



THE NAVAL ARCHITECT

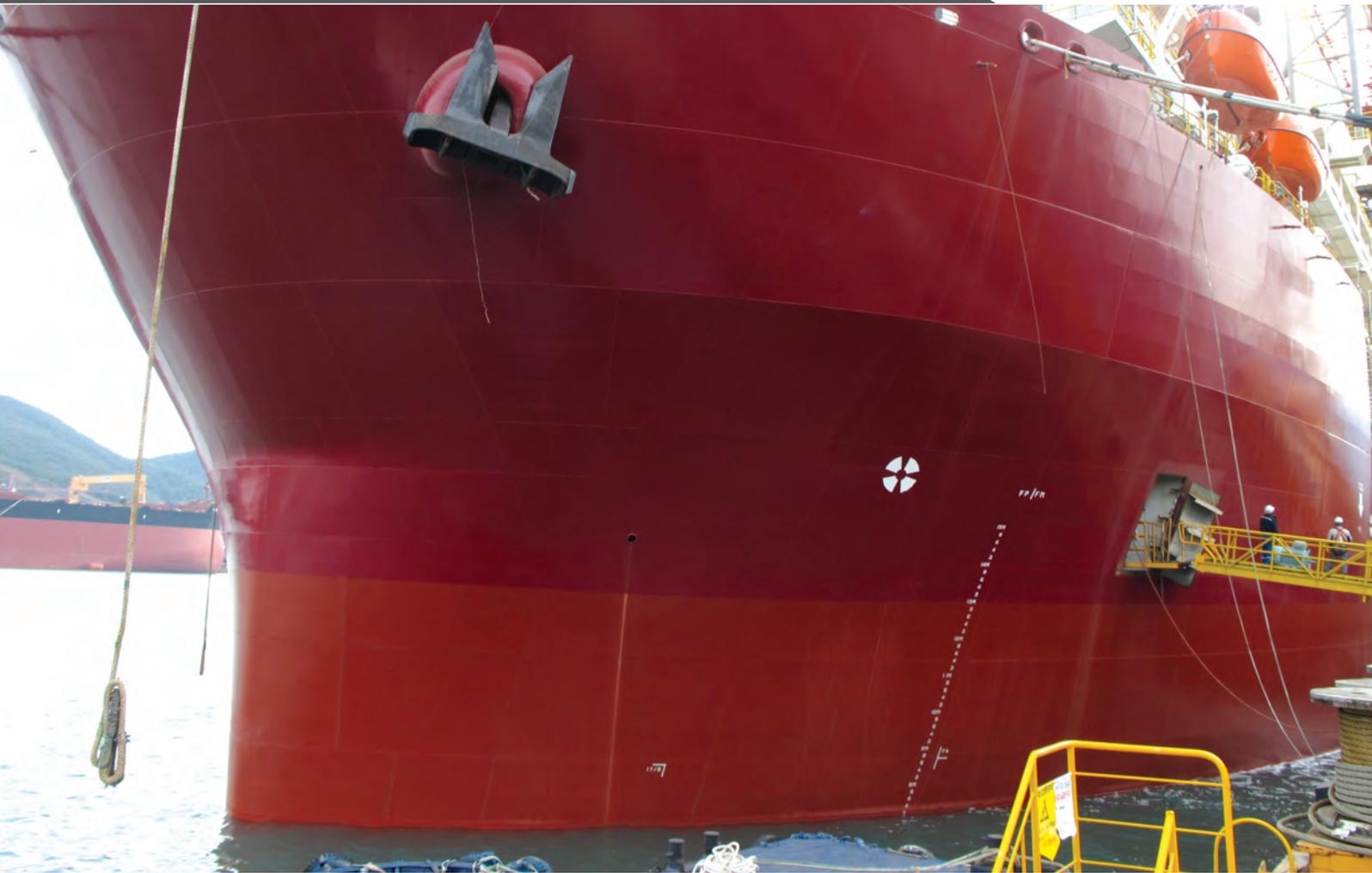
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Spain / Chemical & Product tankers /
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MARINE

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Spain crisis hits fever pitch.



Hughes cleans up with latest pump.



Fred Doll, consultant for the chemical tanker industry, sadly passed away on 25 October.

On-line Edition

The Royal Institution of Naval Architects is proud to announce that as of January this year, *Shiprepair and Conversion Technology* journal has gone digital. We are very pleased to inform the maritime industry that each issue will be published online, on the RINA website. Visit www.rina.org.uk/srct and click on the issue cover you wish to view. This means that the entire publication, including all editorials and advertisements in the printed edition, can be seen in digital format and viewed by members, subscribers, and (for a limited time) any other interested individuals worldwide.



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Collaborate to innovate

Acting too late has cost European shipyards dearly, as Asia strives towards a more united future.

Business in Europe is considered to be highly competitive and as such there are few opportunities to collaborate. In fact, in many ways, collaboration is seen by the authorities as the antithesis of the all important competition and European Union institutions go to great lengths to ensure that companies do not collaborate.

In Asia the authorities see collaboration as a positive, a necessity to maintain the collective competitiveness of a nation's industry.

In Europe we are allowing competition from Asia to decimate the shipbuilding industry. Workers from Astilleros de Sevilla were demanding that their government make amends for their plight as the shipyards were threatened with closure. They argued that it was the government that "privatised the yards and led them to financial ruin".

Year-on-year Spain's privatised yards had seen the collective orderbook for the country collapse by 88% for the year ending June 2011.

"A future government [Spain will hold a General Election on 20 November] must group the entire sector together under a single body that can coordinate and direct and thus avoid the loss of competitiveness that we suffer because we are dispersed," Federico Esteve, chairman of the Spanish Maritime Cluster said.

"It's vital to have a single organisation to co-ordinate the various sub-sectors and make them more competitive," he added.

Contrast Spain's approach with Tokyo's. In 2009 Japan's government called a meeting with the shipping industry's leading organisations, including private companies, shipyards, academic institutions and classification society ClassNK. After much

discussion the ministry decided to fund a US\$75 million research programme that would develop innovations in the industry that could set Japan's industry apart and, while it would still be more costly to build in Japan, it may be able to offer owners considerably cheaper operating costs, offsetting the higher cost of building.

In response ClassNK offered to fund one third of the programme while government will also fund a third, and the rest of the industry involved in the research projects, some 40 companies and organisations, have also agreed to fund a third of the costs of the research.

Designers and technicians have joined forces with industry and are close to a number of interesting technological breakthroughs. At National Maritime Research Institute (NMRI) designers are looking at air lubrication, twin skeg designs and electrically powered vessels with a twin skeg design and a Jet Assisted Motor Power system.

All these systems along with Nakashima Propellers Non-Hub Vortex propeller and Daihatsu's new engine designs will reduce emissions significantly by reducing fuel consumption. Further innovations are expected in the coming years with the ZEUS project, the Zero Emissions Ultimate Ship, expected to deliver 50% emission reductions in the first phase, which includes a new hull design, engine layout and power enhancing technology.

Second phase developments will see power supplied through environmentally friendly means, including solar energy and a hybrid engine with an electrical supply system. In the final phase ZEUS will be powered by fuel cell technology, reducing

the vessel's emissions to zero.

Technological innovation is not the only area where Japan has excelled of late. In the regulatory field too the country has sought to maintain its links with its European and US partners even in the face of demands that it felt were too stringent to place on the industry. In this case the Ministry of Land Infrastructure Transport and Tourism believed that NOx, SOx and CO₂ targets were unlikely to be achievable. However, their western counterparts insisted on regulations being set at a high level and that this would allow them some room to manoeuvre should the industry find the regulations unacceptable.

Ministry officials said that in Japan the authorities would only set levels for such restrictions that they knew the industry could achieve and would accept. However, Japan's ministry officials showed humility and courage in backing the Western authorities in a venture that they thought was ill-conceived. What is more the ministry agreed that in this case the European methods were the correct way to achieve the desired results.

In looking to maintain a consensus Japan has shown the way forward is through collaboration rather than competition. Unity brings benefits to the community that competition cannot ever bring. It is as true for shipping as for any other industry; working for profit is all well and good, but when the community suffers for an ideological dogma then the profits can no longer be realised. Ask the Spanish yard workers, privatisation has failed them and government no longer has room to manoeuvre. *NA*

Containment systems

SHI and GTT in SCA discussions

GTT president and CEO Philippe Berterottiere will meet with senior Samsung Heavy Industries (SHI) executives in early November to discuss issues raised by the French company over the design of a new LNG containment system announced by SHI in September.

SHI has responded in robust fashion to Gaztransport and Technigaz's (GTT) complaint concerning the Korean's new liquefied natural gas (LNG) containment system.

Mr Berterottiere wrote to SHI executive vice president and chief technical officer CH Park regarding his concerns with regards to SHI's Smart Containment-system Advanced (SCA) design and asking for disclosure of technical information. In response SHI's executive vice president of the legal department, Nyeong Kyoorhee, wrote to GTT apparently noting a failure by GTT to disclose technical information of its systems.

Mr Bertrottiere told *The Naval Architect*: "SHI has answered our letter [dated 30 September] in a fairly tough manner, as expected. Obviously, we are going to continue to defend our case and, as I told you, eventually we will go to court."

The French company had claimed that Samsung had breached its intellectual property rights by designing a containment system which uses GTT's technological know-how. SHI denied this. Samsung currently builds GTT MK III containment systems under licence for its LNG carrier customers (see *The Naval Architect* October 2011 pp 32 – 36).

There had been no response from SHI by the time we went to press.

Newbuildings

New Princess keel laid

The keel for Princess Cruises' latest newbuilding was laid at a ceremony at the Fincantieri Shipyard in Italy, the yard announced last month.

The 141,000tonne vessel, which will have a capacity of 3600 passengers, is due to be floated in the Spring of 2013.

Alan Buckelew, president and CEO of Princess Cruises, said that the new cruise ship will include "some exciting new elements and expanded spaces, while featuring the classic profile and features passengers have come to associate with Princess."

He added: "It's always very exciting to mark this step in a ship's construction, when several of the pre-built



The keel of *Royal Princess* being lowered into place.

sections come together to form a new addition to our fleet, especially with a prototype design,"

Giuseppe Bono, CEO of Fincantieri, said: "The keel laying in the building dock marks a fundamental step in the construction of *Royal Princess*, an innovative prototype ship for one of the most prestigious brands of Carnival Corporation."

One of the most dramatic new design elements of *Royal Princess* is an over-water SeaWalk – a glass-bottomed enclosed walkway extending more than 6.5m (20ft) beyond the edge of the vessel. From this vantage point passengers will be able to view the sea below. On the ship's opposite side, an over-water SeaView bar will also extend over the waves.

On the vessel's top decks a new adults-only pool will be surrounded by seven plush private cabanas that appear to be floating on the water. Two additional pools will flank a tropical island that will offer pool seating by day, and by night this will become an outdoor dance club, complete with a water and light show. Movies Under The Stars will also be available mid-ships with high-definition viewing.

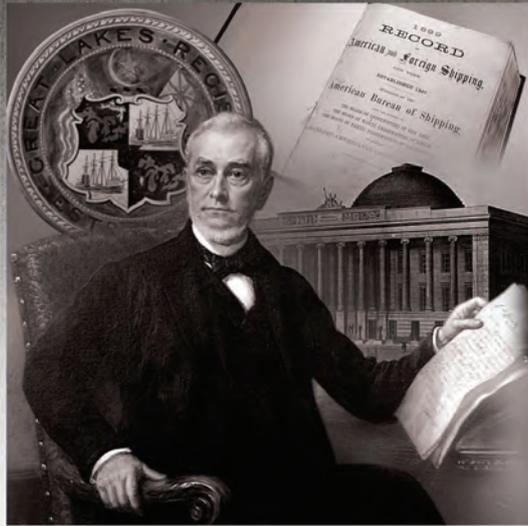
Regulations

Sulphur rules cost US\$5.75bn

Regulations aimed at reducing sulphur emissions could cost shipping operating within 200 miles of the UK coast £3.6 billion (US\$5.75 billion) a year, according to a Maritime UK submission to the Transport Select Committee at the UK parliament in late October.

The Maritime UK submission warned that the 2015 sulphur Emission Control Area (ECA) regulations may increase bunker fuel costs by 87%, forcing freight onto roads and passengers into the air.

In its submission Maritime UK said that the potential side effects of plans proposed by the International Maritime Organization (IMO) and the European Union (EU) to reduce sulphur emissions



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would “create considerable financial, logistical, societal and even environmental impacts”.

The organisation said that “an average activity shift of 50% from sea to land in Emission Control Areas” would undermine efforts to promote short sea shipping and increase road congestion and emissions.

In addition it said that an additional 12 million tonnes of carbon emissions would be created in Europe alone through the treatment of heavy fuel oil to meet low sulphur requirements.

Furthermore, there would be an increase in people using less environmentally friendly air travel as longer ferry routes closed and cruise prices increased. And this, said Maritime UK, would inevitably lead to considerable job losses in UK ports and associated infrastructures; especially if ‘fly cruises’ become the norm to avoid setting sail from ECAs.

Studies cited in the Maritime UK submission agree that the 2015 application of 0.1% low sulphur fuel would see an average activity shift of 50% from sea to land in ECAs, creating greater congestion on the roads and higher costs at the pumps as the shipping industry competes for their share of the fuel market.

Although the organisation did admit: “Maritime UK fully acknowledges the need to reduce emissions of SOx from shipping for environmental and health reasons.” However, it stressed the need to avoid such likely impacts of the new regulations “that will impose considerable hardship, particularly on smaller companies with limited cash flow”.

Insurance

High costs for poor supervision

International Transport Intermediaries Club (ITIC) says a recently concluded claim brought against a newbuilding supervisor helps illustrate the level of diligence which might realistically be expected of such a specialist service provider.

In the latest issue of its *Claims Review*, ITIC cites the case of a newbuilding supervisor appointed by a technical management firm to oversee the building of a number of chemical carriers. A dispute arose concerning two hulls which were scheduled for delivery in early 2009. In his monthly report for December 2008, the newbuilding supervisor stated: “There are no known matters at this stage with regard to the construction and commissioning of the hulls which may affect the scheduled target date”. On the basis of this report, the technical manager nominated the two vessels as performing vessels under a contract of affreightment.

Upon completion of sea trials, deficiencies were identified relating to the tank coating of the first vessel. An independent surveyor was appointed and reported

that the tanks were badly corroded. It appeared that some remedial action had been taken by the yard to cover up poorly adhering paint. In respect of the second vessel, deficiencies were found in the form of ‘mud cracking’ in the tank coating, and there was further evidence that the yard had covered up areas of poorly adhering paint. The delivery of both vessels was delayed by two months until later in 2009 as significant work had to be carried out re-blasting and re-coating all cargo tanks on both vessels.

