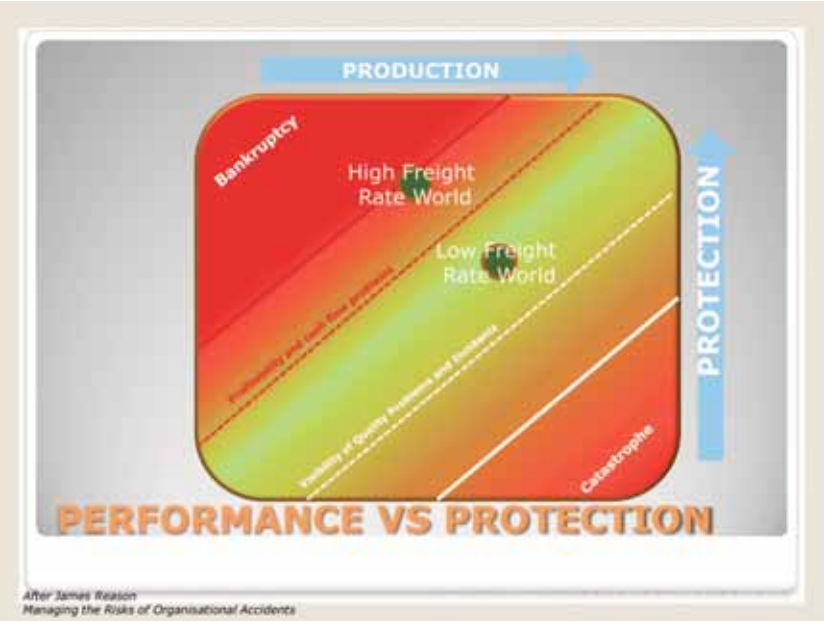
In simplistic terms the shipowner operates in the space between bankruptcy and catastrophe. If you spend too much you will go bankrupt. If you spend too little on safe operations you will face a catastrophe, which may well lead to bankruptcy as well. In a high market, bankruptcy is a long way away and you can afford to spend to avoid the catastrophe. Indeed you will spend more to keep the ships running and trading. In a low market the space between bankruptcy and catastrophe is a much narrower space and takes more skill to operate within.

In the real world there are early warnings of bankruptcy and catasptrophe. Clearly you will recognise the cash flow problems on the way to bankruptcy. More importantly in the 'global village' and especially with listed companies, so will the outside world and this may reduce customer's confidence in using you.

Vetting, port state, USCG etc will notice if your operating standards have started dropping off even if you don't notice yourself. The nature of these organisations are such that when a warning comes up that fleet standards are falling then it triggers further attention resulting in more inspections, etc. This will hit the revenue side of things as ships become more difficult to trade, get arrested etc.

So the decisions on which costs are good costs and which are bad ones is important.

Cost cutting is a spiral, which if unchecked leads to catastrophe. Quite often most debate will take place on the first turn of the spiral.



Based on James Reason.

At this point the cuts are least likely to cause catastrophe, as there will be multiple layers of protection. At the next turn the debate will be less because 'look at last time nothing happened'. As the spiral progresses more barriers are peeled away increasing the risk but the spiral continues because 'nothing has happened'.

In fact there may be some small signs, but they may be overlooked. This is an application of the corollary to 'Murphy's Law'. Murphy's Law is 'what can go wrong will go wrong'. The corollary is 'What should go wrong doesn't and we draw the wrong conclusions'.

So the focus is cost management not cost cutting and relies on an understanding of the value as well as the cost of what you are taking away.

It's a bit like playing the block game 'Jenga' with a blindfold on. In the early stages of the game you can take away blocks by feel without causing the block tower to collapse. At the later stages without seeing the big picture the tower will collapse.

A warning from history - the good officers on board your ships prevent more things going wrong than you ever hear about irrespective of near miss and incident reporting. As you make changes they will be the last barrier that will prevent something that is merely ill advised turning into a disaster. So take care to retain their resilience in the difficult times.

To me then the big question over the next few years will be:-

How do we reduce operating costs while improving our operating standards? This is the title of the forthcoming Tanker Operator conference in Athens on 3rd April at which the Author is speaking on the subject of – How to undertake shipmanagement better (see www.tankeroperator.com for details). TO

**This article was written by Martin Shaw, who is the managing director and founder of Marine Operations and Assurance Management Solutions (MOAMS), a consultancy set up in 2010 dedicated to the application of modern operational management techniques to drive efficiency and safety in the marine sector.*

Previously, Shaw was vice president technical in BP Shipping, the shipping arm of the BP Group. He has a background in marine engineering having served at sea up to the rank of second engineer before taking the Extra First Class engineers' examination and coming ashore into BP Shipping's office as Fleet Safety Officer.

Where did it all go wrong?

The new year has started with the global economy in a precarious state, as emerging economies expand, while advanced economies struggle to keep pace.

US-based consultancy McQuilling Services said at the time of writing in its 2012-2016 Tanker Market Outlook, global GDP growth was forecast at 4% with the IMF expecting that emerging economies would expand by 6.1% and advanced countries by 1.9%.

However, against a backdrop of sovereign credit risks in Europe, a polarised political climate in the US and inflationary concerns in the developing economies, these figures were recently revised downward.

The tanker market has not been immune to the economic situation. Looking back at 2011, McQuilling calculated that total tanker demand contracted by 0.5% from 2010 levels. This decline was influenced by several unexpected events such as the Libyan civil war, which slashed North African export volumes for the majority of the year.

As a result IEA members released supplies from Strategic Petroleum Reserves, which further eroded tonne/mile demand. Weak economic activity, reduced refinery utilisation in Europe and lower purchases of West African crude from Asian customers also had an effect.

The VLCC sector continued to be the most consolidated class for the transportation of crude and residual products. A total of eight trades comprise almost 80% of VLCC demand.

In clean petroleum products, evolving trade routes increased LR1 tonne/mile demand by over 10%, but the MR2 types remained the workhorses of the sector.

McQuilling anticipated that excess tonnage supply will remain the primary theme during the consultancy's forecast period. The downside risk to the global economy will add an additional element of uncertainty to tanker demand.

As a result, the consultancy forecast that demand should rise by an average of 1.5% per year for crude and residual products and by almost 2% per year for clean petroleum products.

In an effort to improve the company's forecasting, in this year's cycle McQuilling said that it attempted to capture trade between non-OECD countries. This decision was made due to the rising energy demand in developing countries, new refining infrastructure and changes in oil production trends. As a result, the consultancy claimed to have been better able to analyse recent changes in the tanker market.

In 2011, McQuilling expected 276 vessels would be delivered into the tanker fleet, but only 228 actually did so. Although this helped limit tonnage capacity growth in 2011, it will likely pressure fleet expansion, particularly in 2012 and 2013 as delayed deliveries enter the trading fleet.

The exit profile was estimated at 75 vessels but 69 actually exited the trading fleet. The most noteworthy difference occurred in the VLCC fleet, whose total fell by 18 vessels. This was partially influenced by demand for FPSO/FSO conversions. The continued expansion of offshore reserves will help keep this demand for older tankers needed for conversions.

As a result, McQuilling said that at least 15 VLCCs will be removed from the fleet each year in the forecast period.

In order to reflect current industry practices in response to rising bunker prices, the consultancy lowered its net-fleet sailing speed by one knot to 13.5 knots at the start of 2012.

The assessment of historical bunker prices compared to Brent crude oil showed that the traditional correlations no longer yielded an accurate basis for forecast. This resulted in placing an additional supply-premium on bunker prices to $650 per tonne.

Asset prices declined throughout 2011. Overall, prices contracted by almost 9% across all class sizes and ages. The only sector to post a rise in secondhand asset prices was MRs. The comparatively higher freight rates recorded by the MR class during 2011 supported this development.

Syndicated loans to the shipping industry will remain limited in the current economic environment. Ironically, this factor should help the market gradually return to a balanced

	Sport rate Forecast (2012 WS)		TCE Revenue Forecast (US$ 000/Day)	
	2011 (Act)*	2012	2011 (Act)*	2012
Crude & DPP				
VLCC 260 MMT (AG / East) TD 3	45	46	10.2	23.5
Suezmax 130 MMT (Wafr / USAC) TD 5	66	68	13.6	13.2
Aframax 70 MMT (Carib / USG) TD 9	93	105	4.8	14.0
Panamax 50 MMT (Carib /USAC) TD 10	114	115	9.1	11.9
Clean Products				
Aframax 75 MMT CPP (AG / Japan) TC 1	95	90	9.1	12.8
MR 38 MMT CPP (Carib/USAC) TC 3	134	132	11.4	12.1
MR 37 MMT CPP (Cont / USAC) TC 2	141	139	10.4	10.3

**Actual 2011 average spot rates based on 2012 Worldscale flat rates*

Source: McQuilling Services

Spot Rate Forecast by Trade (2012 WS) / TCE Revenue Forecast by Trade (US$ 000/Day).

situation, as it should limit orders for new tankers, McQuilling said.

