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MARITIME REPORTER AND ENGINEERING NEWS

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SEPTEMBER 2013

The Kirby Way

Joseph Pyne, Kirby & 30 Years of Growth

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LNG Capital Expenditure

Floating Production
Huge Opportunity for Shipyards

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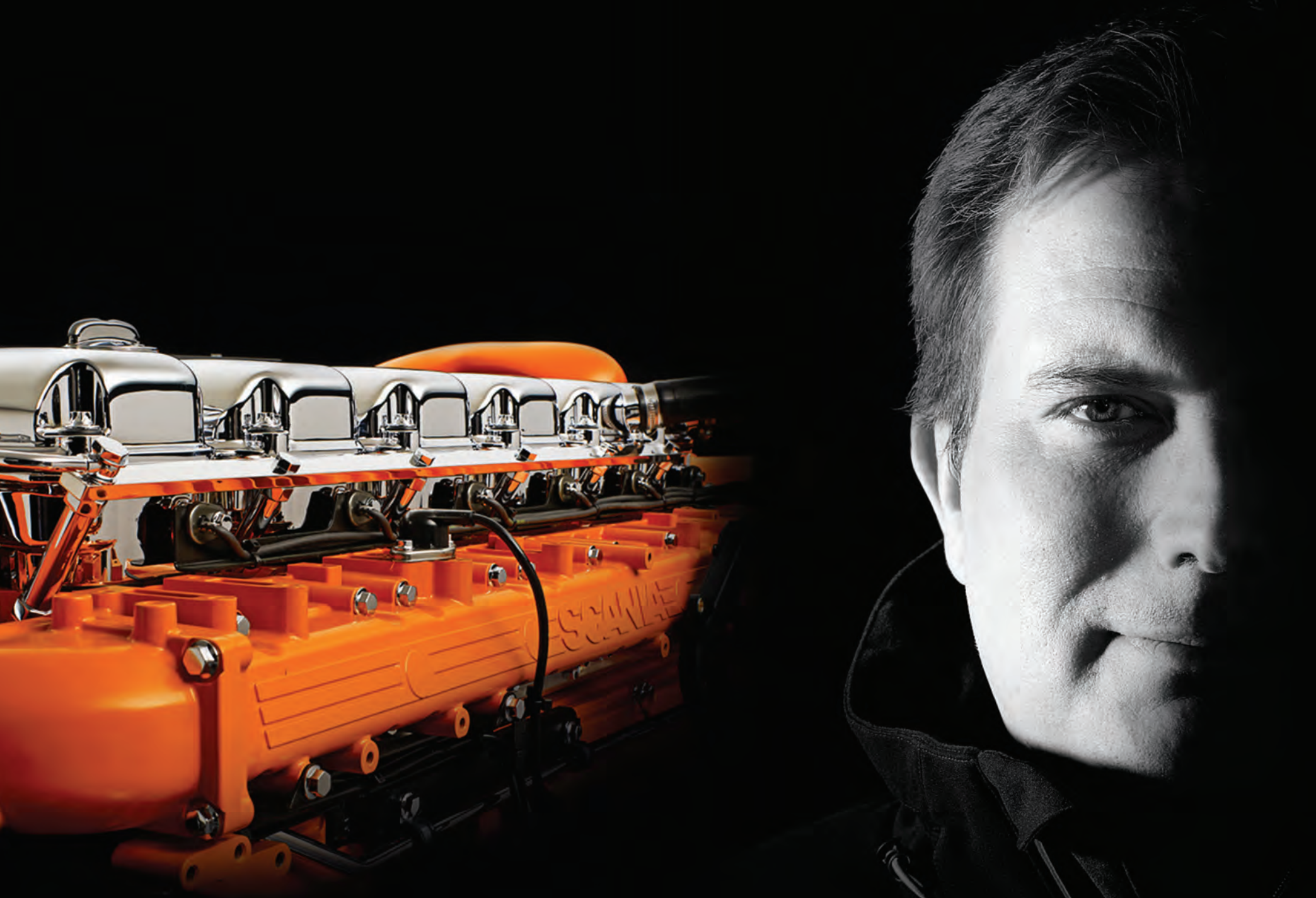
Weight study details: www.isover-technical-insulation.com



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Going Strong

"Going Strong" is an apt description for both the workboat market in general, as well as the booming business at Bollinger Shipyards, subject of a Susan Buchanan-authored feature in our extensive workboat coverage.