The technical manager brought a claim against the newbuilding supervisor for losses of US\$830,000. The newbuilding supervisor argued that the defects only became apparent at the sea trials and that he was not responsible for the yard’s failure to properly apply the paint. ITIC says: “The main point at issue was what could realistically be detected by a newbuilding supervisor.”

A key concern was in relation to one of the hulls, as the mud cracking and unauthorised repairs were evident in 20-30% of the total tank area. It became apparent that the newbuilding supervisor had possibly failed in his duty to adequately supervise the newbuilding, especially in failing to detect the yard’s attempt to cover up poorly adhering paint. Negotiations to settle the claim led to final agreed compensation in the amount of US\$350,000.

Con-Ro

French order for versatile ships

Compagnie Maritime Nantaise (CMN) of France has signed a contract with Hyundai Mipo yard in South Korea to build two con-ro vessels with an option for a third ship of the same design.

Danish designer Knud E. Hansen has worked with CMN going over a number of design options for the vessels which will operate in regions where port space and facilities will be limited.

Knud E. Hansen said the ships have been designed with an optimised layout that will allow a steady cargo flow to and from all decks even when using the quarter ramp and main deck loading will be effected through the stern and quarter ramp. The layout has also been designed to enable controlled shifting of cargo between the decks at sea.

The company added: “The internal ramps to the upper deck have been highly optimised in order to limit an irregular or unusable space. This has been essential in order to achieve the specified cargo uptake within the maximum main dimensions. A unique feature is the flush deck hatches on the weather deck which enable loading and unloading of containers directly onto the main deck, independent of the ramps.”

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Communications

Crews get a better view

C A Clase, UK's distributor of marine electronics, has announced the launch of its KVH TracVision HD11 satellite TV system. The HD11 allows vessels to travel the world and switch seamlessly between satellite TV services without the need for hardware and software updates when entering new regions.

Featuring latest antenna technology and a number of sophisticated new features, the HD11 is the first marine satellite TV system to offer a digitally programmable multi-beam Universal World LNB that is compatible with all direct-to-home satellite TV services and HDTV programming, along with a library of 100 available satellites.

The 1m satellite TV antenna provides unlimited HD and DVR support and utilises KVH's exclusive TriAD multi-band antenna design for simultaneous tracking of Ka- and Ku-band satellites. It also features an Internet Protocol-enabled Antenna Control Unit (IPACU) for simple, seamless operation, and uses a four-axis (three-axis plus skew) stabilised smart antenna system with robotic direct drive that is stronger and tracks better than competing products, even in far northern latitudes.

Additional advanced features of the HD11 include RF7 satellite identification, fully integrated DVB-S2 compatibility and dual tuners, which make the HD11 the smartest satellite TV system at sea, capable of updating itself when service providers make changes to their satellite parameters.

www.caclase.co.uk

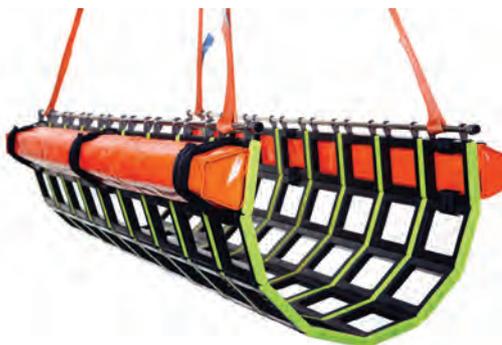
Ancillary equipment

Ocean Safety to supply UK MOD

Ocean Safety has secured an order for the service and supply of Jason's Cradle Rescue Stretchers to the UK Ministry of Defence (MOD). In a significant contract, a Jason's Cradle will be held on every ship in the UK's naval fleet.

The Jason's Cradle, which is designed as a series of articulating rungs with an orange flotation tube at each side, is suitable for high sided vessels, diver recovery and quayside rescue and is offered in two sizes.

Jason's Cradle is designed to retrieve people quickly and horizontally from the water, reducing the possibilities of "dry drowning" now more commonly known as Circum Rescue Collapse. The horizontal lift for a Man Overboard (MOB) has now become critical in the modern marine world and by using the Jason's



Ocean Safety gets order to supply Jason's Cradle to MOD.

Cradle, not only is this achievable, but it is one of the safest and quickest methods of retrieval for conscious and / or unconscious casualties.

The basket-like format enables easy access and provides room for two people, allowing rescue swimmers to be recovered with the casualty.

www.oceansafety.com

System monitoring

CJR launches TrialDAS

Gathering accurate and detailed trial information is key to establishing the performance of the vessel and the propulsion system. In order to obtain required performance data during sea trials, a portable data acquisition system is required, one which allows data to be collected even in rough sea conditions, when reading onboard instruments proved to be a difficult task.

CJR has adapted the same technology used to gather flight data from unmanned air vehicles (UAVs). The control of UAVs requires real-time accurate information about the aircraft attitude and GPS position and is, in many ways, similar to the information required during sea trials.

The new TrialDAS features a comprehensive onboard sensor suite (3-axis accelerometers, 3-axis gyroscopes, 3-axis magnetometers) and uses complex algorithms to combine the collated information to provide accurate trim, roll and heading information. It has a GPS receiver with an active antenna to provide ship position, ground speed and heading, and data is collected 10 times per second. The acquisition system also allows onboard vibration levels to be measured at a frequency of 1kHz, with data acquired 50 times a second. The system is expandable, and adaptable, with plans for a shaft RPM sensor, rudder angle and shaft torque sensors well underway.

The TrialDAS includes a real time monitoring programme, and automated reporting so that reports can be generated at the touch of a button and before

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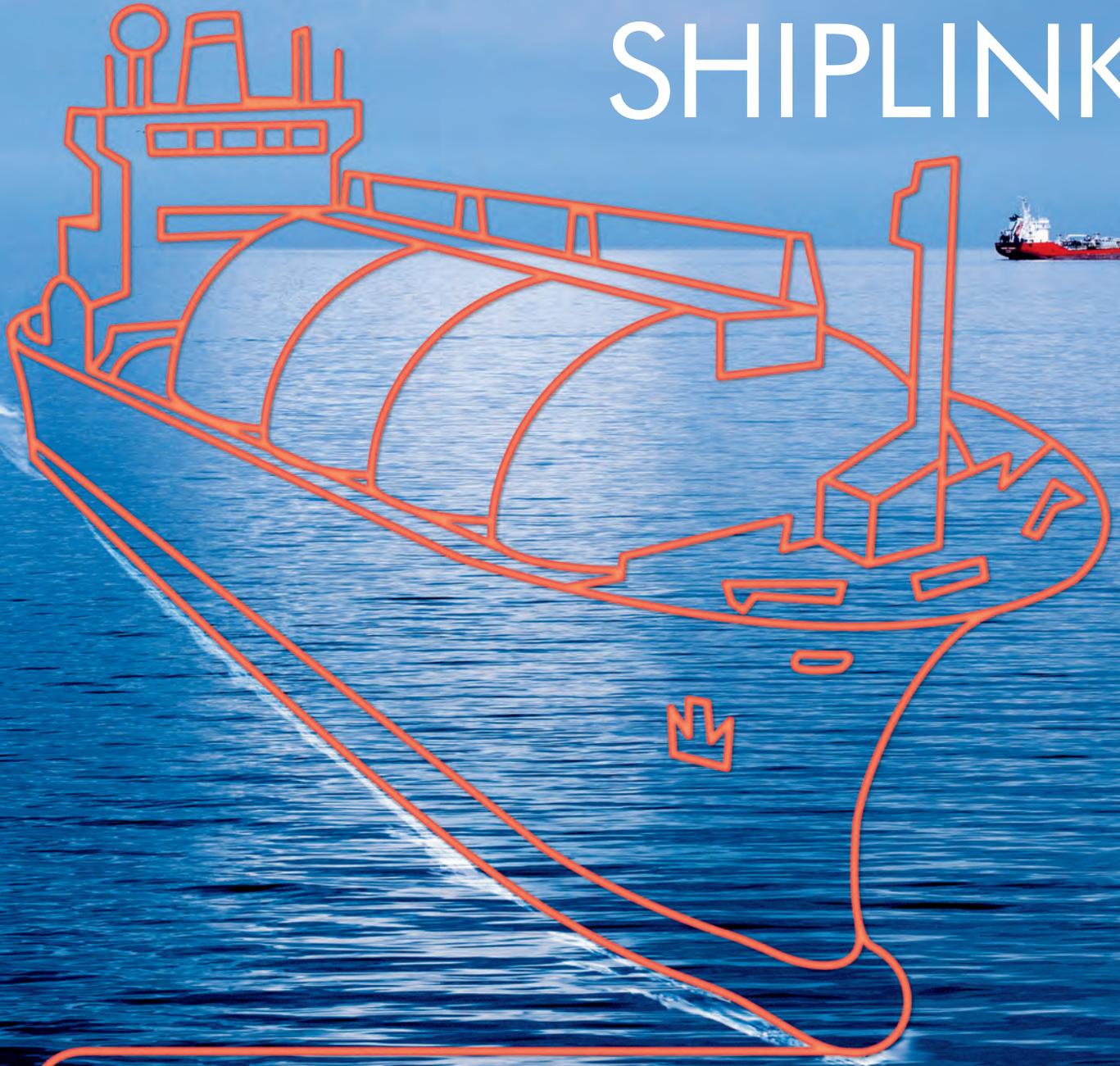


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the yacht is even moored up back in the harbour. Trials relating to specific RPM ranges or particular conditions are also possible with the TrialDAS' easy to use start-stop functionality, meaning multiple reports can be generated from a single trial.

www.cjrprop.com

Lifesaving

Noreq wins contract from SHI

Noreq was recently awarded the contract for Lifeboats, davits, Fast Rescue Boat and Rescue boat davits for the six drill ships Maersk Drilling are building with Samsung Heavy Industries in South Korea.

The contract is valid for all drill ships and consists of six piece 80-person lifeboats together with davits and one fast rescue boat with davit for each ship. Thus a total of 36 lifeboats and davits are ordered all together. This makes this contract the largest in Noreq history.

This record contract from Samsung is one of many major contracts awarded to Noreq lately. "2012 and 2013 are looking to be very promising for our



Noreq will supply six Maersk drill ships with its lifesaving equipment.

company, and we are proud to be approved by the biggest players in our industry. We are confident that more orders are coming our way as even more yards and owners discover the benefits of our davit system," says Mr Styrk Bekkenes, managing director, Noreq AS.

www.noreq.no

Bridge systems

Vesper and Astrata team up

Vesper Marine Ltd and Astrata Group Inc have announced the signing of a new partnering agreement to deliver ground-breaking land and sea based fleet

tracking solutions for customers who require precise tracking for their vessels, vehicles or people on land or at sea. Astrata's land based tracking products, combined with Vesper Marine's marine-grade position and collision avoidance products, makes this a compelling technology partnership.

Astrata has designed, developed, manufactured and currently supports its 10th generation of telematics devices with thousands of units deployed worldwide.

The principal components of vessel tracking systems are mobile in-vessel devices, a VHF communications network and specialised back-end tracking software. Vesper Marine's WatchMate and AIS translation software are used as a specialised marine grade mobile device that sends and receives information from the ship. A new or existing VHF network is used to provide coverage in a specific location, this can be installed and maintained by Astrata. Lastly the Astrata Marine GLP application is used for all track and trace, text communication and management reporting for the fleet.

The agreement between Astrata and Vesper Marine allows both companies to jointly promote vessel tracking solutions in Asia, UK, the Middle East, Africa and the United States. Considerable interest is now being shown by infrastructure and maintenance companies needing to track and direct vessels working in remote locations.

www.vespermarine.com

Ancillary equipment

Evac Onboard EAS' new tankers

Evac's complete wastewater system has been installed onboard *João Cândido*, the first Suezmax tanker recently delivered by Atlântico Sul Shipyard (EAS) for Transpetro. Evac was selected for the first series of 10 160,000dwt Suezmax tankers and for the series of five 110,000dwt Aframax tankers, also being built by Atlântico Sul Shipyard, the largest and most modern shipyard in Brazil.

The delivery of *João Cândido* is a historical milestone for the shipbuilding industry in Brazil. All wastewater on the new tanker is handled and cleaned by Evac's latest water treatment technology.

Evac provides a complete wastewater management solution, capable of handling all black (sewage) and grey waters (from galleys, sinks, showers) onboard, meeting the strict environmental requirements of the International Maritime Organization (IMO). The system operates fully automatically with little need for maintenance.

www.evac.com

THE SUPERYACHT PAVILION AT METS 2011

Getting down to business

What is the SYP?

The SuperYacht Pavilion (SYP) with its service-oriented Refit Boulevard form a show-within-a-show at METS. Dedicated to companies that offer equipment and services specifically to the large leisure yacht sector, the SYP is a destination in its own right but also sits at the heart of METS, the world's biggest and best attended leisure marine trade show.

Why you should attend?

The SYP is a meeting point for true industry professionals – superyacht captains, designers, builders, project managers, brokers and owners. The SYP is of interest to nearly half of the 18,500 professionals who visit METS each year and is also a must-visit for all the speakers and delegates who take part in the associated Global Superyacht Forum (GSF) organised by the Superyacht Report and also the Member's Mixer event organised by the ISS (the International Superyacht Society). The result is a varied and appropriate display of products, a vibrant conference programme and networking galore.

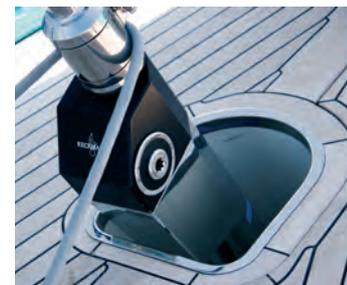


What is the GSF?

The Global Superyacht Forum (GSF) is one of the world's leading summits for superyacht professionals. As a conference, it delivers in every way – with top profile presenters and excellent interaction between speakers and delegates. Organised and presented by The Superyacht Report in association with METS organisers, Amsterdam RAI, the GSF attracts around 450 delegates and includes social highlights like the Global Superyacht Party.

Top prize & acknowledgement – DAME

The Design Award METS (DAME Award) has become a famous trophy in the leisure marine industry and is the undisputed design accolade of the year. The DAME is awarded to the most innovative new product design at METS – as assessed by an independent jury. The winning product is displayed at the show, along with all other submitted products, so that you can be amongst the first to see it.



Why METS and the SYP?

The SYP/METS combination is unique. At no other trade-only event can you visit a thriving superyacht equipment exhibition and also have access to over 1,100 other marine trade exhibitors at METS, some of whom also cater to the superyacht sector.