As the lending capacity is constrained, some companies may not be able to meet loan-to-value covenants, which should encourage industry consolidation. This could open the door for companies from outside the shipping industry to acquire assets.

Finally, McQuilling expected spot freight rates to hover at or near 2011 levels (adjusted to 2012 WS flat rates) this year.

Demand

Turning to demand, McQuilling said that in addition to oversupply stemming from robust contracting in 2006, the tanker market has been negatively impacted by several events.

The Arab Spring acted as a double edged sword as it slashed Libyan crude oil production for the majority of the year and prompted IEA members to release 60 mill barrels of oil from the Strategic Petroleum Reserves in June 2011. This reduced demand for loadings and discharge from the global tanker fleet.

Oil demand was further pressured throughout the year as a solution to the European financial crisis remained elusive and signs of an improving US economy were clouded by political wrangling. As the year came to an end, rising concerns over inflation in emerging economies further lowered oil demand and economic forecasts.

As mentioned earlier, for the transportation of crude and residual products, VLCCs remain the most consolidated of all sectors with eight trades making up 77% of demand. On a regional basis, the Far East made up the largest portion of demand as its expanding economy and downstream sector continuously require new sources of hydrocarbons. The opposite has been occurring in OECD North America and Europe, as weak petroleum product demand reduced refinery utilisation rates and crude-oil imports via pipeline have altered supply sources.

This trend can be observed as tonne/mile demand from the Middle East to the US Gulf declined by 4% throughout the year.

In recent editions of its Tanker Market Outlook, McQuilling noted the trend of increased trade between loading regions in the West with cargoes destined to the East. The load regions are defined as the Americas, West Africa and Europe and discharge regions include the Far East, Southeast Asia and India.

It is expected that this trend will continue in the future, despite demand being slightly lower in 2011 compared to previous years. This contraction was largely influenced by reduced Libyan production, which had a significant influence in widening the price differential between light and heavy crudes.

This raised the price of West African crudes in comparison to oil supplies from the Middle East, lowering tonne/mile demand from western loading zones. The West-to-East trades are also largely influenced by fuel oil arbitrage into the Asian market, as Singapore is the world's largest bunkering hub.

In 2011, data showed that bunker sales hit another record high of 43 mill tonnes, with sales averaging 3.5 mill tonnes per month. This strong demand helped limit the fall in West-to-East fixtures last year.

Tonne/mile demand for Aframaxes fell by 18% throughout the year. Despite its greater flexibility compared to VLCCs and Suezmaxes, regional factors negatively influenced demand.

For example, in the Western Hemisphere reduced throughput rates at refiners located on the US East Coast lowered import requirements from load ports in the Caribbean and northern South America.

Data published by the EIA put refinery utilisation on the East Coast at 70% of capacity in 2011 compared to a national average of 85%. Tonne/mile demand was further pressured from the reduction in Libyan supplies, the economic situation in Southern Europe and, to a lesser extent, recent events in Syria and Iran.

During the next five years, McQuilling expects tonne/mile demand for crude and residual products to rise by an average of 1.5% per year. Tonne/mile demand for Suezmaxes is forecast to rise by 9% during the period but its overall share will remain stable at about 18% of demand.

With only one exception, trade volumes on the top 15 CPP trade routes increased by around 13% from 2010 to 2011 even though the total sector only expanded by 1.5%. Trade in CPP saw a noticeable shift towards larger tankers on trades between the Far East and the Caribbean, EC Mexico, Venezuela and Colombia. Overall, LR1's share of tonne/mile demand rose by almost 15% throughout the year as the downstream industry began undergoing structural changes.

A steady rise in trade from Northern Europe to South/East Africa has been observed over recent years. These cargoes are mainly gasoline and gas oil. The boost in trade can be attributed to the region's healthy economic outlook with GDP growth forecast at 5% this year.

Over the next five years, McQuilling Services forecast that CPP tonne/mile demand will rise by an average of about 2% per year. It is expected that MR2s will remain the work horses of the CPP trade but will slowly cede some tonnage to larger vessels.

Trade in petroleum products will continue evolving as weak margins are consolidating

the refining industry in OECD countries. These closures have totaled just over 1 mill bpd in the US Atlantic Basin since the second half of 2011.

Supply

On the back of the continued weakness in the global economy, oil market disruptions and over capacity, tanker contracting fell to 109 last year, its lowest level since peaking in 2006.

Given the current size of the fleet, which stands at 3,498 tankers above 27,500 dwt, contracting is expected to remain low in the short-term. The availability of loans to the shipping industry will also remain limited in the current economic environment. This should help the market gradually return to a balance, as it should continue to limit new tanker orders, McQuilling said.

Prior to making adjustments to represent delays and cancellations, McQuilling recorded 562 vessels of 27,500 dwt and above currently on order through 2014. This accounts for vessels that have a hull and an IMO number but omits deals listed as 'reported'.

The consultancy said that its process of forecasting slippage considers many factors. After determining what vessels will be delivered as IMO 1 or 2, the orderbook is adjusted for delays and cancellations based on an internal assessment of the financial health of shipyards and owners.

The final step in estimating fleet expansion compares the current orders in a given year to a fraction of the average placed between 2001 and 2011. The greater of the two is used to determine the number of deliveries that could materialise during the forecast period.

Over the next five years, McQuilling expected 767 tankers to be delivered into the market, which includes vessels delayed from previous years. Some 228 tankers are expected to be delivered this year. This represents a slippage of 35% based on the original-unadjusted orderbook.

In the larger tanker classes, the consultancy forecasted deliveries of 62 VLCCs and Suezmaxes.

With the exception of the MR2 class, with an estimated 44 deliveries this year, supply increases should be less pronounced in the smaller tanker sectors.

Relatively healthy freight rates have fueled MR2 market optimism in recent years. The least pronounced supply growth should occur in the Panamax and MR1 classes with a respective three and nine deliveries expected this year. This small orderbook is due to the increasing specialisation of trades for which these tankers are used.

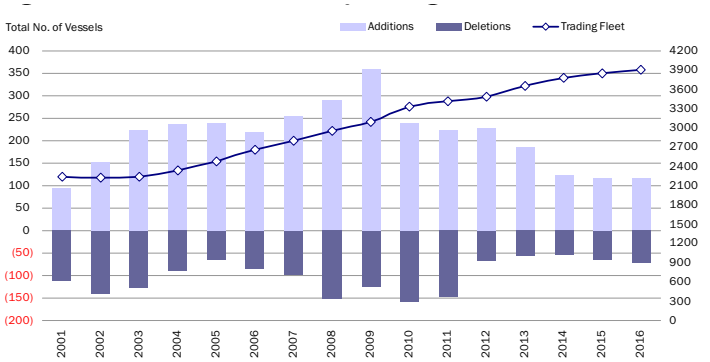


Figure 1- Total Fleet Inventory Changes*. Source: McQuilling Services.

**These figures do not account for switching between clean and dirty trades on Aframax / LR2 and Panamax / LR1. They also do not account for other factors that reduce supply, such as slow steaming, floating storage and port delays.*

Figure 1 illustrates additions, deletions and trading fleet inventory for all tanker classes. Note that through 2014 the tanker fleet will continue absorbing a high number of tankers before beginning to slow towards the end of the forecast period.

Starting in 2014, McQuilling said that it expected the delivery programme to slow to roughly 125 vessels with this number continuing to shrink.

As bunker prices rise in an environment of tanker oversupply, upward spot rate movements are limited and owners have reduced sailing speeds to reduce fuel consumption. McQuilling responded to this move by lowering the average fleet sailing speed by one knot to 13.5, realising that some owners may be operating at speeds closer to 8-9 knots.

As the sailing speed is reduced, the delivery of a cargo takes more time, reducing both the global and route specific availability of vessels. Table 1 provides the impact to the tanker fleet when operators reduce sailing speed by one knot. Other factors that will contribute to a reduction in tanker supply are port delays and demand for floating storage.

In recent years, demand to convert VLCCs into FPSO/FSO units has increased. This has been influenced by robust demand from the expanding offshore industries in South America, West Africa, the Gulf of Mexico, Southeast Asia and Australia/New Zealand. Going forward, the consultancy estimated that the offshore sector will absorb 15 VLCCs per year for conversion to FPSOs/FSOs.

Historically, these have been single hull vessels but at the end of last year the *Chios* (301,824 dwt, 1993 built) and the *Arosa*

	VLCC	SUEZ	AFRA	PANA	MR
Number of Vessels *	15-28	3-15	8-15	2-5	9-20

Source: McQuilling Services

Table 1 - Number of Vessels for each 1 knot of speed

** Assuming speed reduction across fleet sector. Specific number depends on deployment assumptions*

(291,391 dwt, 1993 built) double hull vessels were sold for conversions into floating storage units. This trend should continue and further help reduce fleet capacity.