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(Photo: Bollinger / Crowley)

FIVE MINUTES WITH

ENERGY

OFFSHORE WIND

TRAINING & EDUCATION

HEAVY LIFTING

THE WORKBOAT EDITION

PROPULSION

ON THE COVER

Joe Pyne, Kirby Corp.'s long-tenured leader looks back at 30+ years of building the U.S.' largest inland operating outfit.

Story is on page 68

(Image: Greg Trauthwein

ALSO IN THIS EDITION

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Floating Production Systems

Stated in terms of conventional ships, fabrication of floating production systems in 2013 will equate to orders for 220 VLCCs, 360 Suezmax tankers or 800 Panamax bulk carriers. In other words, it is a big market. Yet relatively few shipbuilders are active in this sector.

Read more on the sector and the potential within, starting on page 62

the interviews

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Mobil SHC™

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School Days

Josh Lanser, a student at one of Vigor Industrial's new Training Schools, displaying his recent welding project.

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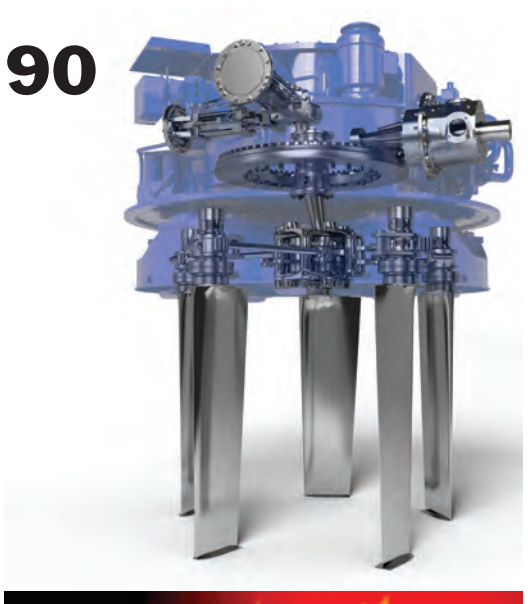
(Photo: Kathleen Gleaves)



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Lunch with Joe

As a matter of disclosure, I must first admit that during my recent visit and interview with him in the state of Maine that Joe Pyne, Kirby's ubiquitous Chairman and CEO, bought for me the most delicious sandwich that I have ever eaten – a lobster BLT dubbed the "King of Clubs," a sandwich that brought local fame to Lynn Archer when she won a "Throwdown!" with renowned chef Bobby Flay.

As good as the sandwich was, it in no way influenced the selection of this month's cover photo ... (well, maybe a little).

Lobster aside, a recent afternoon spent with Joe Pyne was personally one of the most enjoyable and professionally one of the most enlightening that I have ever had in my 20 plus years filling these pages.

While I make a career of tracking down and gaining insights from influential maritime industry leaders, I must admit that I have never had a personal conversation with Joe Pyne. After interviewing him over the course of four hours, I came to realize why: he doesn't conduct these executive interviews often.

Next month Mr. Pyne will be honored by the Coast Guard Foundation at its 33rd Annual Salute to the United States Coast Guard in New York City, scheduled for Thursday, October 10, 2013. Unfortunately I am not able to attend this year's event, as it coincides with the new dates for the International Workboat Show in New Orleans, but for anyone who has never attended the event, it is one that you and your company should not miss. It is truly a spectacular evening with a veritable "Who's Who" list of maritime industry executives, but the main focus of the evening is squarely on the continued good works and valient personnel of the United States Coast Guard. Mr. Pyne is being honored on this night for his and Kirby Corp.'s long-term support of the Coast Guard Foundation.

> "I have always been somewhat of a contrarian ... when business gets really good, I get nervous, and when it gets really bad I get excited."
>
> **Joseph H. Pyne, Kirby Corp.**

The inclusion of Mr. Pyne on the cover and ensuing 10-page feature starting on page 68 was a natural selection for this, our Workboat edition. Quite simply, Kirby Corp. is the dominent player in the U.S. inland and offshore shipping market, with a market share hovering in the mid-30s. Mr. Pyne has led the company since he was named president in 1984. At that time he headed Dixie Carriers, a business unit of Kirby that owned about 20 boats and 50 barges, with a turnover of about $35m. Today, after nearly 30 years and 50 acquisitions, its fleet is about 350 boats, about 950 barges, with a market cap in excess of $4B. To say that Mr. Pyne has seen his share of up and down markets is a vast understatement, and with us he shares some of the thought process and strategy behind the company's construction, operation, and future direction. *And if that doesn't interest you, he has some incredible restaurant recommendations!*

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(Photo: DP World London Gateway)

Gloves come off in the Battle for Britain's Shippers

Posted by Greg Knowler, Aug 13, 2013, on MaritimeProfessional.com

$2.32B London Gateway, operated by DP World, comes online in November and challenges Felixstowe

The boxes have yet to start flowing but already the challenger is squaring up with the established champ.