- 18,861 visitors from 94 countries in 2010
- Over 1,320 exhibitors (of which 151 SuperYacht Pavilion) from 41 countries in 2010
- 15 national pavilions
- 3 specialist pavilions including the SYP
- Strictly professional – strictly trade-only

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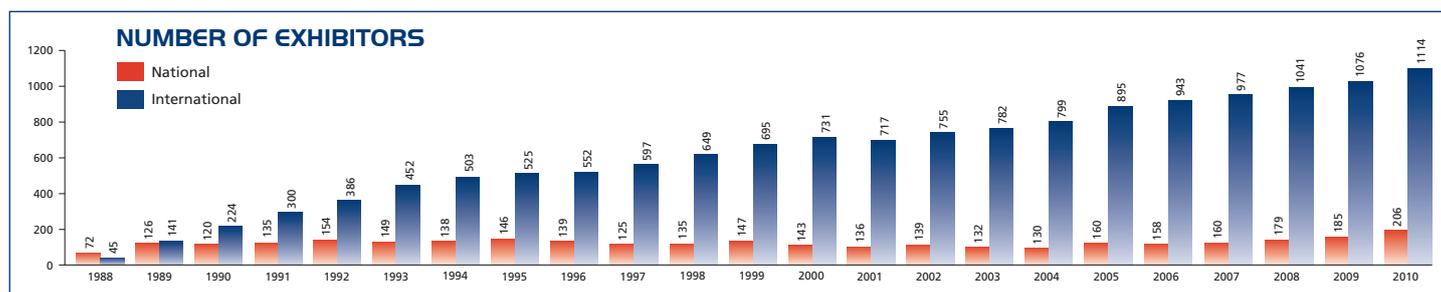
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Inland vessel market gets busy

There has been a recent flurry of inland waterway activity due to regulations coming into effect and old fleets needing to be replaced, pushing the development of the market forward.

Development in vessel design and energy efficiency has not been limited to just the ocean-going market; inland waterway vessels are now seeing the push to bring them in line with the latest regulations that their bigger counterparts have already faced.

Demand for more transport on them is becoming clear with further investment to develop waterways, both in Europe and across other parts of the world. The European Union (EU) funded Marco Polo II programme is taking a closer look at intermodal transport, shifting the congestion from the roads and creating a more sustainable transport system.

The latest development directly affecting European inland vessels has been the phase out of single-hulled tanker barges in The Netherlands and Belgium, meaning that ship owners will either need to convert existing vessels in their fleet or order new vessels, bringing further pressure on an already financially restricted market. However, Germanischer Lloyd (GL) has stated that it will help its customers in this area by looking at the latest technology on the market with development of propulsion and hull forms.

Tom Dorsman, business development manager, Germanischer Lloyd, said: "Most are private owners that will be affected by the latest change. The owners need to survive and will not be able to afford the service intervals. If it carries on, they will not be able to save for future investment of newbuildings."

First there was steam and then diesel, but now the latest fuel in line is gas, or more specifically LNG. Both engine manufacturers and ship designers are looking at different designs for engines and vessels. Mr Dorsman highlights that the future of this propulsion needs to have two class societies involved in the development, to be able to gain a wider knowledge base for the inland market.

FutureShip, a project being run by GL, along with a commercial company,



Tom Dorsman, business development manager, Germanischer Lloyd.

is currently looking into the design of an optimised inland water vessel with the option of a bulbous bow to increase efficiency. The project does not have a time limit and is concentrating on the development of a more efficient inland waterway vessel.

Mr Dorsman comments about engine efficiency today: "In the past engines were 2000hp for 110m vessel, but the vessel only would use 33-34% of that power overall, so you would only need 320hp. The option is then to install less power which is also cheaper to buy."

Choosing the correct fuel

Whilst LNG is popular in today's market there are also other fuels that may be an option to the future market, such as fuel cell technology. An example of this technology in use, *Zemships' Alsterwasser*, which was launched in 2009 and could carry 100 passengers with no emissions, was a big step for the industry. Unfortunately due to a fire onboard the vessel last year the vessel is still not back in service, whilst repairs are being carried out.

Mr Dorsman said: "The fuel cell will take 50 years to develop to make it right. Effectively,

you get a device that converts water to electricity and that type of technology takes years to develop"

The EU is pushing for green fuel cells, but the technology may not be fully developed in time for when it is needed. LNG is proving to be popular as it has a 96-97% efficiency and is much cheaper. Mr Dorsman remarked that "All technology is equal, it's the demand of the market that decides."

Looking forward

LNG may be the fuel of choice in tomorrow's market, but the issue of supplying LNG and setting up an infrastructure is still an issue that needs to be faced. Mr Dorsman has commented that companies in Germany are currently looking into the development of a LNG bunker terminal, which would then allow vessels to refuel, but would also bring in more trade. Mr Dorsman highlights that this type of infrastructure will take time to develop and will also depends on how the market will unfold to the demand of LNG.

Inland waterways are looking to become a popular means of transporting freight around Europe in the near future, as roads and trains are full. Also, with Germany looking to shut down its nuclear power stations, in favour of building new coal fired power stations, this may again bring more work to the waterways. However, like with all initiatives, they need funding, which Mr Dorsman believes will need to come from private companies.

"The biggest market today is Rotterdam, also Poland, Serbia, Croatia and Russia, with shipping routes also moving to the Baltic during winter. They are also developing the Rhine Canal, making it bigger to be able to take more traffic", added Mr Dorsman.

Further, Russia has also implemented its Development of Transport system of Russia (2010-2015) that will see the development of its waterways and also its fleets of vessels, to meet with today's demands in cargo transportation.

Volga Shipping launched *Kapitan Ruzmankin*, the first river-going dry bulk vessel in a series of 10, earlier this year.

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Kapitan Ruzmankin, the first of many vessels being constructed to bring Russia's waterways up to date.

The vessel was built for the transportation of bulk, general cargo and containers. The new bulkers are constructed by the Marine Engineering Bureau and will gradually replace the Volga-Don ships. The new ships are characterised by increased productive efficiency, environmental safety and comfort. The new ship's dimensions are 140m in length and 16.5m in width, which allows them to operate in the Volga-Don Channel, including the old branch of the Kochetkov canal lock. **NA**



Viking raises the standard

In 2012 Viking is set to launch six sister vessels that will feature the latest innovations of technology and luxury river cruising. Viking has already set high standards for itself this year with the launch of its river cruise vessel *Prestige* that features LNG propulsion. The latest vessels have been ordered by Viking to cater for the demands of its 2012/13 calendar, a spokesperson for Viking said. Originally the order was for four vessels but a further two vessels have been added.

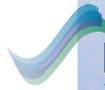
“Two additional longship builds represent our continued commitment to delivering quality on the river and, once again, show how we are setting the bar for river cruising globally”, commented Wendy Atkin-Smith, managing director, Viking River Cruises UK Limited. “River cruising is ever growing in popularity with 134,000 people from the UK taking a river cruise in 2010. The newbuilds are bringing our ships into the modern era and ensuring that our customers are guaranteed the best river cruise ships on the market.”

The vessels' interiors have been designed by naval architects Yran and Storbraaten and will be named after the Nordic gods *Viking Freya*, *Viking Odin*, *Viking Njord*, *Viking Idun*, *Embla* and *Aeigir*. The launching of the vessels is scheduled to start from March 2012 with the five other vessels all being delivered in the same year. The new longships will have the capacity for 190 passengers and will be 135m in length.

The vessels will also be environmentally friendly, being powered by a hybrid engine and solar panels installed onboard.



Viking launches longships in 2012 to meet with passenger demand.



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Crisis collaboration unites Japanese maritime industry

The financial crisis and intense competition for Japan's maritime industry could mark the "beginning of the end" for shipbuilding in Japan. So industry has collaborated with government to steer a course through its difficulties.

A short ferry ride from Nagasaki can take you into the heart of the world's shipbuilding community, unfortunately for the Japanese this is on Korea's south coast. Go further north or west and the Japanese are confronted by the economic monolith that is China; together the three Asian countries currently control 90% of the world's shipbuilding.

China is a very strong competitor in the shipbuilding industry, not only because it has managed to develop the knowledge and knowhow from European yards, but also because its labour costs, in a still labour intensive industry, remain far lower than its major competitors. Korea has responded by entering the offshore market and developing sophisticated maritime technologies to set itself apart from the Chinese competition.

With this type of competition from its neighbours Japan is looking to develop its shipbuilding industry for the new realities that it must face. However, the Japanese Government does not offer financial help to its shipbuilding industry, said Hidenori Imade, director of shipbuilding and ship machinery division, maritime bureau at the Ministry of Land Infrastructure Transport and Tourism (MLITT). Though the ministry is looking at a number of projects that will help Japan's maritime industry develop and there has been a three-year collaboration with research institutes and industry on 27 projects that will bring sophisticated new technologies that will, it is hoped, secure Japan's position as leading shipbuilders for some time to come.

The ministry said that the global economic crisis, which started with the collapse of Lehmann Brothers, has not affected Japanese shipbuilding, yet. Japan's yards are still completing orders that were made in 2006 and 2007 so yard accounts still "look good; and next year



A worker at IHI's Kure yard measuring the curvature on a steel plate using a wooden frame.

yard accounts may still look good," said Mr Imade.

"We project that Japanese yards' economic situation will be affected by 2013-2014, so the ministry is working on projects [to meet a] crisis in 2013-2014," explained Mr Imade.

Japan's yards, perhaps unsurprisingly, are looking to enter the booming offshore market, but the nation's shipbuilders, designers, research institutes, machinery manufacturers and politicians are also collaborating on producing energy efficient ships. Many of the new designs or energy saving devices now being developed in

Japan will be built abroad, however, as Japan's yards attempt to increase their competitiveness by re-locating to Asian neighbours.

In fact Mr Imade admitted he had travelled to Vietnam for discussions with the authorities there on this very subject. And as if evidence was necessary to show that both government and industry were singing from the same hymn sheet, Naoki Ueda, Director of Mitsubishi Heavy Industries (MHI), confirmed that the company will take a decision on following up on plans to re-locate its manufacturing base this year.



Mitsubishi Heavy Industries will decide this year on whether to re-locate its shipbuilding operations said director Naoki Ueda.

DK 26 and DK 28 marine engines under licence. "That licence will be automatically extended if the agreement performs well," said Daihatsu.

Preparations for MHI's five-year, medium term plan, are already in place with the closure of MHI's Kobe yard

expected next June, said Mr Ueda, "maybe this is the beginning of the end for Japanese yards in Japan, if the strong yen persists," he added.

In fact the closure of the Kobe yard was to be softened by the increase of work in other large engineering sectors and MHI had planned to divert its shipyard staff to work on nuclear power projects. However, the tsunami in March and the subsequent partial meltdown of the reactors at Fukushima has seen the Tokyo Government respond with a declaration to

"There are no new ship orders beyond 2013," confirmed Mr Ueda and he added that MHI has begun investigations into the possibility of "expansion into other Asian nations, Indonesia, India and Vietnam," are all possibilities, he said.

Investing in China is unlikely, explained Mr Ueda, because the Chinese Government will not allow companies to repatriate its income, they are forced to keep earnings in China as a result.

MHI has started to recruit foreign workers, but this is only a small proportion of the total, around 100 staff. More likely is the relocation of the yard, and currently Vietnam looks to be the front runner in this respect.

"We need engineering support for our business and we are building links in Vietnam, India and Indonesia," confirmed Mr Ueda, "We can't go it alone; we need some suppliers, we may need support from our main suppliers, like Mitsubishi Engines," he added.

Internal discussions with the engine builder are taking place and MHI's engine division, perhaps crucially, has already started building engines in Vietnam, the factory already exists, explained Mr Ueda. "The mentality of the Vietnamese is soft and gentle, it is not far removed from the Japanese mentality," he added.

Another alternative could come from Japanese engine manufacturer Daihatsu which has signed a five-year deal with Kirloskar Oil Engines Ltd of India. The Indian company will build Daihatsu DK 20,

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Class mates design maritime future

Japan's maritime industry and research institutes were brought together by the Ministry of Land Infrastructure Transport and Tourism (MLIT) to instigate 22 projects that would put Japan ahead of its competitors for many years to come.

ClassNK was so impressed by the idea and felt the urgency for these new developments that it agreed, not only to take part in 19 of the projects, but also to provide one third of the total funding for the 22 projects, injecting around US\$25 million of a total US\$75 million innovation programme that became effectively a national maritime research programme which began 2009 and is expected to be concluded by 2013.

By this time the research projects will have developed technologies and ships designs that will reduce the CO₂ emissions from ships by 30% when compared to existing vessels.

Yasushi Naakamura, vice president of ClassNK, told *The Naval Architect*. "While the world's economists believe that there are many challenges ahead for the maritime industry, by providing needed research funding and support, we hope that we can, not only help the industry overcome this crisis, but also develop new technologies that will support future growth."

Mr Naakamura added that ClassNK had established an Environment Project Team who is working with shipyards, manufacturers and other industry sectors to make certain that the technology needed to meet new environmental regulations.

ClassNK admitted that with the expected growth in shipping, reducing CO₂ emissions by 50% by 2050 "may not be realistically possible". However, the company also believes that if the development of new energy efficient technologies, such as fuel cells, continues and "if we can combine the use of different green innovations, then I think that it may be possible to develop a ship that emits 50% less CO₂ than existing vessels," said Mr Naakamura.

Category	Number of
1 Development of Optimum Hull Form	4
2 Reduction of Hull Friction	3
3 Improvement of Propulsive Efficiency	3
4 Improvement of Engine Efficiency & Waste Heat Recovery	4
5 Improvement of Operational Efficiency	5
6 Hybrid Electric Power / Natural Energy	3
Total	22

Table 1: Project types and the number of research projects being undertaken by Japan's maritime industry.

Table 2: Organisations involved in Japan's national maritime projects.

<p>Shipbuilders</p> <ul style="list-style-type: none"> •Namura Shipbuilding Co. Ltd. •Oshima Shipbuilding Co. Ltd. •IHI Marine United Inc. •Imabari Shipbuilding Co. Ltd. •Mitsui Engineering and Shipbuilding Co. Ltd. (MES) •Nakai Zosen Co. Ltd. •Kawasaki Shipbuilding Corporation •Sumitomo Heavy Industries Marine & Engineering Co. Ltd. •Mitsubishi Heavy Industries, Ltd. •Universal Shipbuilding Co. Ltd. •Shin Kurushima Dockyard Co. Ltd. •Tsuneishi Holdings Corporation 	<p>Shipping Companies</p> <ul style="list-style-type: none"> •NYK Line •NYK-Hinode Line, Ltd. •MOL •K-Line •Shikoku Ferry Group •Geneq Corporation •Tatsumi Shokai Co. Ltd.
<p>Research/Consultants/NPO/Others</p> <ul style="list-style-type: none"> •Japan Marine Science Inc. •Monohakobi Technology Institute (MTI) •Kawaju Techno Service Corporation •Nippon Foundation •Shipbuilding Research Centre of Japan •ClassNK •MLIT 	<p>Manufacturers/Suppliers</p> <ul style="list-style-type: none"> •IHI Corporation •Nippon Paint •Nippon Paint Marine Coatings Co. Ltd. •Diesel United, Ltd. •Nakashima Propeller Co. Ltd. •Terasaki Electric Co. Ltd. •Yanmar Co. Ltd. •Niigata Power Systems Co. Ltd. •Kawasaki Heavy Industries, Ltd. •NYK Trading Corporation •Sanyo Electric Co. Ltd. <p>(and others)</p>

end the country's dependence on nuclear energy, putting into doubt MHI plans, said Mr Ueda.