Capturing the relationship of the factors that influence tonnage supply and their impact on demand in a specific period requires evaluating the effect of the fundamentals driving the market. In its 2012-2016 Tanker Market Outlook, McQuilling calculated the surplus, or deficit, of vessels by subtracting estimated demand from the average annual tanker inventory that is available for each vessel class.

By normalising this result, a capacity index was produced to gauge the surplus, or deficit, of a specific tanker sector. In addition to the fore mentioned factors that absorb tanker capacity, the capacity index accounts for tanker supply reductions stemming from weather, maintenance, delays, dislocation, capacity reductions and availability reductions. Figure 2 provides the capacity index for the entire trading fleet.

In the coming years, the capacity index for the total fleet will continue to rise, as deliveries will outpace deletions. In the short-term, a rising capacity index in the LR1 sector will be seen, as a relatively strong delivery profile could pressure fundamentals.

The capacity index is also pressured, as the forecast is for demand growth to be less pronounced during the out years. This factor could be adjusted upwards if the global economy regains its balance and returns to a growth trajectory.

It is important to remember when looking at the capacity index that it is a tool to gauge the interaction of supply and demand and not an absolute indicator of expected market performance.

Looking forward, the tanker market will continue to be pressured by the combination of high tonnage availability combined with demand side pressure. TO

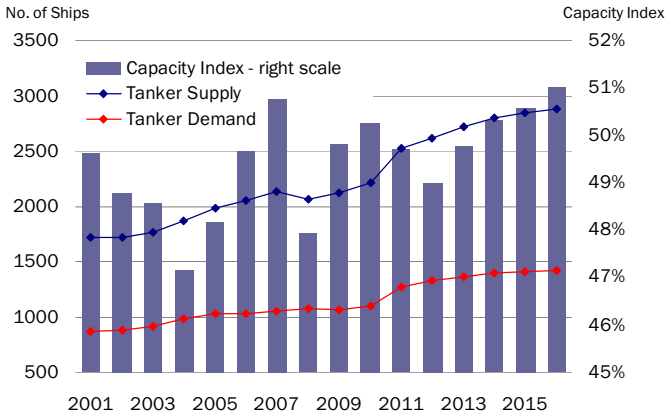


Figure 2: Capacity index - total fleet. Source: McQuilling Services.

The changing VLCC spot market

VLCCs seem to the most talked about sector of the tanker industry at present.

This is primarily due to the dire freight rates available to VLCC owners chartering their vessels for voyages from the Middle East to both east and west destinations.

Braemar Seascope took a look back to 2005 to see how the VLCC spot market has changed in just a few years.

Since 2005, there has been a 25% reduction in reported AG/West spot VLCC voyages from 291 in 2005 to 216 in 2011. Just 11 AG/West fixtures were recorded in January 2012; if annualised, the total would be 180, only 62% of the number recorded just seven years earlier.

The US, the world's largest oil consumer and traditionally the major customer for Middle Eastern oil, has diversified its supplies of energy with important knock-on effects for the VLCC market. The reasons for this diversification are complex and reflect not only market evolution, but changes to US economic, fiscal, environment and foreign policy.

According to a recent US Energy Information Agency (EIA) report, domestic crude oil production reversed a long-term decline to grow from 5.18 mill barrels per day (bpd) in 2005 to 5.47 mill bpd in 2010. Meanwhile, oil imports from Canada rose from 1.6 mill bpd in 2005 to 1.97 mill bpd in 2010.

More locally-produced oil will replace long-haul oil in a shrinking marketplace: the EIA 2012 Early Release Overview forecasts a 0.5% annual reduction in energy consumption per capita in the US between 2010 and 2035.

Meanwhile, high gasoline prices in the US have led to a reduction in domestic gasoline and diesel demand, with the US becoming a net petroleum products exporter for the first time last year since the late 1940s.

Despite overseas demand for petroleum products refined in the US, a number of East Coast refineries have closed. They relied on imported crude, but couldn't compete with US Gulf refiners with access to cheaper West Texas Intermediate crude oil.

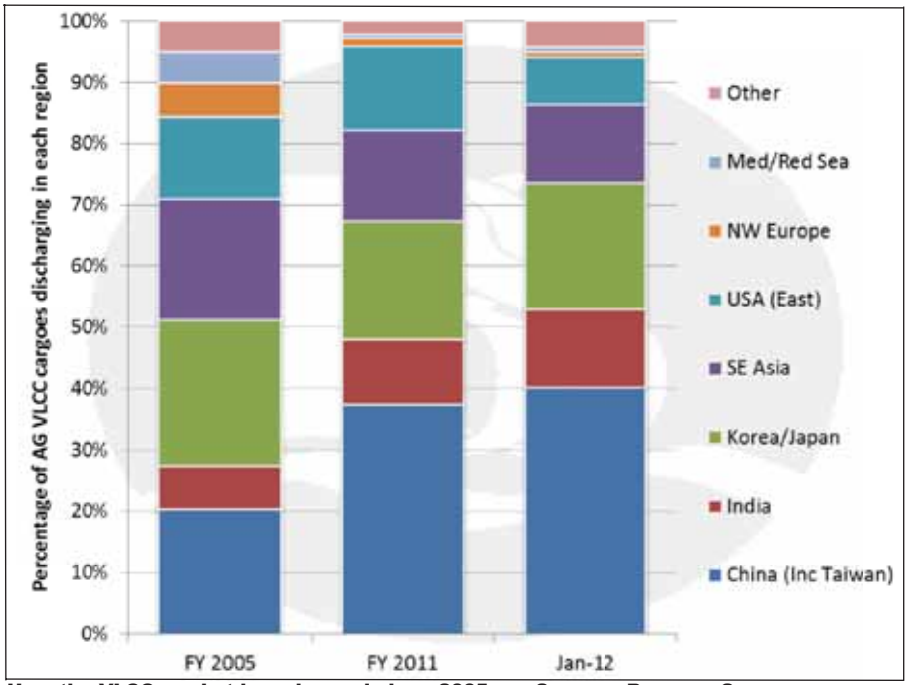
China, meanwhile, has become the world's second largest consumer of oil and, with an extensive refinery building programme underway, is in line to match US oil consumption within the current decade.

As a result, the VLCC spot market has swung eastwards; in 2005, 20% of VLCC spot fixtures discharged in China; in January 2012, that had increased to 40%. Chinese oil refiners have swept into leading positions in the VLCC charter market.

Indeed, discharges east of Suez now account for 85% of VLCC voyages out of the AG compared to 71% in 2005.

Mark Williams, Braemar Seascope research director, believed that this swing to the East is now firmly entrenched.

He said, "As Chinese refiners will probably add over 6 mill bpd of domestic refinery capacity in the next five years, their presence in the VLCC spot market is likely to increase further as China makes efforts to secure its energy supplies." TO



How the VLCC market has changed since 2005. Source - Braemar Seascope.

> "As Chinese refiners will probably add over 6 mill bpd of domestic refinery capacity...the VLCC spot market is likely to increase further as China makes efforts to secure its energy supplies"
>
> **- Mark Williams, Braemar Seascope Research**

Demolition set to break records

Could steel traders be in for a bumper 2012 due to the extra supply of vessels for recycling this year?

Bets are now being taken about how many vessels will be forced by the weak freight markets into the arms of recyclers, Braemar Seascope said.

Globally, ship scrapping capacity is almost unlimited in certain areas, as it is a simple business of driving ships onto beaches and cutting them up with oxyacetylene torches.

Theoretically, great numbers of ships could be sold for scrap and held as inventory by the scrap dealers, to be pushed up the beach as and when required. Scrap prices for ships of around $500 per light displacement tonne (LDT) remain, suggesting that demand for the steel content in ships remains strong, the broker said.

Indeed, ship recycling capacity could grow further in coming years. The China State Shipbuilding Corporation president said recently that half of China's shipyards could go bust in the next two to three years. Many of these yards could switch to recycling as, in theory, could European shipyards, though the economics of recycling in Europe are currently not encouraging.

Last year was not a record-breaking one for tanker recycling, despite the poor freight markets. For four years from 1982 to 1985 over 20 mill dwt of tankers were recycled while 14 mill dwt was sold for demolition in 2010. Some 8.4 mill dwt of tankers were recycled in 2011, with the figure for January 2012 maintaining that trend.

By comparison, Braemar Seascope estimated that, in 2011, 24.2 mill dwt of bulk carriers were sold for scrap, surpassing the 12 mill dwt scrapped in 2009 during the credit crunch, and the 11.5 mill dwt scrapped in 1998 after the Asian financial crisis, as well as the 15 mill dwt scrapped in 1986, the year the BIFFEX bottomed out at 554 points on 31st July of that year.

Scrapping of all types reached 41 mill dwt in 2011, making it the third largest year for demolition ever. The second biggest was in 1986 when 43 mill dwt was scrapped, while the record was 1985 when 44 mill dwt of vessels were sent to the beaches.