The battle for the hearts and minds of shippers has begun as two port-operating giants compete for Britain's containerised trade.

Felixstowe, owned by Hutchison Port Holdings, has been a long established hub and the busiest, and biggest, port in the U.K. To the south in the Thames Estuary is the new $2.32 billion deepwater port of London Gateway, operated by DP World and coming on stream in November.

The competition between the established player and the new upstart has been professional up to now, but the depressing trade volumes between Asia and Europe are sure to spice up the tussle for customers.

London Gateway has certainly managed to get under the skin of its larger rival recently, surprising when one considers that Felixstowe handled 42% of the U.K. container traffic while London Gateway has yet to handle a single box.

The new DP World facility maintained in a report that by using London Gateway, companies would be able to completely reevaluate their supply chains.

Marks & Spencer obviously subscribed to that and announced plans to build a giant distribution centre at the facility.

A selling point of the new port and its business and logistics park is the proximity of London, home to 30% of the UK population. This, it believes, gives it an advantage over Felixstowe.

In response to the London Gateway claims, Felixstowe commissioned a study that showed the inland distribution of cargo was based on the location of large warehouses and not on population.

Most of those big warehouses were located north of London and therefore in prime Felixstowe country.

The study also found Felixstowe had an overall cost advantage of $40.22 per container over its Thames rival and that London Gateway would face extra costs through road congestion around the city.

London Gateway hit back in the U.K. media, asking importers and exporters to have a look at Google maps and they would see that the port is closer than Felixstowe to two-thirds of the U.K. market. Closer means cheaper, a port spokesman said.

If this is an indication of how the battle for Britain's gateway port is going to play out, it is definitely worth watching. Ports compete in many areas but seldom are they so close together and going directly head to head.

Will there be one winner? It is not a zero sum game, despite the way it is portrayed by both port operators, and when Europe emerges from its economic winter there should be enough business to go around. But until that happens we are freshening our drinks and settling down for a mouthwatering clash between the reigning champ and the hungry challenger. Bring it on.

News in Brief

Chinese Shipbuilder Reveals "Breakthrough Tech"

According to a report on the *China Daily*, China Shipbuilding Industry Corp.'s Wuhan Institute of Marine Electric Propulsion has developed its own integrated electric propulsion technology, a step it claims will help it wean itself from imported systems. One of the major issues has been a lack of domestic companies who can make gas turbine engines to support long distance voyages. Without domestically developed gas turbine engines, the navy had to import foreign

EMD: 2,500 bhp Rating for Series 710

Electro-Motive Diesel (EMD) announced the newest rating available for its eight-cylinder model line, which is aimed at harbor docking propulsion and similar applications. The new 2,500 bhp (1,864 bkW) rating at 900 rpm, provides responsiveness for maximum acceleration, maneuvering and deceleration characteristics. Coupled with a new 200 rpm idle speed option, the engine offers low fuel consumption, high bollard power and wide operating range.

The new rating complements EMD's 2,000 bhp (1,491 bkW) and 2,200 bhp (1,640 bkW) ratings at 900 rpm without major changes to the existing design. Certified to U.S. EPA Marine Tier 3 and IMO II emissions it is available immediately.

Cat Debuts Marine Hybrid System

Caterpillar Marine Power Systems introduced the Cat Powered Marine Hybrid System, a complete hybrid propulsion package applicable to all engine platforms. Developed with Aspin Kemp & Associates (AKA), the package uses AKA's XeroPoint Hybrid marine propulsion system and provides fuel savings of up to 25% and even emissions reductions. The Cat Powered Marine Hybrid System is currently being used in the tug and salvage market. The RT Adriaan, a hydrid tug built by Kotug, features 3 x Cat 3512 marine engines as well as the new hybrid system. Kotug elected to install the system on two new tugs currently under construction at the Damen shipyard. Two more hybrid ready tugs are currently under construction at Cheoy Lee Shipyard.