He also pointed out that while their shipbuilding business had declined they cannot keep the workers employed, a not very Japanese sentiment. But, Mr Ueda did also point out that 30% of MHI staff will retire within the next five years and with an aging workforce decreasing their numbers may not be as painful as it could have been.

As far as the shipbuilding business is concerned, however, Mr Ueda is clear: "Our strategy must be to aim for high value orders," he said.

Small and medium sized yards are also suffering from the strength of the yen. "Government has been in discussions with yards and they will support mergers," said Mr Ueda. However, Yasushi Naakamura, vice president of ClassNK, said that the yen needed to be in the ¥90-100/US dollar range for Japan's yards to have any chance of competing with foreign yards, but the yen had now fallen through the ¥80 mark and was trading at ¥76.9 to the dollar at the time of writing.

Mr Naakamura said that with the yen suffering as the economic crisis mounts the only way for small and medium sized yards to compete would be to improve their designs. "This is not easy for smaller yards," conceded Mr Naakamura.

Mergers, he argued, would mean that the smaller yards would "be able to share the costs of new designs." However, he added. "Most smaller yards are owned by families and that presents many difficulties because they all want to be kings and none of them want to be servants."

He said the strategy of the yards must be to improve technology. "If they can reduce fuel consumption by 20% then they can have a 20% higher price [than their competitors], but the target should be to reduce greenhouse gases by 30%, because that is good for Japan," said Mr Naakamura.

Mr Imade confirmed that the ministry had discussed the possibility of mergers between Japanese yards. "Universal Shipbuilding and IHI are in negotiations to merge their operations," said Mr Imade.

IHI is one of Japan's more traditional shipbuilders, and one of the larger yards too, but it has a space problem at its yard and Universal, a moderately sized

yard which is struggling in the current economic climate, could be a solution for that problem. "Integration" of the two yard's activities could prove beneficial for both shipbuilders, confirmed the ministry.

Currently the Kure yard has orders that will last until 2013 with eight handymax bulkers, two aframaxs and five 8300TEU K Line boxships, in fact all these orders are for domestic owners. Hironobu Ootani, general manager, production and planning group at IHI's Kure Shipyard, said the company was negotiating orders for five more 13,000TEU boxships, with five options, for a Japanese operator.

He compares IHI's use of manual labour, at Kure, as like the "creation of high quality sports car, built by a high concentration of highly skilled workers," adding that it is "an old yard [120 years old to be precise] with old methods, but we must compete against cheaper yards through new designs and quality."

Kure will start a new contract for up to five 94,000dwt bulk carriers next year with some interesting features. The vessels will be powered by slow speed diesel engines with contra-rotating propellers and will have a modern and efficient hull shape that IHI says will reduce fuel consumption by 20%.

An interesting aspect of the deal for these ships is that IHI is offering the owners a "lifecycle maintenance contract" where the yard will maintain the vessels on an annual basis, free of charge, following their delivery.

IHI is establishing a network of offices around the globe, there are branches in The Netherlands, Singapore, New York, Shanghai and Istanbul with more offices currently under consideration. The yard is also considering selling its designs on the open market.

"We must differentiate ourselves from other yards if we are to compete with cheaper builders in China and Korea," said Mr Ootani.

While Japan's yards compete with those from China and Korea they are also looking to collaborate with their neighbours in an effort to secure a louder voice in the regulatory sphere.

As a result the Japan Ship Technology Research Association (JSTRA) joined with China Association of the National



Nobuyoshi Aikawa says JSTRA favours a direct tax on carbon emissions.

Shipbuilding Industry, the Korean Shipbuilders' Association and the Shipbuilders' Association of Japan and a host of other organisations from Thailand, Indonesia and India among other countries for the first Asian Shipbuilders Experts Forum (ASEF) in November 2007.

The next meeting of ASEF is due to take place in South Korea this autumn and much of the debate will focus on the International Maritime Organization's (IMO) Energy Efficiency Design Index (EEDI), said Nobuyoshi Aikawa, JSTRA president. "China is gradually coming to the realisation that CO₂ reductions are necessary," he said.

Mr Aikawa said that JSTRA favours a direct tax as a market measure for reducing carbon emissions from shipping, and funds from this tax could be used to research advances in technology that would further reduce emissions.

"We are not certain if refunds should go to shipowners or the states, but some money must eventually return to owners for there to be an incentive for owners to reduce emissions and that will mean that yards will also take steps to reduce CO₂ emissions from the vessels they build," explained Mr Aikawa.

However, Mr Aikawa did identify an initial question that has arisen from the increasing separation of ownership and operation of ships that has given rise to a

debate on how the initial cost of emission reductions should be shared?

Costs associated with the reduction of carbon and other polluting gases will be added to by the introduction of the proposed market measures that will add to the cost of shipping as a result. Japan in the form of the MLITT believes that a Carbon Tax is the fairest method of charging for pollution and will have the biggest impact on reducing CO₂.

"The ETS [Emissions Trading Scheme] is designed to transfer carbon emissions from one party to another, but not to reduce emissions. Carbon Taxes should be spent on reducing emissions even more or for subsidies to developing countries to buy more efficient ships, with a fund that is managed by the IMO or an associate body," explained Mr Imade.

NYK Line is also firmly in the Carbon Taxes camp, the company argued: "A direct levy is preferred – the ETS is too complicated – but if the bar is too severe we could see profits siphoned off by other individuals."

The ETS would be difficult to trade for each ship and "who would trade the emissions, the [ship] owner, the charterer or the cargo owner?" asked NYK.

In NYK's opinion a direct tax could be administered by the IMO and could fund research and development into new, cleaner, technologies and could help developing countries to modernise their fleet while the fund could also aid scrapping.

"There is a similar scheme to protect from oil pollution so a direct levy is simple to introduce, oil majors already pay into such a fund," argued the company.

The debate over new regulation, market mechanisms and drive to collaborate for the common good demonstrates the strengths of Japan's maritime industry. The country rightly received praise for the way its people rolled up their sleeves and handled, and are still handling, all the difficulties created by the tsunami. That same spirit is driving the maritime industry in the face of the massive challenges it faces. So while shipbuilding in Japan may be coming to an end, it is not the end of Japanese shipbuilding. **NA**

Back to the future

One of Japan's foremost research bodies, the National Maritime Research Institute (NMRI), has invoked the Greek gods in its bid to clean up shipping. The ZEUS project ultimately aims to produce a zero emission ship, but its first version is expected to cut emissions by 50%.

Achieving an elevated status in the eyes of your peers is difficult enough, but when you aspire to a godlike status then you really have to push the boundaries. And the NMRI is attempting to do just that through a series of developments it calls ZEUS, or the Zero Emission Ultimate Ship.

According to the NMRI the ZEUS project will take place in three stages, ZEUS 1-3, and each stage will have laudably high targets. ZEUS 1 will be categorised through the advances in hydrodynamic technology that will reduce emissions by 50%. ZEUS 2 will require vessels to operate on hybrid power plants, solar energy and an electrical supply system and will reduce emissions by 80% and ZEUS 3 will be powered by a fuel cell and the combined ZEUS projects will reduce the vessels' emissions to zero.

Launched in 2009 the project already has designs for ZEUS 1 being developed. NMRI senior director for research Noriyuki Sasaki told *The Naval Architect* that the ZEUS 1 design included a twin skeg wide beam design with reaction Pods and boundary layer control (BLC) for water flow which includes the development of a waterjet system known as JAMP, or Jet Assisted Motor Propulsion.

According to Mr Sasaki there are three ways to improve the Energy Efficiency Design Index (EEDI) rating of a vessel; by increasing capacity, by reducing CO₂ emissions through greater efficiency or by increasing speed without using additional power.

Increasing the capacity is a simple matter if you use a twin skeg design. He says that length and draft are difficult parameters to alter as they are restricted by port limitations. Beam, however, is normally restricted by manoeuvrability, but this is less of a consideration for the ZEUS design because of the "superior

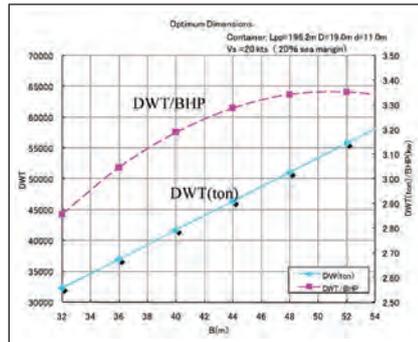


Figure 1: Optimum beam (B) simulated by "HOPE".

course keeping ability" of the twin skeg hull form from the start.

Effects of beam developments were calculated using the Hull optimisation Programme for Economy (HOPE) developed by NMRI (See Figure 1). "HOPE has many functions, not only the powering of the twin skeg hull form, but also the prediction of fuel consumption at sea (in wave and wind) and EEDI based on the predicted dwt. By using the HOPE programme the optimum point where the minimum EEDI exists can be found," explained NMRI.

"By designing the skegs so that the water flow is directed into the propeller we can recover any lost energy," explained Mr Sasaki. He continued to say: "We can move the propeller anywhere on the hull because it is electric and has no shaft. This means that swirling caused by hull movement in the water can be used with the propeller moving in the opposite direction of the swirl, so acting like a contra-rotating propeller, increasing efficiency by 20% compared to conventional vessels."

A significant increase of propulsive efficiency is also gained, from 70% to 90%, which reduces fuel consumption by 20%, claimed Mr Sasaki.

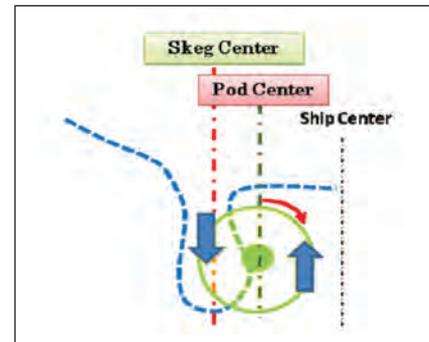


Figure 2: Counter-Rotating flow of twin skeg hull.



Figure 3: Reaction pods concept and ship model with pod traverser.

Currently NMRI has only done tests, on a container ship model in late 2010 and a bulk carrier version in May 2011, full scale tests are due to take place in 2012.

The vessel design also includes a second innovation from NMRI in the Reaction Pods. The twin skeg hull form has "remarkable characteristics" with what Mr Sasaki calls "ascent flow" inside the skeg line and "descent flow" outside of the skeg line (see figure 2). Optimum placing of the propeller from the point of view of propulsive efficiency is inside of the skeg centreline, this allows for the propeller to utilise both counter flow and viscous flow.

Reaction Pods not only offer propulsive efficiency, but also improve cavitation performance. In addition to the Reaction Pods, adding to the efficiency of the vessel



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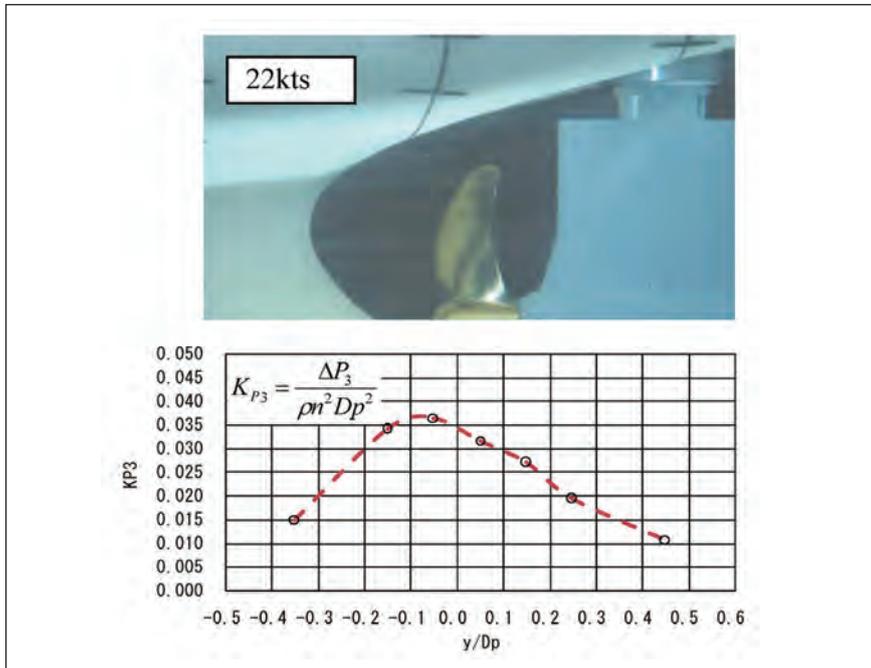


Figure 4: Cavitation patterns and measured pressure.

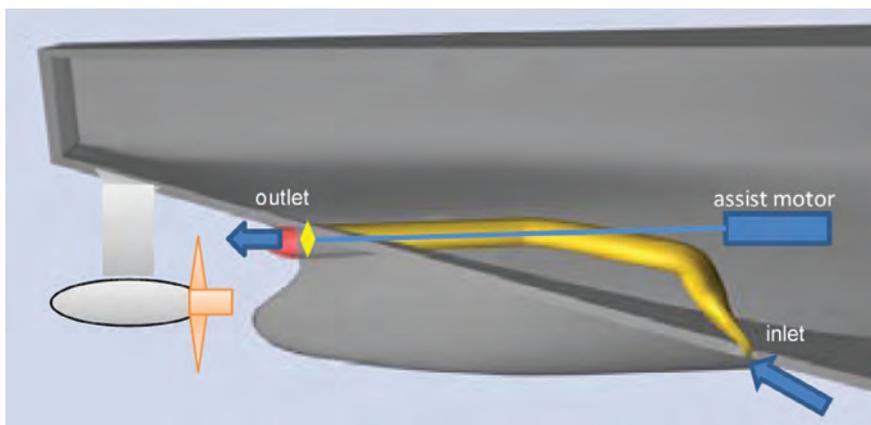
F _D	T _{MAIN}	T _{IMP}	F _{D+T}	remark
2.55	0	0	2.55	w/o BLC
1.80	0	0.11	1.91	with BLC
0	3.30	0	3.36	w/o BLC
0	2.32	0.009	2.41	with BLC

Table 1: Obtained data from propeller loading test.

is the concept of boundary layer control (BLC) and this has several functions and this system works along side JAMP. Effectively the JAMP system has a water

inlet beneath the ship, pipes direct water to outlets, which have propellers just inside of the outlets, in front of the main propellers.

Figure 5: JAMP (Jet Assisted Motor Propulsion).