Mark Williams, Braemar Seascope's research director, said: "If macro-economic conditions in 2012 continue to underwhelm and if scrap prices stay at their recent high levels, this year could easily surpass 1985 as a peak year for demolition." ■

Last year's oil spills lowest on record

The recent trend towards fewer spills from tankers and less oil spilt is being maintained.

According to International Tanker Owners Pollution Federation's (ITOPF) annual review, only one large spill from a tanker occurred in 2011; the same as for 2008 and 2009.

With only four medium sized spills recorded for the second year in a row, this means that 2011 saw just five spills of greater than 7 tonnes (50 barrels) from tankers, the lowest on record.

In addition, the total volume of oil spilt last year was also the lowest on record and, at around 1,000 tonnes, represents a minute percentage of the volume of oil moved by sea. This combination of record lows is especially encouraging given the ever increasing quantities of oil transported by sea, ITOPF said.

The Federation maintains a database of oil spills from tankers, combined carriers and barges. This contains information on accidental spillages since 1970, except those resulting from acts of war.

The data held includes the type of oil spilt, the spill amount, the cause and location of the incident and the vessel involved.

For historical reasons, spills are generally categorised by size, small (<7 tonnes, or <50 barrels), medium (7-700 tonnes, or 50-5,000 barrels) and large (>700 tonnes, or >5,000 barrels), although the actual amount spilt is also recorded. Information is now held on nearly 10,000 incidents, the vast majority of which (81%) fall into the smallest category, ie <7 tonnes.

This year, analysis of the causes of large spills since 1970 has allowed a more detailed breakdown of vessel operations taking place at the time of the incident.

The analysis has revealed that 50% of large spills occurred while the vessel was underway in open water with allisions, collisions and groundings accounting for just over half of these. These same causes accounted for some 95% of incidents when the vessel was underway in inland, or restricted waters. TO

Year	7-700 Tonnes	>700 Tonnes
1970	7	28
1971	18	14
1972	48	27
1973	28	31
1974	90	27
1975	96	20
1976	67	27
1977	69	16
1978	59	23
1979	60	32
1970s Total	542	245
Average for decade	54.2	24.5

Year	7-700 Tonnes	>700 Tonnes
1980	52	13
1981	54	7
1982	46	4
1983	52	13
1984	26	8
1985	33	8
1986	27	7
1987	27	10
1988	11	10
1989	33	13
1980s Total	361	93
Average for decade	36.1	9.3

Year	7-700 Tonnes	>700 Tonnes
1990	51	14
1991	30	7
1992	31	10
1993	31	11
1994	26	9
1995	20	3
1996	20	3
1997	28	10
1998	26	5
1999	20	6
1990s Total	283	78
Average for decade	28.3	7.8

Year	7-700 Tonnes	>700 Tonnes
2000	21	4
2001	17	3
2002	13	3
2003	17	4
2004	17	5
2005	22	3
2006	13	5
2007	13	4
2008	8	1
2009	7	1
2000s Total	149	33
Average for decade	14.9	3.3

Year	7-700 Tonnes	>700 Tonnes
2010	4	4
2011	4	1
2010s Total	8	5
Average	4	2.5

Table 1: Annual number of oil spills (>7 tonnes).

Source: ITOPF.

Position	Shipname	Year	Location	Spill Size (tonnes)
1	ATLANTIC EMPRESS	1979	Off Tobago, West Indies	287,000
2	ABT SUMMER	1991	700 nautical miles off Angola	260,000
3	CASTILLO DE BELLVER	1983	Off Saldanha Bay, South Africa	252,000
4	AMOCO CADIZ	1978	Off Brittany, France	223,000
5	HAVEN	1991	Genoa, Italy	144,000
6	ODYSSEY	1988	700 nautical miles off Nova Scotia, Canada	132,000
7	TORREY CANYON	1967	Scilly Isles, UK	119,000
8	SEA STAR	1972	Gulf of Oman	115,000
9	IRENES SERENADE	1980	Navarino Bay, Greece	100,000
10	URQUIOLA	1976	La Coruna, Spain	100,000
11	HAWAIIAN PATRIOT	1977	300 nautical miles off Honolulu	95,000
12	INDEPENDENTA	1979	Bosphorus, Turkey	95,000
13	JAKOB MAERSK	1975	Oporto, Portugal	88,000
14	BRAER	1993	Shetland Islands, UK	85,000
15	KHARK 5	1989	120 nautical miles off Atlantic coast of Morocco	80,000
16	AEGEAN SEA	1992	La Coruna, Spain	74,000
17	SEA EMPRESS	1996	Milford Haven, UK	72,000
18	NOVA	1985	Off Kharg Island, Gulf of Iran	70,000
19	KATINA P.	1992	Off Maputo, Mozambique	66,700
20	PRESTIGE	2002	Off Spanish coast	63,000
35	EXXON VALDEZ	1989	Prince William Sound, Alaska, USA	37,000

Table 2: Major oil spills since 1967. **Source - ITOPF.**

TANKEROperator's Top 30 owners and operators

Taking the usual format, this list has been compiled in descending order of total tanker deadweight tonnage per company. The figures have been extracted from company websites, the Equasis database, other sources and the companies themselves. We have purposely not included FPSOs, LPG and LNG carriers in the totals.

As with last year's listing, due the plethora of newbuildings delivered in 2011 and the amount of tonnage yet to come, plus a possible increase in the numbers recycled, there has been and still will be changes in the fleet compositions during the next year or so, which will continue to result in changes to the rankings.

For example, in this listing the SCF Group has moved up the charts, while Oman Shipping and Nordic American Tankers have been included for the first time, due to their high number of recent deliveries.

1 FRONTLINE Group

(24.96 mill dwt, plus 2.1 mill dwt newbuildings)

Due to the parlous state of the market, which has adversely affected companies with vessels having a high level of finance attached to their book values, at the time of publication, Frontline had just finalised the restructuring of its empire.

In a nutshell, this resulted in Frontline 2012 being formed on the back of a large private placement of shares, raising $283 mill, of which John Fredriksen's investment vehicle Hemen Holdings had taken around half. Frontline will retain about 8.8% of the new shares.

Once the shareholdings are in place, Frontline will receive $1,121 mill with respect to the sale of assets to Frontline 2012, which will be registered on Oslo's NOTC listing.

As for the assets, Frontline 2012 will purchase five VLCC newbuilding contracts, six modern VLCCs and four modern Suezmaxes from Frontline, valued at $1,121 mill in total.

Currently, the Frontline group operates, or commercially manages 43 VLCCs, 18 Suezmaxes, including two newbuildings and five Obos. It has a further five newbuilding VLCCs on order, which, as mentioned, have been switched to Frontline 2012.

The totals include vessels chartered in, owned by subsidiaries and those commercially managed, according to the website as of January, 2012. In addition, it was recently reported that the company had ordered six MRs from STX Jinhae for $32.5 mill each. According to brokers, the vessels will be delivered during 2013-2014. This order marks the company's first foray into the product tanker sector.

Recently, the company has been selling 1990s- built tonnage mainly for recycling, or conversion work, which looks set to continue through 2012.

In addition, Frontline has formed a Suezmax pool – Orion Tankers – with Nordic American Tankers (which see). The joint 50:50 joint venture will kick off with 29 Suezmaxes. ■

Teekay Corp

(13.19 mill dwt, plus 940,000 dwt newbuildings)

2 **Teekay's empire has been** split up into what is now known as Teekay Parent and three daughter companies - Teekay Offshore Partners, Teekay LNG Partners and Teekay Tankers.

All four are public listed companies and over time Teekay Parent has sold (and continues to sell) tonnage to the daughter companies.

For ease of vessel compilation, Tanker Operator has grouped all of Teekay's owned and chartered-in tanker tonnage under one banner.

The figures listed do not include FPSOs, LPG and LNG carriers, but includes FSOs and the various shuttle tankers.

According to the latest figures from the company, Teekay Parent and its daughter companies operate a total of 48 Suezmaxes, 57 Aframaxes, one Panamax and five product carriers. In addition, there are four newbuilding Suezmax shuttle tankers, plus a VLCC to come. The latter is jointly owned on a 50:50 basis.

This puts Teekay into second place in terms of deadweight tonnage, despite having the largest tanker fleet by vessel numbers.

Included in these figures is joint venture part-owned tanker tonnage and long term chartered-in tankers, as well as five owned FSOs. As mentioned, not included are seven FPSOs, plus another two under conversion, 21 LNG carriers and five LPG/Multigas vessels on 15 year charters to IM Skaugen. They are operating in the Norgas pool.

In a boost to its FPSO sector, last year Teekay agreed to purchase certain assets from Sevan and will take a 40% stake in the restructured company. In addition, Teekay LNG agreed to purchase six LNGCs from Maersk LNG in a joint venture with Marubeni.

In the tanker sector, last June, Teekay Offshore signed an agreement with BG to build four shuttle tankers for operation in Brazil. The four Suezmax DP2 shuttle tankers will be constructed by Samsung Heavy Industries in South Korea. Upon delivery in mid-to-late 2013, the vessels will commence operations under 10-year timecharters to BG. ■

Three of Teekay's new shuttle tankers seen at a handling over ceremony at Stavanger.