Study: Deeper Mississippi River Would Add $11.5B

The Big River Coalition and the Louisiana Department of Transportation and Development commissioned a study by economist Tim Ryan, PhD., entitled *"The Economic Impact of Deepening the Mississippi River to 50 Feet."* Ryan determined a deeper channel allowing for larger vessels to maximize cargo throughput would create $11.49B in increased U.S. production, 16,991 new permanent jobs and account for $849.5 million in increased income for American workers.-

Shale Oil

Is ita Threat to Future Deepwater Development?

By Jim McCaul, International Maritime Associates

In general the floating production sector looks healthy and growth remains strong. But the sudden expansion of shale oil and tight oil production could disrupt the growth trajectory in the deepwater sector.

Deepwater

The underlying drivers for deepwater development point toward continued sector growth. Spot and futures crude pricing is at levels supporting deepwater development. Oil demand keeps growing and there continues to be need for new future sources of oil. The threat of supply disruption from traditional sources remains, prompting oil companies to look at alternative sources.

Activity in the deepwater sector is robust. More than 200 deepwater projects are in the planning stage that will likely require a floating production system for development. Deepwater drilling is at a high level of utilization. And the number of new deepwater projects coming into the planning stage is set to accelerate over the next few years as ~90 new drillships/semi rigs are delivered.

Shale Oil

But shale oil/tight oil development in the USA is accelerating at an extraordinary pace. A recent study by the Harvard Belford Center projects shale crude oil production in the US could approach 5 mb/d in 2017 – compared to around 1.5 mb/d in December 2012 and virtually zero in 2006.1 Wood Mackenzie is projecting that North American tight oil production will exceed 5 mb/d by 2019.2

The US Geological Survey in April 2013 estimated the Bakken-Three Forks formation in the US (one of the three major formations) has 7.3 billion barrels of technically recoverable undiscovered oil reserves.3 Five years earlier the USGS said the figure was 3.65 billion barrels.

Pioneer Natural Resources, the largest acreage holder in the Sprabery Wolfcamp shale oil field in Texas, in August told investors that the field "is the second largest oil field in the world," second only to the giant Ghawar field in Saudi Arabia.4

Impact on Deepwater Projects

This sudden expansion of shale oil/tight oil has two potential repercussions. First, the supply of oil from these new sources will reduce US oil imports, make more crude available for other markets and ultimately drive down the price of crude. Second, oil companies will invest in shale oil/tight oil projects using capex that otherwise might be earmarked for deepwater project starts. Both spell potential trouble for future deepwater investment.

Cost Trends

A related issue is that the cost of producing shale oil/tight oil is falling – and the cost of deepwater is increasing. Shale producers are experimenting with much denser drilling on shale oil deposits and drilling/fracking technology is improving. These advances are driving costs lower.

Meanwhile, the cost of floating production is rising as projects go further out into deeper water. It is not uncommon to see deepwater FPSOs now costing $1 billion and more, up 30 to 50% from a few years back. In June the Egina FPSO at $3.1 billion set the record for the most expensive FPSO to date.

5 mb/d

A recent study projects shale crude oil production in the U.S. could approach 5 mb/d in 2017 – compared to around 1.5 mb/d in December 2012 and virtually zero in 2006

Implications

The volume of shale oil/tight oil is still small relative to total world crude production. It accounts for only 1.5% of current world crude supply – or about the same as the combined crude production of Ecuador and Algeria, both small OPEC producers. So at the moment it is a stretch to conclude deepwater is threatened by this new crude source.

But new sources of oil have a cascading competitive impact on existing sources. They knock out high cost supply sources first. While the high cost oil sands in Canada are most threatened by shale oil/tight oil, the more vulnerable deepwater developments could be next in line. Some signs are pointing in this direction. Several deepwater projects have recently been shelved or delayed – most notable being Hadrian and Mad Dog 2 in the Gulf of Mexico.

At minimum, all involved in the deepwater sector should keep an eye on shale oil/tight oil expansion. No sense getting blindsided by the land drillers.

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www.imastudies.com

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2 Wood Mackenzie, "US Unconventional Plays Will Help Reduce Imports from Abroad," OGJ, 31 July 2013.
3 USGS, "Finds Formations Have Greater Resource Potential than Previously Thought," 30 April 2013.
4 PNR, Presentation at the Unconventional Resources Technology Conference, 12 August 2013.