Twin skeg designs of course are not new, but the design has been studied for their performance and the conclusion of these studies showed two distinct disadvantages, the cost of the propulsion system and the difficulty of the engine arrangement. High bunker oil prices mean that the first is not so important now, however, the second is very serious for the owner because a poor arrangement could mean the loss of significant cargo capacity.

However, the design does have a number of advantages, in the first instance BLC can help to maintain energy efficiencies that have been compromised through moving the engine room aft. In conventional twin skeg designs moving the engine room aft means that the tunnel slope angle must be increased, losing any energy savings obtained from the hull form, and this means losing both capital and interest. The BLC concept can solve this problem.

In addition increasing the slope angle, thereby shortening the skeg length, can contribute to poor course keeping and manoeuvrability, but by applying BLC stability can be increased and the course keeping ability of the vessel can be maintained.

The BLC jet flow can change retarded flow into smooth flow and clear the cavitation away from propeller blade surface near the top position, which may induce harmful vibration on the vessel.

But, the most important function of BLC is to prevent the flow separation on the tunnel wall where the two dimensional flow separation easily occurs. By putting two outlets on the top positions of two skegs, three dimensional and strong ascent flow can be generated. The image of this flow pattern is illustrated in Figure 6 which shows the effectiveness of the inlet and outlets pipes.

By eliminating the separation zone of tunnel flow as shown in Figure 6, the ascent flow between the two skegs can be increased and result in high propulsive efficiency by strengthening the contra-rotating flow of water.

“Having an inlet pipe that sucks in water from the boundary layer and ejects water from the rear of the hull

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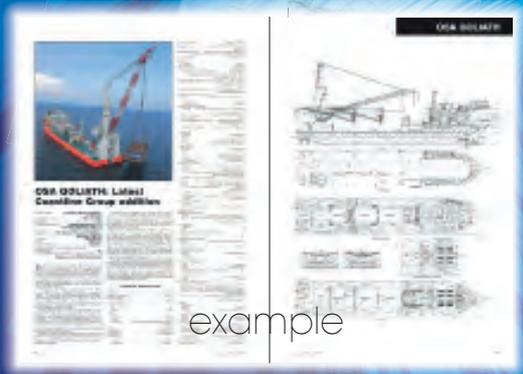
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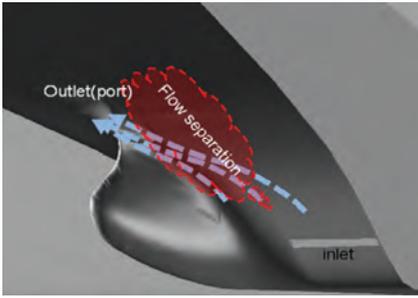


Figure 6: Flow pattern image of BLC effect.

– acting like a jet – can be combined with an air lubrication system that will reduce fuel consumption by around 30%,” claimed Mr Sasaki.

In order to verify the BLC and JAMP systems NMRI conducted model tests with a 5.418m twin podded propulsion model in the institute’s own towing tank.

The conclusions of the model tank testing were very promising, said Mr Sasaki, the combination of the twin skeg hull design and twin pods gave a high propulsive efficiency, while the JAMP and BLC systems were shown to be a very effective solution to the problem of the engine room arrangement in a twin skeg vessel. Figure 9 and Table 1 Show the model test results were very effective.

The amplification factor f_{AT} of JAMP system base on thrust can be represented as follows; $f_{AT} = \{ (F_D + T)_{w/o} - (F_D + T)_{with} \} / T_{IMP}$. Where, ‘with’ and ‘w/o’ means with BLC and without BLC and $T = T_{main} + T_{imp}$ and $T =$ thrust. From Table 1, f_{AT} of JAMP system is 6 (towing) – 10 (model point) and it is possible to estimate 7 – 8 for the ship point which can be figured out after full scale power prediction. It is also possible to define the amplification factor f_{AP} of JAMP based on power, said NMRI.

In conclusion the NMRI wrote that the reason for the high performance of the JAMP system was investigated by conducting flow measurement of the position behind the ship stern with rotating propellers. Two conditions were investigated, with BLC and without BLC and are compared in Figure 10.

The flow fields of these two conditions are quite different the resistance due to the loss of momentum in the two conditions are calculated and compared in Figure 13. The obtained result from the calculation

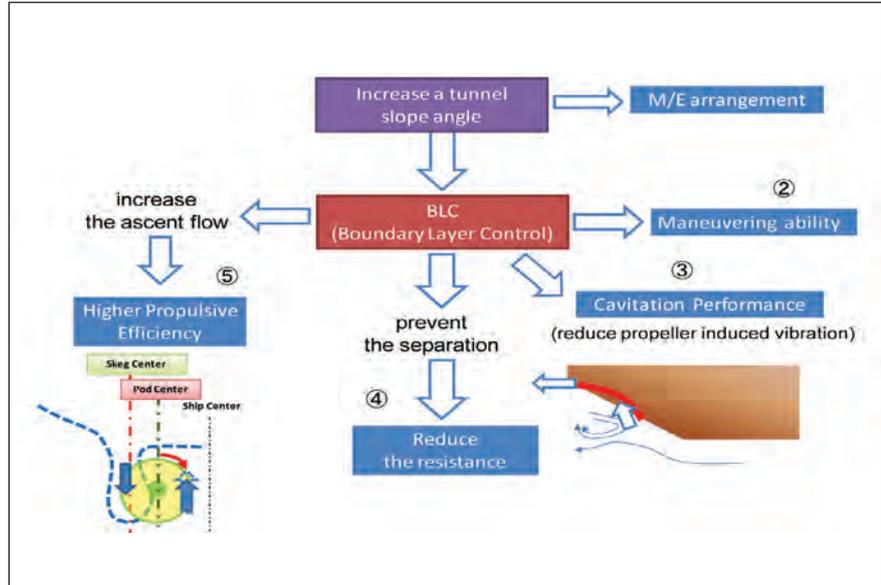


Figure 7: Multi functions of JAMP system utilising boundary layer control (BLC).

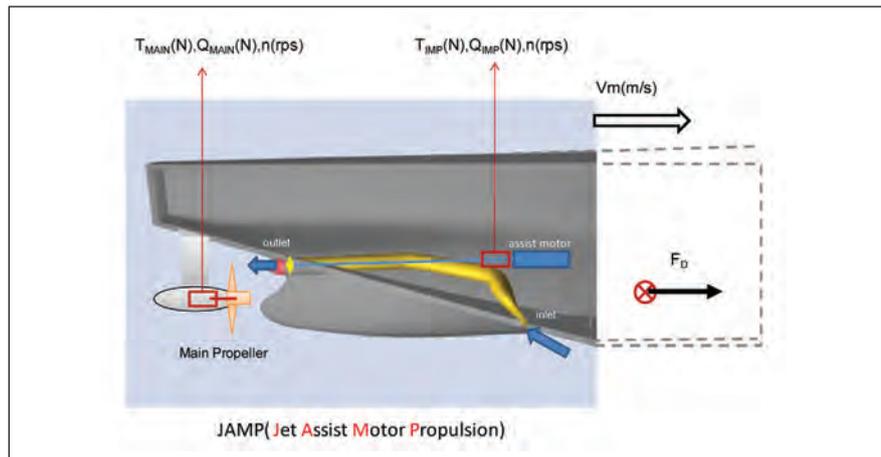
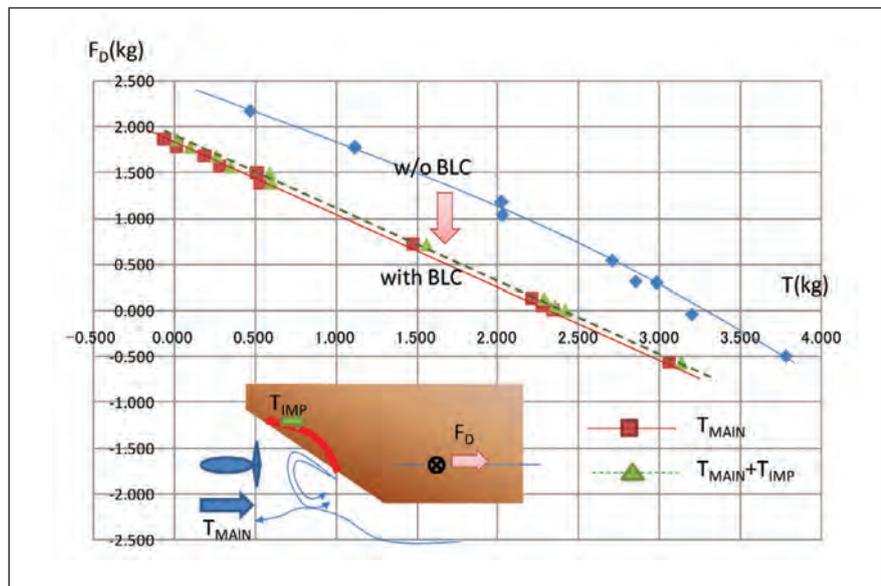


Figure 8: Measuring system for the propeller loading test.

Figure 9: Result of the propeller loading test.



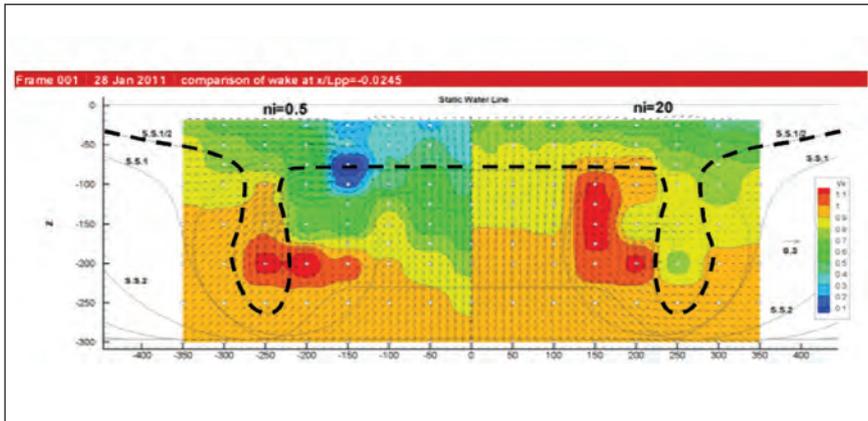


Figure 10: Flow measurement behind the ship with podded propellers (left w/o BLC, right with BLC).

is about 0.8kg and with regard to the difference of F_d (kg) in Figure 9 is 0.9kg.

“The key technologies of the Zero Emission Ultimate Ship concept are reviewed from the model test data. From the studies, it is very clear that the concept of ZEUS is very promising and effective. Main conclusions which were obtained here are as follows;

- By combination of a twin skeg hull form and twin pods, high propulsive efficiency

of more than 90% can be obtained.

- JAMP (Jet Assisted Motor Propulsion) system utilising BLC (Boundary Layer Control) is a very effective solution to solve the disadvantage of an engine room arrangement caused by the twin skeg hull design.
- Amplification Factor 17 (obtained power reduction /input power) of JAMP was obtained from the tank test, while verification is still underway.” *NA*

A concept ship design with boundary layer control, Jet Assisted Motor Propulsion and reaction pod technology.



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Tønsberg built for the future

Mitsubishi Heavy Industries (MHI) delivered the first of a new generation of ro-ro vessels for the Norwegian operator Wilhelmsen in March. The yard says that the new vessels are a “significant improvement on the Mark 4 series” of ships.

TECHNICAL PARTICULARS	
Tønsberg	
Length oa:	265.00m
Length bp:	250.00m
Breadth moulded:	32.26m
Depth moulded	
to main deck:	15.20m (No.4 Deck)
to upper deck:	33.22m
Draught	
scantling:	12.30m
design:	11.00m
Gross:	74,622gt
Deadweight	
Design:	34,068dwt
scantling:	43,878dwt
Speed, service (90%MCR output- 284kw with 15% sea margin):	20.25knots
Bunkers	
Heavy oil:	5310m ³
Diesel oil:	600m ³
Water ballast (m ³):	15,870m ³
Main engine(s)	
Design:	MAN B&W
Model:	7L70ME - C8
Manufacturer:	Kawasaki Heavy Industries, Ltd.
Number:	1
Type of fuel	
HFO or MDO	
Output of each engine:	20,100kW

Reduced resistance, fuel efficiency and reduced emissions make this latest generation the cleanest vessels yet in the Wilhelmsen fleet. The ships boast a MAN B&W 7L70ME - C8 built by Kawasaki Heavy Industries with 20,100kW output.

The vessels will be built to DNV class and will carry the voluntary notation CLEAN and will be delivered with a CLEAN PASSPORT, which is an inventory of all materials that are potentially hazardous to humans and/or the environment.

Efficiencies of up to 20%, compared to the Mark 4 series, have been realised through reduced resistance and the turbo generator system will cut annual fuel consumption by 5-6% with proportionate falls in SOx, NOx and CO₂ emissions.

Cargo loading is through the 25m wide, 44.5m long stern ramp, which has a maximum load capacity of over 500tonnes, more than any other ro-ro ship in history, said the yard.

Tønsberg will operate in Wallenius Wilhelmsen’s round the world liner service carrying non containerised cargo, in the main, though the ships will be able to carry some containers and/or project cargo on the weather deck.

Three hoistable decks, 4B, 6 and 8 give the vessels a high degree of flexibility for cargo operations with decks 6 and 8 constructed with plywood plating to save weight, they are intended to carry cars on these decks.

Four sisterships are on order and construction of the second vessel has already begun at the Nagasaki yard. **NA**

Tønsberg following its delivery in March this year.



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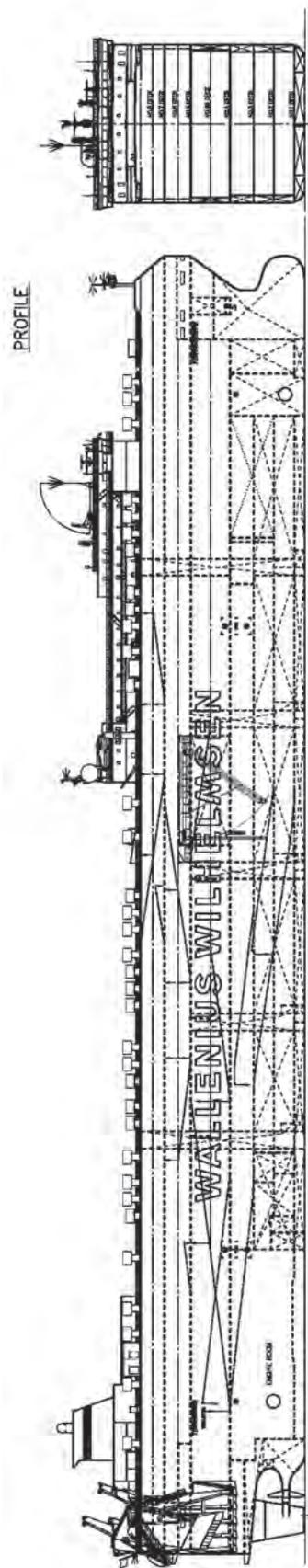
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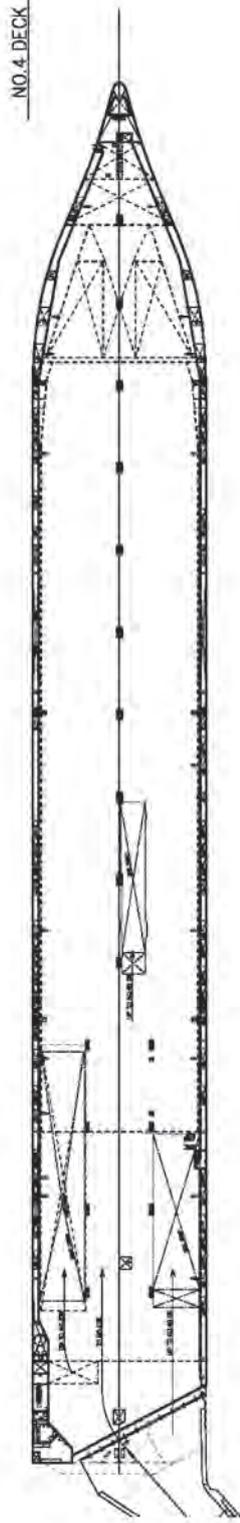


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GA plan of *Tønsberg*.