NYK Group

(12.8 mill dwt)

3 **NYK manages 40 VLCCs,** four LR2s, 24 MRs and 11 chemical tankers, according to the company's website dated March 2011.

In addition, the Japanese major manages 29 LNGCs and 10 LPG carriers, plus one ammonia carrier, which are not included in the figures.

One of NYK's major joint ventures - Knutsen NYK Offshore Tankers (KNOT) - in which NYK has a 50%, has entered into a timecharter contracts with several companies last year for newbuilding shuttle tankers.

These include a charter with Standard Marine Tønsberg, owned by ExxonMobil Exploration and Production Norway, for 10 years, plus an option, for a newbuilding dynamic positioning 112,000 dwt shuttle tanker to service SMT's North Sea offshore fields.

The vessel will be built at Hyundai Heavy Industries and equipped with bow-loading equipment. The tanker will also be built to DP2 notation to satisfy the stringent North Sea shuttle tanker requirements. She will be delivered in 2014.

Another timecharter was signed with Ente Nazionale Idrocarburi (ENI) for two shuttle tankers for a maximum 10-year period starting from summer 2013.

Two new 123,000 dwt shuttle tankers are being built at Hyundai Heavy Industries and will each be equipped with a DP system. They will be used to transport North Sea crude oil ashore.

In addition, KNOT has signed a timecharter agreement with Repsol. This contract is for a five-year period starting from the fourth quarter of 2012 and was the first timecharter contract signed by the joint venture after NYK entered the offshore shuttle tanker business in December 2010.

A newbuilding DP 157,000 dwt Suezmax, which is also being built at Hyundai Heavy Industries will be used to ship crude oil from various locations, such as offshore Brazil.

In the VLCC sector, in February 2011, NYK and Thai Oil Public (Thai Oil) established TOP-NYK MarineOne, a joint venture company based in Singapore.

The new company then purchased the VLCC *Tenyo* from NYK, which was subsequently chartered to Thai Oil under a 10-year timecharter at the end of March last year. ■

Sovcomflot Group (SCF)

(11.6 mill dwt, plus 1.6 mill dwt newbuildings)

4 **Today, the SCF Group** operates 156 tankers of all shapes and sizes, including six chartered in, resulting in the company rising to fourth place in the listing.

They range from small asphalt/bitumen carriers and chemical tankers owned by subsidiary Marpetrol to Suezmaxes. They will soon be joined by two VLCCs and a further four Aframaxes, all of which are currently under construction.

Broken down into types, SCF Group operates eight gas carriers with further four LNG carriers on order, 24 ice-class shuttle tankers, 60 oil tankers and 62 product tankers.

The company also operates a drybulk and specialised vessel fleet, such as tugs, seismic research vessels and icebreaking supply vessels. The latter mainly operate in areas of harsh conditions, such as the Arctic and Russian Far East, as do the shuttle tankers, which have been purpose built to operate in severe ice conditions. ■

SCF/Novoship's *Aframax NS Clipper* seen passing through the Dardanelles.

Overseas Shipholding Group (OSG)

(11.4 mill dwt, plus 1.1 mill dwt newbuildings)

5 **OSG still manages three out** of the four last remaining ULCCs in a joint venture, two of which have been converted to FSOs.

In total, OSG operates 111 tankers, of which 65 are owned and another 46 chartered in. In addition, the US-based concern has one car carrier, a series of articulated tug/barge combinations (ATB) and four LNGCs on its books, which have not been included in the figures.

Included are the three ULCCs, 14 VLCCs (four chartered in), plus one newbuilding; two chartered in Suezmaxes; nine Aframaxes (three chartered in), plus two newbuildings; six lightering Aframaxes (four chartered in); six LR1s (two chartered in); 37 Handysize/MR product tankers (21 chartered in), plus one newbuilding and 12 US flag product tankers (10 chartered in).

One of OSG's *Jones Act* US flag tankers built at Aker Philadelphia.

Similar to other large players in the market, OSG has been slowly shedding tonnage by recycling and redelivering chartered tonnage in the light of plunging returns.

OSG is a champion of the pooling system and participates in four pools: Tankers International, Aframax International, Panamax International, and Suezmax International.

While each operates in generally the same way, the characteristics of different market segments, geographic focus and established cargo contracts differ, the company said.

For example, one of OSG's ULCCs and all the VLCCs participate in the Tankers International (TI) pool and trade worldwide on long-haul voyages primarily in the spot market. TI was founded in 2000.

All of the company's Suezmax tankers are in the Suezmax International pool and trade predominantly in the spot market in the Atlantic Basin. OSG entered this market segment in 2008 when the pool was established.

Thirteen of OSG's Aframaxes are in the Aframax International pool, co-founded by OSG and PDV Marina in 1996. The latter has recently pulled out, but OSG said it will continue to commercially manage this pool.

Finally, eight crude oil Panamaxes are in the Panamax International pool, established in partnership with SONAP in 2004. ■

AET Tankers

(10.7 mill dwt, plus 2.12 mill dwt newbuildings)

6 **Part of the MISC group,** Singapore-based AET Tankers is now one of the world's largest Aframax operators with 58.

In addition, the company has 12 VLCCs, one Panamax and 13 chemical and products tankers of various size ranges on its books.

These figures, up to 1st January 2012, include several long term chartered vessels and three Aframaxes owned in a joint venture.

The newbuildings include four VLCCs, four Suezmaxes, plus two Aframax DP shuttle tankers.

Last year, AET awarded a contract to Drydocks World Dubai to convert two of its latest Aframaxes into Marine Capture Vessels (MCV).

Eagle Texas and *Eagle Louisiana*, both 107,000 dwt Aframax tankers delivered in 2011 from Tsuneishi Shipbuilding, will undergo extensive conversion and modification allowing them to perform duties for Marine Well Containment Company (MWCC) in the US Gulf of Mexico.

This project was on the back of a 20-year contract awarded to AET by MWCC to supply two MCVs to provide containment services in the event of a potential deepwater well control incident in the US Gulf of Mexico.

Both vessels will be fitted with DP technology, structural modifications required for installation of modular processing equipment, additional accommodation and other facilities.

Once converted, the two tankers will continue to trade as standard Aframax tankers until required for containment duties. AET's ship-to-ship transfer lightering operation is based at Galveston, Texas and operates STS in the US Gulf. ■

Maran Tankers Management

(9.84 mill dwt, plus 1.28 mill dwt newbuildings)

7 **MTM is part of the** Angelicoussis Group and is represented by London-based Agelef as agents.

This shipmanagement concern has 23 VLCCs, 12 Suezmaxes and eight Aframaxes on its books, including vessels bareboat chartered.

In addition, MTM has another four newbuilding VLCCs to come.

Affiliate Maran Gas manages five LNGCs and two LPG carriers, which have not been included in the figures.

In January of this year, MTM was awarded an ISO 50001 accreditation by Lloyd's Register.

This is a voluntary international standard that specifies the requirements for establishing, implementing, maintaining and improving an energy-management system.

It offers companies a systematic approach to continually improve energy performance, including energy efficiency, use and consumption, LR said. ■

Maersk Tankers

(9.29 mill dwt, plus abt 1.59 mill dwt newbuildings)

8 **We have included all the** units within the LR2, Handytankers and Brostrom managed pools, plus the 17 VLCCs owned by the AP Moller-Maersk subsidiary.

Another five VLCCs are under construction. All of the VLCCs will enter the Nova Tankers pool, which was recently set up with the aim of managing some 50 VLCCs by the end of this year.

The pool partners are Maersk Tankers, Mitsui OSK/Phoenix Tankers, Samco Shipholding and Ocean Tankers.

Morten Pilnov of Maersk Tankers, will be Nova Tankers' managing director. A pool management company, Nova Tankers A/S, has been incorporated with Kazunori Nakai as chairman.

In January of this year, Ms Hanne Sørensen was appointed new CEO of Maersk Tankers with effect from 13th February 2012. She replaces Søren Skou, who recently assumed the position as Maersk Line CEO.

In addition, the group has a number of LPG carriers, FPSOs and FSOs under various subsidiaries, which have not been included in the figures. Last year, Maersk agreed to sell its entire LNGC fleet (eight) to a joint venture between Teekay and Marubeni. ■

Maersk's 35,000 dwt Handysize *Richard Maersk seen at Europoort.*

MOL Group

(9.16 mill dwt)

9 **This year, we have taken the** figures for vessels managed by Mitsui OSK Lines only, as shown by the Equasis database.

We have not included 20 LNGCs and another four LPG carriers.

This leaves us with 18 VLCCs, one Suezmax, 10 Aframaxes, 10 LR1s and 28 chemical/product carriers.

There are others owned by subsidiaries and chartered in, but these are too difficult to quantify, as they change almost daily.

During the past year MOL has been recycling 1990s-built tanker tonnage and recently announced that another five would be going breakers.