Study: U.S. Economy Gained $42B from Cruise Industry

The North American cruise industry continued to be a substantial contributor to the U.S. economy in 2012 according to an independent study commissioned by Cruise Lines International Association (CLIA). The study shows that CLIA's 26 North American member lines and their passengers and crew contributed more than $42B in total U.S. economic impact, a 4.6% increase from 2011. In addition, the cruise industry generated 356,311 jobs, paying a record $17.4B in wages to American workers.

After a strong rebound in 2010 and 2011 from the recession induced impacts of 2009, the North American cruise industry continued to expand in 2012. According to the study, CLIA's North American member cruise lines carried a record 16.95 million passengers on cruises worldwide in 2012, a 3.8%increase from the previous year. More than 10 million passengers embarked on their cruises at U.S. ports — another all-time high — delivering significant economic benefits to local and port communities nationwide. "The cruise industry is a growing contributor to our nation's economy and the economic benefits of cruising go beyond port communities as all 50 states benefit from the cruise industry's direct and indirect spending," said Christine Duffy, CLIA's president and CEO. "Various businesses nationwide contribute products and services that are integral to the cruise experience. The study demonstrates that cruising, aside from being a fun and affordable vacation option, continues to spur U.S. economic growth."

Photo: Carnival

"The State of the North American Cruise Industry in 2012" was prepared for CLIA by Business Research & Economic Advisors (BREA) of Exton, Pennsylvania. Total economic impact on the U.S. economy grew by 4.6% to $42.3B in 2012, with direct spending by the cruise industry growing by 4% to $19.6B.

During 2012, CLIA's North American cruise line members carried nearly 17 million passengers on cruises around the globe. This represented a 3.8% increase from the previous year.

An estimated 10.1 million cruise passengers embarked on their cruises at U.S. ports, accounting for 59% of the CLIA North America member cruise line global embarkations and representing a 2.5% increase from 2011.

Naturally, Florida remains the number one state in cruising, as Florida ports handled approximately 6.1 million embarkations and accounted for 60% of all U.S. cruise embarkations in 2012.

ZF Marine Propulsion Systems

Making a strong thrust into the commercial workboat sector

ZF is a $20 billion, foundation-held industrial colossus with a strong reputation of providing engineered solutions in the diversity of fields that it serves. While the company reaps the majority of its sales in the automotive sector, it is making a concerted push through its Marine Propulsion Systems unit to expand its offering and presences in the commercial maritime business. Wolfgang Schmid, Head of Marine Propulsion Systems Regional North America and Central America, last month hosted MR in the company's gleaming North & Central American HQ to explain.

By Greg Trauthwein, Editor

Wolfgang Schmid has for nearly two decades worked for ZF, with the first 10 spent on the company's automotive side, the last eight leading its North and Central American marine propulsion division. When he took over the division in 2005, business was booming, and while Schmid admits that he likes the cyclical nature of business, what he, the company and the world were set to experience went above and beyond normal cycles. "I like change, because change keeps us on our toes. But I like change in a manageable fashion. What happened in 2008/2009 was an avalanche."

The avalanche was the cumulative effects of the global economic collapse and lingering bad economy. With the lion's share of the ZF Marine Propulsion System business on the consumer side of the ledger, Schmid and his colleagues felt the effects deeply and immediately, as consumer spending dried up nearly overnight. "I've seen the ups and the downs in those eight years. We hit the heights in 2007 as many other industries did, and we saw the worst in 2009," Schmid said.

Prior to the global economic shock, ZF maintained a network of small service centers in North America, a network that would prove unsustainable in the new business environment. "We reacted immediately in the way we approached our aftermarket strategy," Schmid said. "(Today) we have 100 people in this company, and one-half is aftermarket related. Before, we had 13 small service centers, but as the volume dried up it was impossible to keep those open. We sat down and looked at our footprint, and reconfigured into a three branch strategy, maintaining our signature high level of service while reducing our cost structure tremendously."

So from adversity emerges success, as ZF Marine Propulsion Systems has emerged stronger on the flip side. Backed by a large company which holds technical excellence and global vision as core tenets, ZF Marine Propulsion System became more lean, opening its Miramar, FL HQ four years ago and establishing three additional U.S. hubs in Philadelphia, New Orleans and Seattle for service and spares. "During the boom days, you have to really stash away," Schmid said. "Yes we want to grow, but our philoso-

phy is to not be foolish and make huge investments that can't be stopped when the tough times come. We always try to be ready for what the market throws at us"

So ZF today, a disciplined investor with a long-term outlook on the markets it serves, is targeting the commercial marine industry to power its growth.