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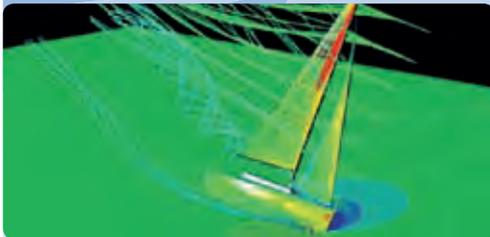
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Workers demand government action for ailing Spanish yards

A collapse of Spain's shipbuilding industry is on the cards as orders dry up and economic crisis stem the flow of funds to shipbuilders. Brian Reyes outlines the difficulties faced by the country's privatised yards.

Spanish shipbuilding is concentrated in the north of the country but, for a snapshot of the crisis currently facing the sector, look south.

On 20 October, a group of around 25 workers from a shipyard in Seville set off on foot to Madrid, a protest march aimed at highlighting the dire circumstances they face.

"We want the Ministry for Industry to get involved in our fight because it was the one that privatised the shipyards and led them to financial ruin," a union spokesman said.

Astilleros de Sevilla was forced into receivership late in 2010, a victim of falling demand, tough competition from Asian yards and difficulties securing financing, both for new and existing projects.

The yard, which in its heyday employed up to 5000 workers, put up a tough fight for survival but rescue initiatives failed to prosper. After 58 years in the sector, the yard was facing closure.

This is the tough reality facing Spanish shipyards in 2011, one that has to be set into the broader context of Spain's struggling economy.

The Spanish unemployment rate has soared to 21%, with 4.2 million people now officially out of work. Last month [October], the credit rating agency Moody's slashed Spain's rating by two notches and warned that Europe's fourth-largest economy risked being sucked into the European Union (EU) debt crisis.

"Spain continues to be vulnerable to market stress and event risk," Moody's said.

"Even if policy action at the euro area level were to succeed in the short term in returning some degree of normality to bank and sovereign debt markets ... the underlying fragility and loss of confidence is deep and likely to be sustained."

According to the Spanish Maritime Cluster association, Spanish shipyards generate direct employment for 20,500 workers, with a further 50,000 persons



On the rocks-Spain's shipbuilding industry is struggling to survive.

employed in auxiliary industries that supply the yards.

The figures, the latest available, date back to 2009 but give an idea of the economic importance of the sector for coastal cities across Spain, but in particular the northern regions of Galicia, Asturias and the Basque country.

Spanish yards enjoyed a boom year in 2008 and record orders that guaranteed a steady workload through to 2012.

The yards had carved out a well-earned niche specialising in sophisticated, high-tech and high-value units. Spanish shipbuilders cemented their reputation for delivering top quality vessels in sectors as diverse as ferries and offshore support ships.

Since 2009 though, new orders have slowly dwindled and finally dried up in the first half of this year. Yards across Spain's extensive coastline reported a sharp slump in orders as owners struggled to secure the necessary financing to push ahead with new projects. In some cases, even existing contracts fell through.

In the absence of new contracts, the workload began to shrink as the yards completed projects and delivered new ships. Figures from the Gerencia del Sector Naval at the Ministry for Industry in Madrid lay out in stark, cold detail the dire reality that the sector currently faces.

Spain's 23 privately owned yards had 80 vessels on their orderbooks at the end of 2010, representing some 549,963 compensated gross tonnage (cgt) in work. A year earlier, the yards had closed 2009 with 115 ships on order, the equivalent of 815,134cgt. By the end of 2010, the difference was a 33% drop in contracted tonnage.

By the end of the first half of 2009, the latest available data from the Gerencia del Sector Naval, the situation had worsened even further.

During the first six months of the year, Spanish yards delivered 23 vessels from their existing order book - 14 of them for foreign owners - but secured just one new contract, an order for a 3693gt supply vessel for UK-based Edda Supply Ships, to

be built by Astilleros Gondan in Asturias, northern Spain.

At the end of June this year, the Spanish order book stood at 57 contracted vessels, representing some 327,380cgt.

Compared with the state of the national order book in the same period the preceding year, that amounted to a drop of 44%. In terms of new orders over that period, the year on year drop was 88%.

Despite the overall bleak scenario facing the shipbuilding sector in Spain, there are some glimmers of hope.

Earlier this month (October) the Armón Group, which runs four shipyards in the north of Spain, announced that it had sealed a US\$158 million contract with the Panama Canal Authority for construction of 14 tugs.

The order, while welcome, was isolated though.

Part of the problem securing new business has been uncertainty following the European Commission's decision to open an investigation into Spain's tax lease arrangements for newbuildings.

The EC investigation followed a complaint from Holland urging Brussels to probe whether the fiscal benefits conferred by the tax lease system were compatible with EU rules on state aid.

The investigation was launched in July and, despite frenzied media speculation in Spain, the Commission had yet to make its position clear at the end of October when this edition went to press.

Spanish yards were worried that a negative assessment of the tax lease arrangements could signal the death knell for many yards. They are also concerned that if the European Commission (EC) investigation drags on for too long, even a positive outcome may well come too late for many yards.

Faced with that prospect, the Spanish government has proposed an alternative framework that offers slightly reduced savings for shipowners. But, Brussels has yet to give it the green light.

"It is essential that the European Commission gives an answer to the Spanish government's proposal and that it does so immediately, because the shipyards cannot continue waiting to contract new ships," said Javier Guerra, the councillor responsible for economy and industry at the Xunta de Galicia, the regional government in Spain's shipbuilding hub.

Assuming the new financing systems are put in place, the Spanish maritime sector must also look at coordinating its efforts and working together, and the government must support such initiatives.

That was the message that the Spanish Maritime Cluster association sent to political parties ahead of a general election on 20 November.

Federico Esteve, chairman of the Spanish Maritime Cluster, spoke of the need for consolidation across the maritime sector.

"A future government must group the entire sector together under a single body that can coordinate and direct and thus avoid the loss of competitiveness that we suffer because we are dispersed," he said.

"It's vital to have a single organisation to coordinate the various sub-sectors and make them more competitive."

If they prosper, however, such initiatives will only yield benefits in the long term. For the shipyard workers walking from Seville to Madrid, it may well be too late. **NA**



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Chinese yards take growing share of chemical tanker orders

Shipping analyst Fred Doll of Doll Shipping Consultancy looks at trends in the chemical tanker newbuilding market.

Against the backdrop of weakening chemical and product tanker markets, the vessel orderbook has become smaller and more concentrated than ever before. When compared with September 2008, the September 2011 figures show a 65% decrease in chemical tanker newbuilding orders. Orders were placed in a limited number of yards within a very limited number of countries. China's market share has seen an increase while Korea's and small shipbuilding countries' market share has been eroded. However, supported by a growing proportion of the stainless steel tanker orders, Japan has succeeded in maintaining her share.

A closer examination of the statistics shows that in September 2011, the 10,000dwt to 60,000dwt chemical tanker fleet was made up of about 2404 vessels of 71.8 million deadweight tonnes (mdwt), including 554 vessels with about 10.9 million tonnes of stainless steel capacity. The chemical tanker fleet comprises about 69% of the 10,000 to 60,000dwt tanker fleet by tonnage and 73% by number of vessels.

The industry chemical tanker fleet has grown from some 1888 ships of 55.4mdwt at end-September 2008. After 9.7mdwt of deliveries in 2008 and 8.6mdwt of deliveries in 2009, deliveries slowed to 6.4mdwt in 2010 and scheduled 2011 deliveries (year to date actuals plus 2011 orderbook) of 5.6mdwt.



In his last contribution on the chemical tanker industry Fred Doll analysed future market trends. Sadly he passed away before publication.

Fred Doll: 29 August 1957-25 October 2011. RIP.

The 10,000dwt to 60,000dwt chemical tanker orderbook comprises about 197 vessels of 7.0mdwt, including 35 vessels with about 0.9 million tonnes of stainless steel capacity. The chemical tanker fleet comprises about 48% of the 10,000 to 60,000dwt tanker orderbook by tonnage and 48% by number of vessels.

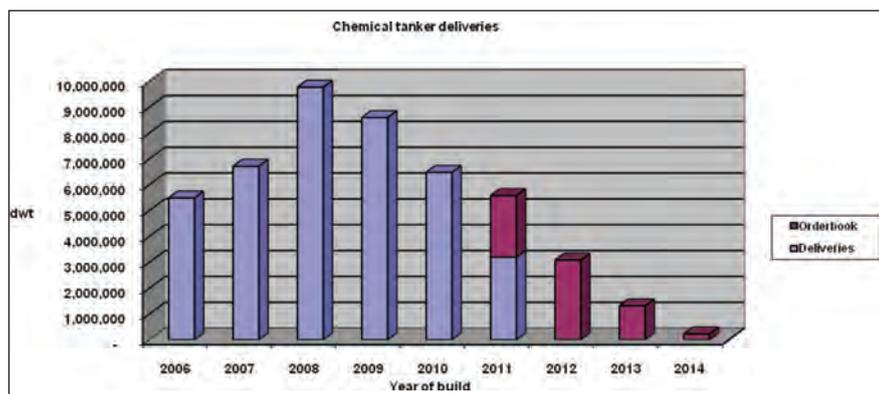
Since the end of September 2008, the industry chemical tanker orderbook has decreased from some 692 ships of 19.4mdwt to the current orderbook of 7.0mdwt

The chemical and product tanker markets have weakened significantly since the boom years. Lower earnings have resulted in lower ordering in the chemical and product tanker segments. Clean products tanker daily earnings have decreased from about US\$23,000 in October 2008 to US\$8,000 in October 2011. The lower volume of vessels ordered has, of course, resulted in lower newbuilding prices. The assessed price for a 51,000dwt product tanker newbuilding decreased from US\$51.5 million in October 2008 to US\$35.5 million in October 2011.

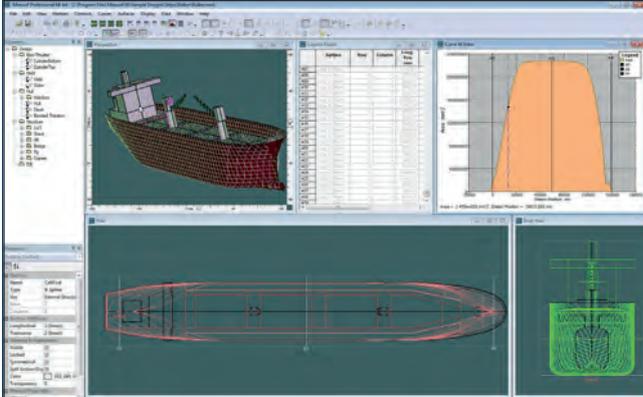
It should be noted that many coated chemical tankers spend all or part of their trading life carrying clean petroleum products. Coated chemical tanker ordering behaviour is influenced by the clean products markets. Time series earnings and vessel price indicators are more readily available in the relatively transparent clean products market and provide useful indications for coated chemical tanker market behaviour.

Chemical tanker orderbook

Chinese shipbuilders have gained while Korean yards have lost market share since October 2008. China has gained 6% of the orderbook market share by deadweight tonnage, up from 16% in September 2008 to 22% in September 2011. Although South Korea remains clearly in the number one position, with 54% of the orderbook, its share has decreased by 3% since September 2008. Japan has retained its share of about 15% and Croatian and Turkish shares remain largely stable. The USA appears



Chemical tanker deliveries from 2006 to predicted deliveries for 2011-2014.



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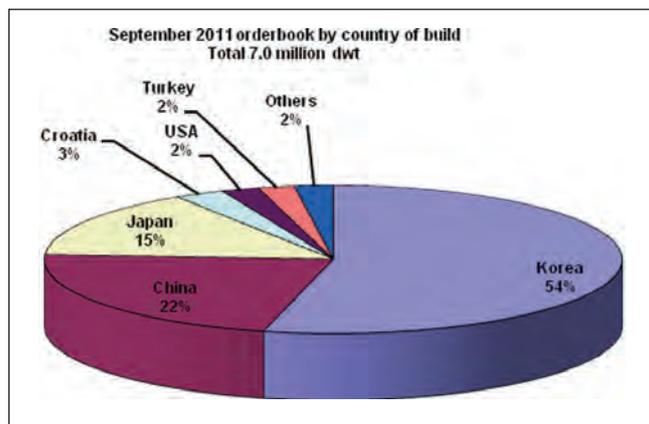
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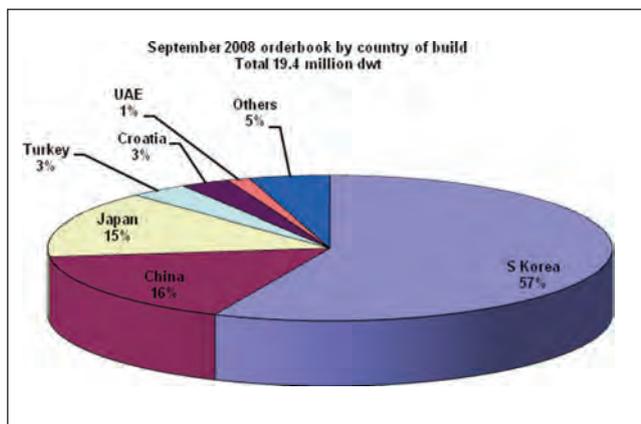


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September 2011 orderbook by country.



September 2008 orderbook by country.

Country	Sept. 2011		Sept. 2008	
	dwt	%	dwt	%
Japan	676,670	81%	2,561,894	78%
China	153,900	19%	64,800	2%
S Korea			337,000	10%
Norway			172,000	5%
Russia			90,000	3%
Italy			39,000	1%
Total	830,570		3,264,694	

Comparisons of the stainless steel chemical tanker orderbook.

in the 2011 figures thanks to a three ship MR Jones Act order. The share of smaller builder countries has been reduced by 3% as vessel prices have decreased and smaller builders have been squeezed out of the market.