These included the 1995-built VLCCs *Atlantic Liberty*, *Atlantic Prosperity*, the 1996-built *Minesa* and the 1998-built *Rion*, one of the youngest VLCCs to go to the scrapyard since the 1980s.

Also on the scrap list was the 1992-built Suezmax *Glen Maye*.

Last year, two of MOL's shipmanagement companies merged. International Marine Transport and MOL Tankship Management joined together on 1st April, 2011 to form MOL Ocean Expert.

The merger integrated shipboard officers for the drybulk, tankers and LPG carrier sectors belonging to both companies under the MOL umbrella to ensure more flexibility in seafarer allocation and streamline management, the company said at the time. ■

MOL has recycled the Suezmax *Glen Maye* seen here in the Solent heading for Hamble.

Euronav

(8.73 mill dwt, plus 480,000 mill dwt newbuildings)

11 **All of Euronav's 13 VLCCs** and one ULCC operate in the Tankers International Pool. Another newbuilding VLCC is to be delivered this year.

These are a mix of wholly-owned and timechartered in tonnage.

The Belgian concern also operates 22 Suezmaxes and has another newbuilding to come. Last year, the company cancelled a further Suezmax newbuilding.

In addition, Euronav manages two ULCC FSOs, which are both under long term contracts to Maersk Oil. Fleet management is conducted by three wholly owned subsidiaries - Euronav Ship Management and Euronav, Euronav Ship Management (Hellas). ■

China Shipping Development

(8.5 mill dwt, plus 1.9 mill dwt newbuildings)

12 **Again China Shipping** Development has risen in the listing due to further deliveries of newbuilding VLCCs, taking the total to 15.

More are thought to be still to come- at least six tankers of varying sizes, plus another eight 48,000 dwt crude/products tankers from Guangzhou Shipyard, whose contracting was announced in December 2010.

In addition, according to the Equasis database, the Shanghai-based company manages five Aframaxes, 16 LR1s, 13 Panamax crude carriers, 28 MRs and Handies, plus several smaller coastal tankers. ■

NITC

(8.97 mill dwt, plus 5.58 mill dwt newbuildings)

10 **Due to political reasons,** NITC's total could be subject to change, although Tanker Operator has tried to unravel the vessels owned.

. For example, late last year, Oman Shipping took back the six VLCCs that the company bareboat chartered to NITC, citing the threat of sanctions. These have been deleted from the total deadweight tonnage in operation.

There must also be question marks surrounding some of the newbuildings, as to their final destination regarding ownership.

At the beginning of this year, the company was dealt yet another blow when the man credited with building up the company into what it is today, before the threat of sanctions moved the goal posts – Mohammad Souri – confirmed that he had left the company.

The move appears political, as he was replaced by Hamid Behbahani, the former Minister of Roads and Transportation and a former professor at Iran's University of Science and Technology, where he claimed to have taught current Iranian President Mahmoud Ahmadinejad. ■

TORM

(7.65 mill dwt, plus 150,000 dwt newbuildings)

13 **Despite losing a few of its** pool partners, TORM still has a considerable number of product carriers and is a partner in the LR2 and LR1 pools.

In total, TORM manages 29 LR2s, 22 LR1s, 51 MRs and 11 Handysize product carriers. In addition, the Danish company has another three newbuilding MRs to come.

To help ease its financial burden, last year the company sold several products tankers, a couple of which were on leaseback deals and cancelled one newbuilding products carrier contract. ■

Dynacom Tankers Management

(7.13 mill dwt)

14 During the last decade, DTM has taken significant steps to renew its fleet.

For example, during the years 2000 - 2011, a total of 54 older tankers were sold, while the company simultaneously embarked on a newbuilding programme with the signing of several contracts for VLCCs, Suezmax, Aframax, coated and crude oil Panamax tankers.

Today, the Equasis database is showing 12 VLCCs, 21 Suezmaxes, one Aframax and 14 Panamaxes, both LR1s and crude carriers as managed by DTM.

With the exception of four tankers, all the vessels were delivered to the company in 2004, or after.

Dynacom said that Ice Class vessels will benefit from increased crude oil exports from the Baltic; there will be longer haul product shipments due to refinery capacity restrictions; companies with a modern fleet will have an advantage; heating coils in VLCCs will aid the carriage of fuel oil cargoes. ■

Ocean Tankers

(6.84 mill dwt, plus 1.27 mill dwt newbuildings)

15 Singapore-based Ocean Tankers has risen in ranking thanks to its VLCC newbuilding programme, of which the company still has four more to come.

Today, the company boasts 10 VLCCs, three Suezmaxes, 14 Aframaxes, six Panamaxes, 22 MRs, four IMO2 Chemical tankers and 21 of what is calls 'general purpose' tankers.

In addition, Ocean Tankers manages several bunker tankers, supply craft and tugs in and around the Singapore area.

Ocean Tankers is to put its VLCCs into the Nova Tankers pool, together with partners Maersk, Samco and Mitsui OSK.

The 2008-built VLCC *Hua San.*

National Shipping Co of Saudi Arabia (NSCSA)

(6.1 mill dwt, plus 280,000 of newbuildings)

16 **NSCSA currently** manages 17 VLCCs, 19 chemical carriers and four conros.

In addition, another six 46,000 dwt chemical carriers are due for imminent delivery, plus a 75,000 dwt chemical carrier.

These will enter the National Chemical Carriers (NCC) fleet, which is an 80:30 joint venture with SABIC and operates all the chemical carriers.

In 2009, NCC entered into a 50:50 joint agreement with Odfjell and established an operating concern in Dubai. The company also has a 30.3% stake in LPG carrier operator Petredec.

All of the vessels are managed in-house by Mideast Ship Management. ■

NSCSA's 2001-built VLCC *Harad.*

BW Maritime

(5.45 mill dwt)

17 **BW Maritime operates** 14 VLCCs, 16 products carriers and two chemical tankers from its Singapore base.

All the vessels, including the LNG/LPG fleet of BW Gas is technically managed by BW Fleet Management, whose Singapore arm looks after the tanker sector.

The offshore side of the business has a fleet of FPSOs, FSOs and FDFSOs, including the 360,000 dwt *Belokamenka* used as an FSO in Kola bay, near Murmansk. These have not been included in the figures. ■

BW Maritimes's 2008-built VLCC *BW Edelweiss.*

Vela International Marine

(4.86 mill dwt)

19 The Aramco subsidiary has continued its policy of selling older VLCCs, hence Vela's dropping down the order.

The company currently owns 15 VLCCs, one LR2 and five MRs.

According to its website, Vela also has up to 40 tankers ranging from VLCCs downward on charter at any one time. ■

Tsakos Energy Navigation (TEN)

(4.77 mill dwt, plus 314,000 dwt newbuildings)

20 **TEN's fleet consists of** three VLCCs, 10 Suezmaxes, nine Aframaxes, three LR2s, nine LR1s, six MRs and eight Handies.

In addition, TEN has two DP2 Suezmaxes on order on the back of a long term charter with Petrobras. They are to be delivered in 2012 and 2013 respectively.

TEN also manages one LNGC. ■

TEN's Aframax *Sapporo Princess* seen in the Bosporus approaching the Black sea.

COSCO Group

(5.07 mill dwt)

18 The COSCO Group has 12 VLCCs, two Suezmaxes, three Aframaxes, 10 Panamaxes and three MRs in service under the management of Dalian Ocean Shipping (COSCO Dalian).

There are no doubt more to come due to China's effort to ramp up its energy imports in its own hulls and due the fact that the group owns many shipyards in China.

In addition, the tanker sector of the group looks after four small LPG carriers. ■

Associated Maritime Corp (AMC)

(4.72 mill dwt)

21 **Part of the Hong Kong Ming** Wah Group, itself owned by China Merchants, AMC manages 13 VLCCs, one Suezmax and seven Aframaxes.

It is thought that the newbuilding programme came to an end with the deliveries of two VLCCs last year, lifting the company up the rankings. ■

Shipping Corporation of India (SCI)

(4.65 mill dwt, plus 630,000 dwt newbuildings)

22 **At the beginning of this** year, SCI had four VLCCs, 20 other crude carriers, 15 product carriers and two chemical tankers.

In 2011, the company took delivery of eight LR1s and four Aframxes, while selling two product cariers and four Panamax crude carriers.

Another two VLCCs are under construction at Rongsheng. ■

Minerva Marine

(4.62 mill dwt)

23 **Minerva Marine currently** manages three VLCCs, five Suezmaxes, 22 Aframaxes and 10 MRs.

Last year, the company took delivery of three secondhand Aframaxes and a bulk carrier. ■

Oman Shipping Co (OSC)

(4.53 mill dwt, plus 1.75 mill dwt newbuildings)

24 **OSC has 14 VLCCs, plus** four more on order; two LR2s; two methanol carriers; two chemical tankers and two product tankers in operation.

In addition, OSC has seven LNGCs, two LPG carriers and several drybulk carriers, including VLOCs.