Stainless steel tanker orderbook

The stainless steel chemical tanker orderbook has also become increasingly concentrated by country of builder.

The stainless steel chemical tanker orderbook has become concentrated in Japanese and Chinese shipyards. The South Korean share has decreased from 10% to nothing. The Chinese share has expanded from 2% to 19%, while the Japanese share has increased from 78% to 81%.

The Korean stainless steel orderbook was largely placed with SLS

Shipbuilding, which faced severe financial and production problems that delayed vessels prompting cancellations by owners. Simplifying production to coated tankers was a logical strategy under these circumstances.

Chemical tanker shipbuilders

In the difficult shipbuilding market of 2011, higher orderbook concentration in top shipyards has emerged. 88% of the chemical tanker orderbook is now concentrated in the top 15 shipyards, versus 77% in September 2011. World class yards, able to realise economies of scale through high volume purchasing and efficient production, have elbowed our smaller yards with a higher cost base.

Within the top 15 shipyards, concentration has increased as well. Please note that comparisons refer to September 2011 versus September 2008 and can be verified against the table above. Some individual Korean shipbuilders have done well. Hyundai Mipo's share has increased by 3% to 21%, while STX's proportion of the orderbook has grown by 7% to 14%. SPP's share has grown from 3% to 10%. SLS' share dropped from 17% to 8% due to its financial and production problems.

Japanese stainless steel leader Kitanihon increased its share by 2% to 6%. Onomichi was absent from the top 15 in 2008, but achieved 4% of the orderbook in September 2011. Fukuoka and Usuki left the top 15 in 2008.

China's shipbuilders have also increased their market share. Guangzhou has increased its share from 5% to 11%.

Nantong Mingde maintained its share at 2%. Jiangzhou Union ng Hongguan, and Ningbo Donghai joined the top 15.

Trends

Although we have seen the top shipyards increase their share of the orderbook, we have also seen new, relatively small Chinese shipyards increase the size of their orderbook. As these yards move up the value chain, they will provide increasingly tough competition for Korean and Japanese shipyards. Chinese shipyards are active in the stainless steel segment and if able to meet the demanding technical criteria, should be able to compete successfully with Japanese shipbuilders on cost. However, the segment can lead to difficulties for the unprepared, as Korean shipbuilder SLS found out to its cost.

Individual Korean shipyards have successfully gained market share in these tough times. They will need to continue to watch costs and exploit economies of scale to maintain their top position against increasingly capable Chinese competitors.

Note

For the purposes of this article, chemical tankers are defined as vessels with a Certificate of Fitness and include stainless steel and coated vessels. Fleet data shown is Dollship analysis of KTR Maritime and Clarkson data, while vessel earnings and price data is Dollship analysis of Clarkson data.

The IPTA/Navigate 4th Chemical & Product Tanker Conference will be held in London on 6 - 7 March 2012. www.navigateevents.com. **NA**

Hughes has a blast

Dealing with the day to day wear and tear of being at sea and can take its toll onboard a vessel. Hughes Pumps has developed a ultra high pressure water jetting pump for removal of loose scale.

The water jetting system is a standard set up, but what makes the system unique to individual requirements is the pump that it is supplied with. This explains Hughes Pumps, is developed for specific customer needs.

Alan Buckle, press contact, B:3P said: "This system is quite standard in water jetting across most industries, what is different is the pumps that are manufactured to customers particular requirements."

Earlier this year Hughes Pumps supplied its latest system to MOL Tankship Management Ltd for repair and maintenance use on the company's



Latest pump from Hughes saves the customer time and money.

methanol tankers, whilst they are at sea. Hughes' system has been developed to utilise the vessels' own hydraulic supply and can fit between a 1.2m wide flying bridge that runs the length of the deck.

"The customer was looking to be able to carry out maintenance on its vessel without having to drydock, which is costly, and so therefore reducing the cost whilst still being able to do the work that is needed", commented Mr Buckle.

The purpose built, hydraulically driven, compact Ultrabar 24 pump-set has a performance of 23lpm at 2750bar (40,000psi) and uses a four man riding crew to carry out water jetting on the company's methanol tanker fleet, during voyages between the Caribbean, US Gulf and Europe. Fresh water is used in the jetting process, followed by wash-down, de-humidifying and repainting. *NA*

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International Conference on Ship & Offshore Technology 2012 - Developments in Fixed and Floating Offshore Structures

23rd - 24th May 2012, Busan, Korea

First Notice & Call for Papers

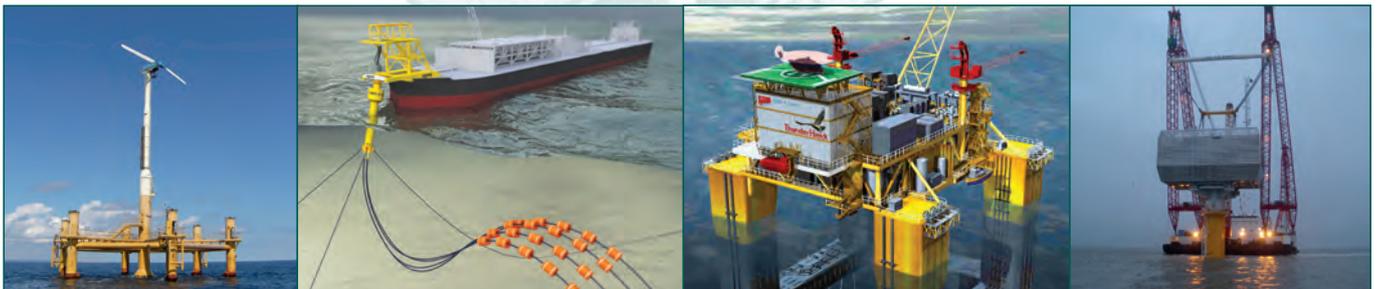
Fixed and floating offshore structures, whether associated with the production of oil and gas, or with marine renewable energy, present complex technical challenges to the maritime industry, particularly as such structures are increasingly employed in deeper waters and extreme climatic conditions when the support of such structures then presents an additional challenge.

The International Conference on Ship & Offshore Technology Korea 2012 will provide an opportunity for the global maritime industry to present and discuss the developments in the design, construction and maintenance of fixed and floating offshore structures.

RINA invites papers from naval architects, class societies, operators, researchers, and builders on all related topics, including:

- Oil and gas production
- Wind, wave and tidal power production
- Front End Engineering and Design (FEED)
- Construction
- Transportation and installation
- In-service support and maintenance
- Safety, regulation and classification
- Equipment technology
- Emergency response
- Risk assessment and management

www.rina.org.uk/ICSOTKorea2012



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Hearing aids

New communications technology throws up new problems. Weaving new webs of telecommunication hazards.

There was a time not so long ago when passengers actually thought cruise ships trailed cables in order to communicate with the rest of the world. The leaps in wireless communication and phone technology has resulted in a new generation of passengers that expect incoming and outgoing voice calls, SMS, data and high bandwidth connectivity as standard. Social networking websites and mobile devices such as tablets and smartphones are fuelling the high data consumption which is driving the connection requirements for passenger ships.

Crews too are no longer putting up with the endless days of sailing without being able to communicate with friends and family. The current generation of seafarers and passengers want to be able to post updates on social networking sites like Facebook and Twitter, accessing them through portable devices and laptops, and experience the same kind of accessibility at sea as they enjoy at home.

C-band (3.7-4.2GHz) covers wider areas and it is a well established network giving global coverage. Larger vessels may have two or three C-band antennas installed along with KU-band (10.95-12.75GHz) antennas to create the bandwidth necessary for all passenger and operational services.

One major maritime service provider is Maritime Communications Partner (MCP). The company is fully owned by Telenor. MCP supports both the European (GSM) and the US (CDMA) technologies for mobile voice and data. Code Division Multiple Access (CDMA) is a spread spectrum technology, allowing many users to occupy the same time and frequency allocations in a given band/space. In a world of finite spectrum resources,

CDMA enables more people to share the airwaves at the same time.

MCP allows for both the GSM and CDMA standards to be supported on the same vessel simultaneously. End users' mobile devices automatically connect to the onboard network enabling them to make and receive voice calls, SMS, MMS, send and receive data, or access other internet services. MCP facilitates all these services through roaming agreements with mobile operators around the world. To provide the MCP service, a rack/shelf and an antenna network linked to existing VSAT infrastructure is required onboard the vessel. MCP uses dynamic bandwidth allocation, silence suppression and voice and data compression technologies to minimize bandwidth used on the satellite link.

MCP's mobile system is both in full compliance with European Union (EU) regulation EU166/2010, which describes the stipulations that must be observed in order to operate cellular ship networks legally in European national waters and follows ITU & GSMA recommendations. This means that mobile phones will only automatically connect to MCP's network when contact with terrestrial networks is lost. This translates to when the vessel is in international waters, which is either 12 nautical miles from shore or the distance permitted by the bordering country.

The company also recently implemented Enhanced Data rates for GSM Evolution (EDGE) on selected cruise ships. EDGE provides up to three times the capacity of GSM networks by utilising bandwidth more efficiently. The company states this is only an intermediate step towards the 3G and 4G service launch with turbo surfing speed at sea.

Another global solution provider for satellite communications is Maritime Telecommunications Network (MTN). It operates a worldwide footprint of VSAT satellite connectivity with more than 32 satellite footprints. MTN's secure network infrastructure consists of nine teleport gateways and 13 global points of presence, strategically located across the globe. Each of these facilities is interconnected through an extensive redundant terrestrial network backbone offering numerous connectivity and communications options.

Whether it's MTN or MCP or indeed another satellite communications provider all ships connections rely on satellites and therefore line-of-sight transmissions. Speed and availability of a ship's internet connection can vary, depending on atmospheric conditions and the vessel's geographical locations. Both the C-band and the KU-band are effected by rain fade, which also includes snow, heavy fog and sun spot activities. Their signal levels are also affected by physical blockages or objects being in the path of the transmission from the satellite to the ship's dish.

As such, tall buildings, traversing in fjords or even the ship's own superstructure can cause the loss of a signal. In addition, in rough weather the antenna's stabilisation can be affected giving intermittent or no connection. Another factor that can slow the internet access is the available bandwidth purchased by the company which can be affected by how many people have logged on onboard. Despite these ongoing challenges one thing is certain, the leaps and bounds made in land based communications will have equivalent prominence with its maritime cousin. **NA**

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Intellectual Property Rights and the Small Craft Designer

One-Day Seminar

12th January 2012, London

Intellectual Property Rights (IPR) are an increasingly important part of a company's value. As developed countries move to knowledge based economies, protection of IPR becomes both more difficult and more important for the small craft designer, particularly in a more competitive market. In a global marketplace, international protection of IPR is complex and generally not well understood by the small craft designer and others in that sector of the maritime industry.

The one-day Seminar on IPR and the Small Craft Designer will provide designers and others involved with the small craft sector with an understanding of IPR law and the extent to which it protects inventions and designs. The seminar will consist of a number of sessions in which presentations on various aspects of IPR will be given by experts and practitioners, followed by discussion:

www.rina.org.uk/IPRseminar



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**Lloyd's
Register**

LIFE MATTERS



RINA - Lloyd's Register Maritime Safety Award

The Institution believes that the safety of both the seafarer and the maritime environment begins with good design, followed by sound construction and efficient operation. Whilst naval architects and other engineers' involved in the design, construction and operation of maritime vessels and structures do not have a patent on such issues, nonetheless their work can make a significant contribution.

The Institution also believes that it has a role to play in recognising achievement of engineers' in improving safety at sea and the protection of the maritime environment. Such recognition serves to raise awareness and promote further improvements.

The Institution, in association with Lloyd's Register, is therefore introducing a new Maritime Safety Award to be presented to an individual, company or organisation which has made a significant technological contribution to improving maritime safety or the protection of the maritime environment. Such contribution can have been made either by a specific activity or over a period of time. Nominations may be made by any member of the global maritime community, and will be judged by a panel of members of the Institution and Lloyd's Register. The Award will be announced and presented at the Institution's Annual Dinner.

Nominations are now invited for the 2011 Maritime Safety Award. Individuals may not nominate themselves, although employees may nominate their company or organisation.



**Lloyd's
Register**

Nominations may be up to 750 words and should describe the technological contribution which the individual, company or organisation has made in the field of design, construction and operation of maritime vessels and structures.

Nominations may be forwarded online at www.rina.org.uk/MaritimeSafetyAward

or by email to MaritimeSafetyAward@rina.org.uk

Nominations should arrive at RINA Headquarters by 31 Dec 2011

Queries about the Award should be forwarded to the Chief Executive at hq@rina.org.uk



Safinah

**MARINE COATINGS
RISK MANAGEMENT COURSE
27th January 2012, London**

The failure of marine coatings can lead to significant in-service costs for owners and operators of marine vehicles (ships and offshore structures). A good understanding of the problems that can result in coating failure is essential if the risks associated with marine coatings are to be avoided or mitigated and coating in service performance improved hence reducing operating costs through life and the potential for claims.

Marine Coatings – Risk Management is a one-day course for all maritime professionals in who are involved in managing risk associated with marine coatings - legal advisors, insurance claim managers, P&I Club claim advisors, ship superintendents and coating professionals and of course naval architects, marine engineers. No previous knowledge of coatings and the processes involved is required.

On completion of the course, the maritime professional will be familiar with basic coating terminology and risks, understand how these risks can be assessed and/or mitigated, and in the event of a coating failure understand the basic procedures required to assess the cause of the failure and the validity of any claim for compensation.

www.rina.org.uk/marinecoatingscourse



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You should have a PhD (or equivalent) in Naval Architecture and teaching experience in naval architecture, ship design, ship stability, resistance and propulsion, and should have expertise in initial design software such as AVEVA (Ex-Tribon), Fluent/Star+ and HECSALV. For an informal discussion please contact Professor Richard Birmingham, tel: +44 191 222 6722; email: r.w.birmingham@ncl.ac.uk

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Please note that applicants are asked to keep the week commencing 12th December 2011 free to attend for interview in Singapore.

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Job ref: D963A

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Such specialized work is unlikely to fill all of your time so you will be expected to assist with other Wolfson Unit activities, such as model testing, software development or consultancy in other aspects of naval architecture. To be most effective in these roles it will be an advantage to have some experience in areas such as stability, small craft design, or programming.

You should have at least an engineering based degree and a higher level qualification will be an advantage. The work is expected to involve laboratory testing of materials and structures, investigations in the field, and ship model testing, so it will be helpful if you can demonstrate a range of practical skills.