Around 12 of the VLCCs are in the VL8 pool, a joint commercial venture between OSC, NAVIG8 and VTN, which was formed in 2010. More are due to follow this year.

At least six of the VLCCs were thought to have been redelivered from bareboat charter to NITC recently, due to the sanctions threat. ■

Tanker Pacific Management

(4.21 mill dwt, plus 1.08 mill dwt newbuildings)

26 **Tanker Pacific has** continued to shed some of its older tonnage and at the same time has a large order book.

At the beginning of this year, the Singapore-based company had six VLCCs, 17 Aframaxes and 12 MRs under management.

In addition, its orderbook stood at four Suezmaxes, four LR1s and four MRs. ■

SK Shipping

(3.78 mill dwt, plus 1.28 mill dwt newbuildings)

27 **The South Korean shipping** group has 11 VLCCs, two Aframaxes, three MRs and four small chemical tankers under management, according to the Equasis database.

In addition, the company ordered four VLCCs from Hyundai in 2009, which are not thought to have been delivered thus far.

In addition, the company manages five LNGCs and four LPG carriers. ■

Thenamaris Ships Management

(3.37 mill dwt)

28 **This company has two** VLCCs, six Suezmaxes, 16 Aframaxes and 10 MR/Handies under management.

In addition, another VLCC, two Suezmaxes and four MRs are on order.

The company also has interests in drybulk carriers and a containership. ■

Chevron Shipping

(3.18 mill dwt)

29 **Chevron Shipping's fleet** includes eight VLCCs, three Suezmaxes, six Aframaxes and five MRs.

In addition, the oil major operates one LNGC for the Northwest Shelf project and two LPG carriers. ■

BP Shipping

(4.3 mill dwt)

25 **Again there is no change to** BP's fleet total. The oil major manages four VLCCs, 20 Aframaxes, 17 MRs and the shuttle tanker *Loch Rannoch*.

In addition, BP Shipping manages four VLGCs, seven LNGCs, plus another for the Northwest Shelf project. ■

BP's Aframax *British Kestrel* seen st Coryton, itself the subject of ongoing debate over its future.

Nordic American Tankers

(3.12 mill dwt)

30 **At the end of last year,** NAT took delivery of its 20th Suezmax, bringing the company into Tanker Operator's Top 30 at No 30.

The company has grown rapidly since it signed a bareboat agreement with BP Shipping for three vessels in the 1990s. This contract ended in 2004 allowing the company to expand from the three vessels to 20 in just seven years.

All of the Suezmaxes are operating on the spot market and at the end of last year, NAT established the Orion Tankers pool together with Frontline on a 50:50 basis.

This specialist Suezmax pool started with 29 vessels. As a result, during the fourth quarter of 2011, NAT left the Gemini pool. ■

A year in the life of Noboru Ueda

ClassNK chairman and president, Noboru Ueda, served as IACS chairman from July 2010 until June 2011. He became the fourth ClassNK chairman to complete a term as the head of IACS since the association was founded in 1968.

For his tenure at the helm of IACS, Ueda set three important goals - to complete the transition to a more transparent and robust IACS structure and restate IACS commitment to the European Commission; to make proactive technical contributions to the maritime industry and the IMO.

An immediate result of the transition to a more transparent and open structure was the admission of the Croatian Register of Shipping and the Polish Register of Shipping as new members on May 3rd and June 3rd last year, respectively.

During the year, ClassNK hosted and chaired chairman's office meetings in Tokyo, London, Oslo and Kyoto, the 69th and 70th general policy group meetings in Tokyo and Seoul and the 62nd and 63rd IACS council meetings in London and Kyoto.

At the same time, Ueda took every opportunity to visit and maintain dialogue with the IMO and leading industry organisations, including The International Chamber of Shipping (ICS) and the Asian Shipbuilding Experts Forum.

The immediate legacy of his term as chairman of IACS was demonstrated recently when a number of Asian industry groups participated in IACS Winter Council Meeting in London where, at Ueda's specific request, they joined regular European-based shipowner and shipbuilders' association participants.

The outcome was a more active and balanced exchange of opinion, with all parties making important contributions to discussions focusing on the key issues of Goal Based Standards (GBS), Common Structural Rules (CSR) and the Energy Efficiency Design Index (EEDI).

Commenting on the outcome of the meeting and whether Asian groups would continue to participate in IACS winter meetings, Ueda said: "I think the most important outcome of the meeting was that beyond merely expressing our opinions, shipowners, shipbuilders and IACS were able to come to solid understanding and agreement about the challenges we face as an industry.

"I think the contributions of the Asian shipbuilders associations, who produce the majority of the world's vessels, played an extremely important part in the meeting reaching a successful conclusion. As a result of this success we anticipate that Asian shipbuilders will be able to play a more active role in future meetings of IACS and in the industry as a whole."

Harmonised CSR

Ueda's term of office was characterised particularly by the determination of IACS to develop the Harmonised CSR for tankers and bulk carriers. Demand for such rules had increased following the sinkings of the *Erika* off France in 1999 and the *Prestige* off Spain in late 2002, prompting the IMO to develop GBS.

IACS began discussions on developing CSR and, in June 2003, agreed to create one set for tankers and another for bulk carriers. The objectives included developing common minimum structural requirements for the design and construction of robust ships, rules based on transparent methods and rules supported by published technical background documents. IACS also determined to provide a rational link between the requirements for newbuildings and ships in service and include the IMO's GBS' concept.

In his presentation on the main CSR concepts and application of the to the China Green Ship Technology conference in Shanghai in July 2011, Ueda said the concepts underlying the development of the IACS' CSR were to apply a design and fatigue life off not less than 25 years in North Atlantic environmental conditions; to introduce high level strength assessment for factors, such as ultimate hull girder strength and to introduce the net scantling concept. The current CSR was adopted by the IACS Council in December 2005 and had been applied to tankers and bulk carriers contracted for construction on or after 1st April, 2006.

Ueda said it was important to realise that there were two different sets of CSR, one for tankers and one for bulk carriers. While these two sets of rules were developed at the same time, they were developed independently by the joint tanker team and joint bulker team and, as a result, were based on different technical approaches for such key technical elements as wave load, fatigue, finite element method analysis and so on.

"Before IACS completed the current CSR, it sought feedback from industry, which strongly requested that common technical approaches be incorporated in both sets of rules," Ueda told delegates. Even though IACS managed to partially harmonise the CSR prior to completion, in order to meet the demands of industry, IACS committed itself to completely harmonising the two sets of CSRs based on a consistent methodology in the future.

"Over this same time period, the IMO continued to develop the GBS following the completion of the CSR. The GBS and related amendments to the SOLAS convention were

> “In its final form, the Harmonised CSR will ultimately consist of three parts - a common part for the requirements of both tankers and bulk carriers and then two dedicated parts for the specific requirements of tankers and bulk carriers”

Noboru Ueda, ClassNK Chairman and president

finally adopted in May 2010. With the completion of the GBS, IACS decided to make the Harmonised CSR comply with the IMO GBS. Unlike the current CSR, which consist of two separate sets of rules for both tankers and bulkers, the new rules will cover both types of ships.

“In its final form, the Harmonised CSR will ultimately consist of three parts - a common part for the requirements of both tankers and bulk carriers and then two dedicated parts for the specific requirements of tankers and bulk carriers,” he explained.

GBS catalyst

Ueda pointed out that the development of the GBS at the IMO had been the catalyst for IACS’ decision to include compliance with the GBS as part of the harmonisation process. The IMO GBS comprised a hierarchy of five tiers - goals, functional requirements, verification of conformity, rules and regulations for ship design and construction and industry practices and standards. IMO provided Tiers I to III while the Harmonised CSR came under Tier IV.

In accordance with the IMO GBS framework, each class society’s rules incorporating the Harmonised CSR would need to be compliant with both Tier I and Tier II of the GBS. This compliance would then be verified by the IMO as part of Tier III verification of conformity.

With regard to one of the key elements of the IMO GBS, Ueda made clear that the functional requirements consisted of 15 items that were further categorised into four fields - design, construction, in service condition and recycling consideration. The main functional requirements for design and fatigue life were to be not less than 25 years under North Atlantic environmental conditions, with which the current CSR had already complied.

Although the GBS requirements had not been finalised during the development of the CSR, the current CSR were developed with a view to complying with the recently adopted IMO GBS requirements. As such, the current CSR already complied with most of the GBS requirements.

However, because the CSR were completed in 2006 and the IMO adopted the GBS in May 2010, the current CSR do not comply completely with some GBS requirements. The functional requirements not covered by the current CSR included structural redundancy, residual strength after damage, hull dynamic effects on fatigue life, design transparency and so on.

“In order to meet these requirements, IACS will develop new requirements, revise the current requirements or prepare transparent technical backgrounds and consequence assessments as part of the CSR harmonisation project,” Ueda said.

“As some requirements under development for compliance with the IMO GBS are quite new, it is possible that scantling requirements may be affected. On the other hand, I expect that scantling impacts and consequential impacts on ship operation cost from the Harmonised CSR will be limited because one of the main objectives of the Harmonised CSR is to integrate the two existing approaches for key technical elements.

“I must convey that it is premature to predict any scantling impacts from the Harmonised CSR. I can advise that IACS has started to conduct consequence assessments and will provide the industry with the outcome next year (2012),” Ueda said.

Under the auspices of the IACS structure for the CSR harmonisation project, 10 teams working under the direction of the IACS Hull Panel were charged with carrying out the actual harmonisation work concerning wave load, buckling, finite element method analysis, etc.

External review

With regard to the Harmonised CSR under development, IACS’ schedule provides sufficient time for external review prior to finalisation. However, in order to receive feedback from the industry before this review period, IACS has organised a special external advisory group and to date, four meetings have taken place.

It is understood the first draft of the rules for review by industry will be released in the middle of 2012, following a consequence assessment and that the external review will begin after this.

“In order to ensure that the external advisory group is balanced between all the different sectors of the industry, as IACS chairman, I endeavoured to include not only shipowners’ associations but also shipbuilders’ associations in China, Japan and (South) Korea in the membership,” Ueda said.

“At some point of time, tankers and bulk carriers will be designed according to the Harmonised CSR instead of the current CSR. Although some new requirements will be added to comply with IMO GBS, ships complying with the current CSR remain among the best designed ships in the history of the industry, because the core of the rules will remain similar. Therefore, ships complying with the current CSR should not be considered as sub-standard,” he concluded. TO

Noboru Ueda, ClassNK chairman and president.

Witherby changes with the times

Part of any shipboard, or onshore function is the collection and dissemination of regulatory, information and training manuals.

These used to come in the shape of voluminous books, only to thankfully change into something more readable with the digital revolution.

One of the leading providers of both hard back books and digital eBooks is Witherby Seamanship, a specialist publisher of technical, operational and regulatory materials to the shipping industry.

As the shipping industry has diversified more fully into distinct sectors, ie containerships, drybulk carrier, tankers, gas carriers and others, each with their own specific needs, so Witherby has moved on with the times with its various offerings.

For example, from 15th February 2012, the publisher changed its 'Seamanship Library 2012' catalogue subscription to purchase to a more self-selection module system. The difference is that each module contains a selection of regulatory and technical titles that best fits the user's ship type.

Core module

'Seamanship Library 2012' now consists of a 'core module' that contains 10 IMO titles that apply to all ship types. Once purchased, additional modules, or books, as required, or appropriate, can be added. Over 600 eBooks and 26 'ship type' modules are currently available for addition to the library and these will be added to over the coming months and years, Witherby explained.

Today, the library is recognised by the UK Maritime and Coastguard Agency (MCA) as being an electronic equivalent for the on board carriage of IMO instruments, such as the SOLAS, MARPOL, LL, COLREG and STCW conventions and UK Regulations, meaning that these publications are required to be carried on board by the ship's Safety Management System (SMS).

One of Witherby Seamanship's best sellers.

An addition this year, Witherby has introduced the option - 'Seamanship Library Online'. This is a web based version of the system suitable for all networks, operating systems and devices.

'Seamanship Library 2012' is now also available through two of the industry's navigational data management systems, Chartco and Voyager.

Users of these systems can have instant access to the library and are able to purchase and unlock required modules/titles through the normal mechanisms.

'Seamanship Library' also allows users access to marine technical eBooks from their PC, laptop, or online via PC, Mac or Tablet device. The huge quantity of reference material is fully searchable, saving hours of manual browsing allowing the user to find what they want in seconds, the publisher claimed.

Users can be kept up to date with information on the latest publications with one easy synch! If users require a new edition – when they receive an updated version of 'Seamanship Library', they can immediately upgrade to the latest edition. TO

A potted history

Witherby Seamanship has been involved in producing, protecting and publishing eBooks for more than 10 years and it is thought that there are over 250,000 Witherby Seamanship eBooks in use today.

Books and eBooks are published for OCIMF, SIGTTO, Skuld, IACS and ITOPF plus others.

Witherby can trace its history back to 1740 in London, around the time that 'Lloyd's List', one of the world's oldest running journals, was first published at Edward Lloyd's Coffee House.

The company's early business included the preparation of contracts between merchants and shipowners, plus the insurance clauses associated with them. Some 272 years later, the company still supplies insurance clauses to the commercial marine market.

In 2005, Witherbys entered into a joint venture with Seamanship International, a Scottish based company that had found a niche in delivering high quality content. While Seamanship provided content through a range of differing delivery mechanisms and media, it had the expertise in electronic publishing.

Witherby Publishing Group is based in Livingston (Scotland) and run by partners Iain Macneil and Kat Heathcote. Macneil is an ex-seafarer who set up Seamanship International to design and develop training and reference materials for the shipping industry. Kat, who has a background in the energy business, including with BP and Wood McKenzie, joined the company in 2004.

The company has customers in over 180 different countries and has won a variety of awards. Witherby said that it is looking forward to celebrating its 275th birthday in 2015. ■

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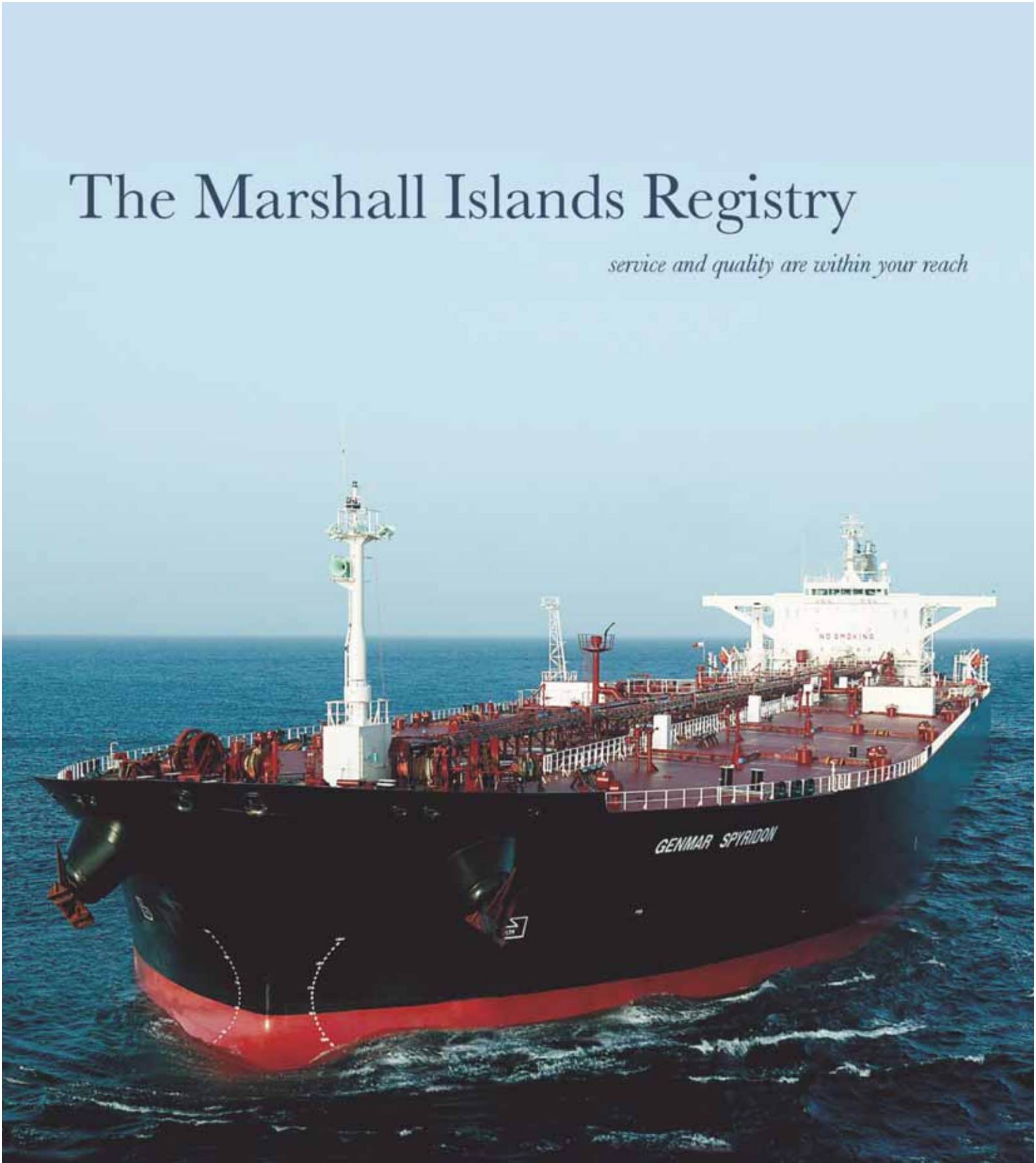

We look forward to seeing you at CMA 2012
Visit us at booth #15

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