The appointment and appointment title will be dependent on your skills, experience and expertise in line with the requirements of the post. To apply online, please visit www.jobs.soton.ac.uk. Alternatively please call 023 80592750. When applying online you should provide a copy of your CV and a personal statement that shows how your previous experience maps to the requirements of the job and person specifications. The closing date for applications is 17th November 2011 at 12.00 noon. Please quote reference number 0586-11 on all correspondence.

www.wolfsonunit.com

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Candidates will have a degree in naval architecture, or equivalent, will have ship design experience and will have experience in the use of modern, ship design software tools.

Preference will be given to candidates who have ship yard experience or have practical experience on site overseeing ship construction projects in the Far East, or with ship survey experience. A detailed, up to date knowledge of changing ship rules and regulations is a prerequisite.

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Candidates will have a First Class Certificate of Competence, they will have sea going experience as a Chief Engineer Officer and they will have a Dangerous Cargo Endorsement (DCE).

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Candidates will have a marine background with power plant generation/distribution maintenance system experience, they will have carried out maintenance and fault finding on DP electrical systems. They will understand, and have experience of, DP/PMS/IAS controls, and DP Annual trials.

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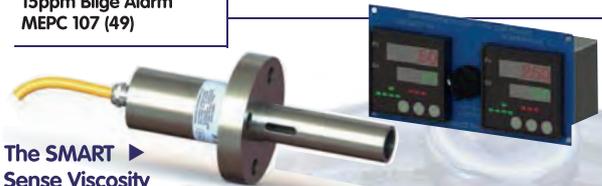
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The Royal Institution of Naval Architects



Ice Class Vessels

4- 5 July 2012, London, UK

First Notice & Call for Papers



Pictures courtesy of:
Aker Arctic Technology Inc.

Recent years have seen a large increase in the number of vessels operating in polar and low temperature environments. This includes a broad range of vessel type; tankers, bulkcarries, LNG, container ships, multi-purpose ships, cruise ships and offshore support vessels. Compliance with just the basic ice class rules and regulations may not be sufficient for safe and effective ship operation in these environments.

There are vast oil and gas resources around Siberia in the Barents and Kara sea as well as in the Alaskan Chukchi Sea. The receding ice in the Northern Sea Route and North West Passage offers new marine transportation options between the two major oceans and Europe, North America and Asia.

Vessels of any kind operating in ice-infested waters and low temperatures are exposed to a number of unique demands. Operation in first- and multi-year ice adds uncommon loads and forces to hull, propulsion system and appendages and calls for suitable built. Extremely low temperatures, bad weather and low visibility affect the ship and the crew in a multitude of ways, including materials, machinery, operational process and human factors.

RINA invites classifications societies, shipyards, operators, surveyors and designers and those with an interest in the full of possibilities operation in ice, to submit papers on:

- ICE / Polar Classification
- Structural design and equipment selection
- Materials, welding and coatings
- Propulsion and machinery systems
- Cargo & ship systems adaptation
- Ice accretion and de-icing arrangements
- Winterization
- Safety & environmental systems consideration
- Crew consideration / human factors
- Rescue and evacuation in remote and extreme conditions
- New Arctic shipping routes

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BUSINESS FUNDAMENTALS FOR ENGINEERS

By Professor Chengli Kuo FRINA

This book deals with essential business topics, so often treated in a specialized and lengthy way, as related to practical engineering situations. Eight chapters cover: business and the engineer; fundamental elements of business; markets; management; money; manpower; case examples; and application. This volume provides engineering students and practising engineers with an affective and well integrated introduction to business.

Price: UK £25.00 EUR £25.50 OVS £26.50

(Amazon (UK) price: NA)

GRAND DAME: HOLLAND AMERICA LINE

& THE S.S. ROTTERDAM

By Stephen M. Payne FRINA

Stephen Payne, Naval Architect of modern day cruise ships, fully describes the Holland America line's flagship, S.S. Rotterdam, designed and built over thirty years ago and discusses her owners in his above mentioned book. Various chapters describe the building of the ship, her construction, her technical features, her passenger accommodation, and the Holland America line transition from Atlantic ferry to cruise ship operators.

Price: UK £10.00 EUR £12.00 OVS £14.00

(Amazon (UK) price: NA)

LAMENTABLE INTELLIGENCE FROM THE ADMIRALTY

By Chris Thomas

HMS Vanguard sank in thick fog in Dublin Bay in September 1875 rammed by her sister ship. No lives were lost (except perhaps that of the Captain's dog) but this one event provides valuable insight into naval history of the late nineteenth century. Chris Thomas examines what happened, setting it in the context of naval life, the social and economic situation of officers and ratings. He describes the furore caused by the unjust verdict of the Court Martial, vividly illustrating the joys and trials of the seagoing life in the Victorian era, and the tragic effect on the life of Captain Richard Dawkins and his family.

Price: UK £11.00 EUR £12.00 OVS £13.50

(Amazon (UK) price: £12.74)

MERCHANT SHIP NAVAL ARCHITECTURE

By Dr DA Taylor FRINA & Dr Alan ST Tang

This new and up-to-date book defines a ship and its parts, the methods used in calculating the areas and volumes of ships hulls (with worked examples), followed by chapters on Buoyancy, Stability and Trim; Ships and the Sea; Structural Strength; and Resistance, featuring the use of model testing and its relationship to full scale ships. It also features Propellers and Propulsion Manoeuvring and Motion Control; and Vibration, each of which is described from the first principles through to various formulas used in necessary calculations.

Price: UK £33.00 EUR £34.00 OVS £34.50

(Amazon (UK) price: £35.00)

SD14: THE FULL STORY

John Lingwood

The SD14 is almost extinct, and this book is a fitting tribute to a much-admired British designed cargo ship. Indeed, it should become the definitive history of the SD14 its derivatives. It provides a first-hand account of the SD14's conception and planning from a member of the design team, with many personal insights into the shipbuilding industry of the 1960s. Included are full career details of every SD14, the Prinsasa-121s, the SD15 and the three SD18s: a total of 228 ships built wby seven yards in four countries. Every ship is illustrated, usually at several stages of its career, 99% in full colour.

Price: UK £29.00 EUR £30.00 OVS £30.50

(Amazon (UK) price: £31.00)

SHIP DYNAMICS FOR MARINERS

I C Clark Ref:

This well illustrated and thoroughly researched book covers the subject of ship motion. Seafarers through ages have known what ship motion is because they experience it. However predicting motion in advance to better control a ship requires knowledge of the physical principles involved. This single volume contains a wealth of information. It is very thought-provoking as well as being very informative. Mr. Clark's unique style of illustrating complex hydrodynamic interactions enables this book to reach across the boundaries between naval architect and mariner. Even experienced naval architects and mariners will find much to interest them. The author is to be congratulated in putting across

some quite complex physical phenomena in a way which is so easy to follow.

Price: UK £54.50 EUR £56.50 OVS £64.00

(Amazon (UK) price: NA)

SHIPS AND SHIPBUILDERS:

PIONEERS OF SHIP DESIGN AND CONSTRUCTION

By Fred Walker FRINA

Ships and Shipbuilders describes the lives and work of more than 120 great engineers, scientists, shipwrights and naval architects who shaped ship design and shipbuilding world wide. Told chronologically, such well-known names as Anthony Deane, Peter the Great, James Watt, and Isambard Kingdom Brunel share space with lesser known characters like the luckless Frederic Sauvage, a pioneer of screw propulsion who, unable to interest the French navy in his tests in the early 1830s, was bankrupted and landed in debtor's prison. With the inclusion of such names as Ben Lexcen, the Australian yacht designer who developed the controversial winged keel for the 1983 America's Cup, the story is brought right up to date.

Price UK £12.50 EUR £16 OVS £21

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Workboat, international conference, New Orleans, USA.

www.workboat.com

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E-mail conference@rina.org.uk
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December 8-9, 2011

ICSOT: Technology Innovations in Shipbuilding, international conference, Kharagpur, India.

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www.rina.org.uk/ICSOTINDIA2011

January 12, 2012

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www.rina.org.uk/propertyrights

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www.rina.org.uk/environmentallyfriendlyship

February 28 – March 1, 2012

VietShip 2012, international conference, Vietnam.

www.cisvietnam.com.vn

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China Maritime, international conference, Hong Kong.

E-mail marininfo@baird.com.au
www.bairdmaritime.com

March 12-15, 2012

Seatrade Cruise Shipping Miami, international conference, Miami, USA.

E-mail info@cruiseshippingmiami.com
www.cruiseshippingmiami.com

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www.apmaritime.com

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The Systems Engineering Conference, international conference, London, UK.

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www.rina.org.uk/systemsengineering2012

April 18-20, 2012

Sea Japan 2012, international conference, Japan.

www.seajapan.ne.jp

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international conference, (Place TBC).

E-mail conference@rina.org.uk
www.rina.org.uk/LNG2012.html

April 30 – May 3, 2012

OTC 2012, international conference, Houston, Texas, USA.

www.otcnet.org

May 22-24, 2012

RORO 2012, international conference, Gothenburg, Sweden.

www.roroex.com

May 22-24, 2012

Seawork 2012, international conference, Southampton, UK.

E-mail info@seawork.com
www.seawork.com

May 23-24, 2012

ICSOT Korea: Developments in Fixed & Floating Offshore Structures,

international conference, Busan, Korea.

E-mail conference@rina.org.uk
www.rina.org.uk/icsotkorea2012

May 29-31, 2012

UDT, international conference, IFA, Spain.

E-mail team@udt-europe.com
www.udt-europe.com

June, 2012

Warship 2012, international conference, London, UK.

E-mail conference@rina.org.uk

June 4-8, 2012

Posidonia, international conference, Athens, Greece.

www.posidonia-events.com

July, 2012

Ice Class Vessels, international conference, London, UK.

E-mail conference@rina.org.uk

August 1-3, 2012

NavalShore 2012, international conference, Rio de Janeiro, Brazil.

www.ubmnavalshore.com.br

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ONS 2012, international conference, Stavanger, Norway.

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www.ons.no



International Conference Design, Construction & Operation of LNG Carriers & Floating Systems



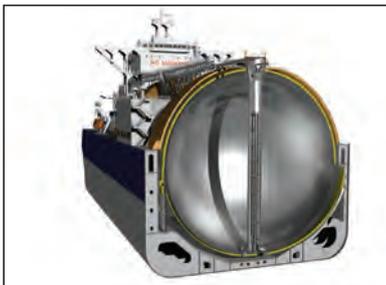
April 2012, Venue to be confirmed

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LNG accounts for a significant part of the growth in the global energy supply and despite the recent economic situation the future demand for LNG carriers, floating storage and processing systems is expected to increase.

While some companies are building larger vessels to take advantage of economies of scale others are looking at developing small vessels for shortsea and coastal trades to help create LNG distribution networks.



New alternatives to LNG including compressed/pressurised natural gas (CNG/PNG), where the gas is stored under pressure at ambient or semi-refrigeration temperatures, are also being developed. There is also a growing interest in floating production, storage and offloading systems for offshore field development and re-gasification systems and plants designed to avoid the need to construct land based processing and distribution centres.

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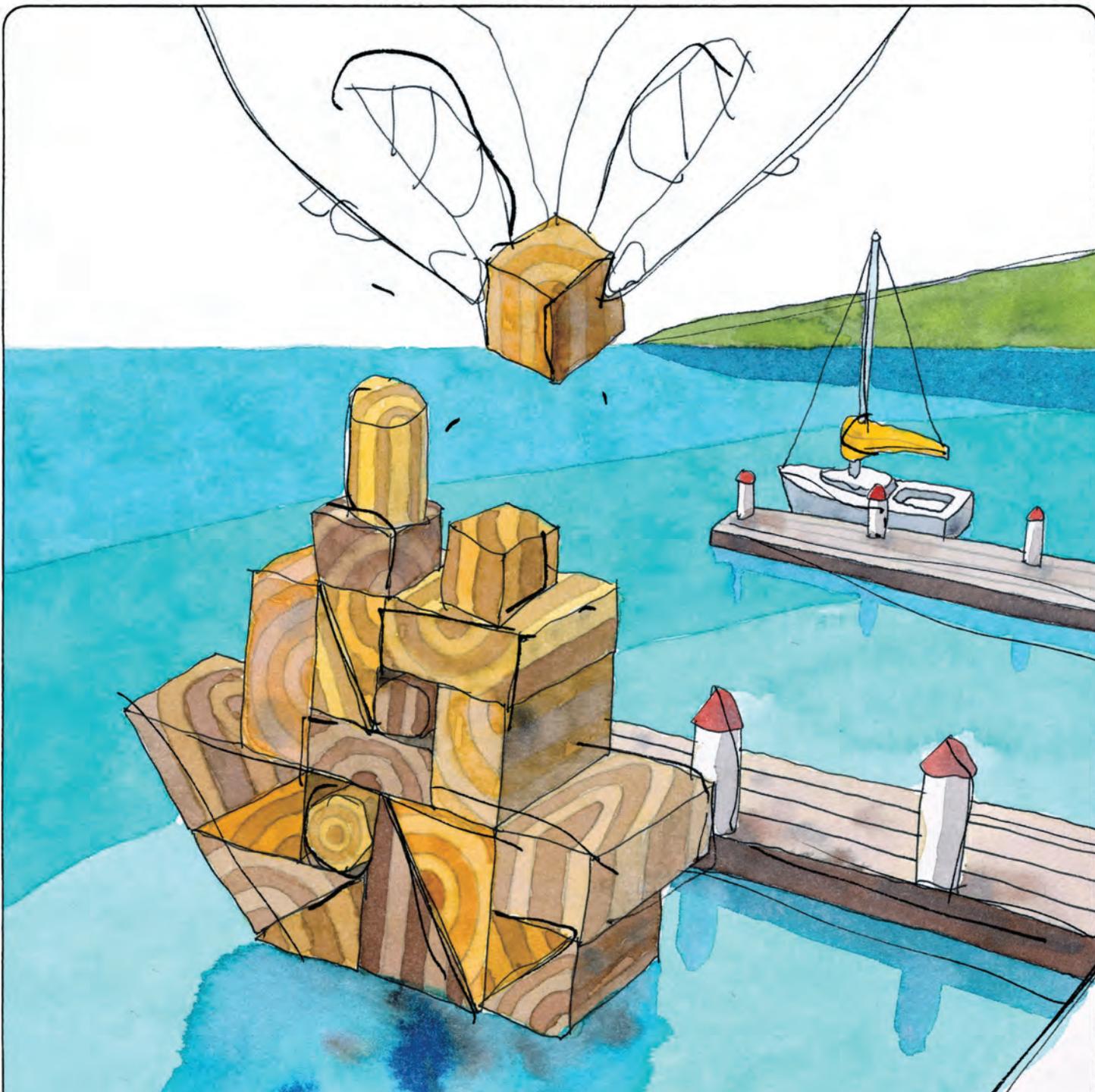
- Design of larger capacity LNG carriers,
- Design of shortsea and coastal LNG carriers,
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- Novel LNG trading routes: Arctic and beyond
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