Commerical Maritime Expansion

Previous to his eight years with the marine division, Schmid spent a decade on ZF's automotive side of the business, a business which cumulatively accounts for nearly three quarters of the company's annual intake. "The Marine business unit within ZF was always the most international and global thinking of all divisions, and that's really what attracted me to the position," Schmid said. "There are many differences (between auto and marine), starting with the way the business is handled; on the marine side it is more on a personal level. Here you're dealing with smaller businesses, and today it is still more of a 'handshake' business. There is a lot more trust still here that seems to have disappeared in automotive."

ZF's Marine business is a part of the Industrial Division of ZF, a division that includes marine, rail, aviation, off highway and special driveline transmissions, a division that garners approximately 11% of the company's annual sales.

But while marine is still a relatively small part of the big picture, Schmid, who had just returned from annual management meetings in Friedrichshafen, said that ZF's board of directors has laid a clear mandate to invest in and grow the commercial marine business starting now.

"We have focused more heavily on the commercial activity, backed by our acquisition of a thruster company, which signaled that we really want to become a major force in that market," Schmid said. In step, the company is in the process of expanding its product portfolio to the commercial marine sector, and Schmid was succinct in sizing up his company's approach. "At ZF, when we put our mind to it, we get it done. And the objective is clear: Become the dominant player in workboat transmissions for the foreseeable future."

Perhaps best known for its transmissions, ZF Marine Propulsion Systems offers a family of products to the maritime sector, including transmissions, pod drives, steerable azimuth thrusters, controls, propellers and surface drives and tunnel thrusters

Strength in Numbers

The breadth and depth of ZF global engineering and R&D is a strong card in ZF Marine Propulsion Systems' deck, and there are some early signs that the company is well positioned for a strong run at significantly increasing its commercial maritime business.

First and foremost, it is backed by a fiscally strong parent company that is not shy to invest heavily in R&D. "A significant percentage (5 to 6%) of our profits are plowed back into Research and Development, but last year that number was significantly higher," Schmid said. Being held by a foundation also has its advantages, as Schmid said the company is not beholden to shareholder whim and expectation on a quarterly basis, allowing it to take and maintain long-term strategies. Another advantage is the ZF organization itself, as the Marine Propulsion Systems division has access to a depth and breadth of industrial know how and R&D that is hard to match.

"Certainly our advanced technology is a strength, but let's keep it in perspective: we're talking about reversing trans-

(Photo: ZF)

Aerial photo of ZF Friedrichshafen AG, Corporate Research & Development and Corporate HQ, Friedrichshafen.

missions, we're not talking about rockets that take us into outer space," Schmid said. "However in a gear, as simple as it might look, there is so much technology built in, in terms of material, in terms of manufacturing processes. To this day we are still optimizing a gear, the form and the function. We make them lighter, we make the stronger. We have the technical ability to deliver what the market wants, what the market needs. We have infrastructure to support our customers and operations globally."

But even the best made products eventually need service, repair or replacement, and Schmid stressed repeatedly the importance of serving the customer. "We consider ourselves a benchmark company in after sales service."

Crucial to this is the fact that ZF – for the most part – does not use third parties or dealers, making the company and its employees intimately and immediately aware of customer feedback, both positive and negative. In turn, it is then able to communicate with the factory in a direct manner to help identify and resolve potential problems. "I have a staff of naval architects and application engineers, so we're pretty self-sufficient and we can respond quickly. We are the manufacturer," Schmid said. "This makes it much easier to get feedback from the customers directly back to the factory."

Future Challenges

While the marine industry is as fluid and dynamic as any other, it has been a few steps behind in terms of consolidation and corporatization. But that is starting to change. "The marine market has been very dynamic for the last two years," Schmid said, "with a lot of consolidation in the marine propulsion sectors."

"We have focused more heavily on the commercial activity, **backed by our acquisition of a thruster company**, which signaled that we really want to become a major force in that market"

Specifically, the trend toward single source providers in the maritime propulsion market has been gaining steam for more than a decade, led by the diesel engine manufacturing majors such as Wärtisilä and more recently Caterpillar, resulting in fewer, larger players.

Through acquisition and teaming, there are fewer companies are taking on larger responsibilities onboard each commercial marine vessel. “If everybody is teaming, are we talking about more packages; is this what the shipyard wants? Is that what the vessel owner wants? It remains to be seen.”

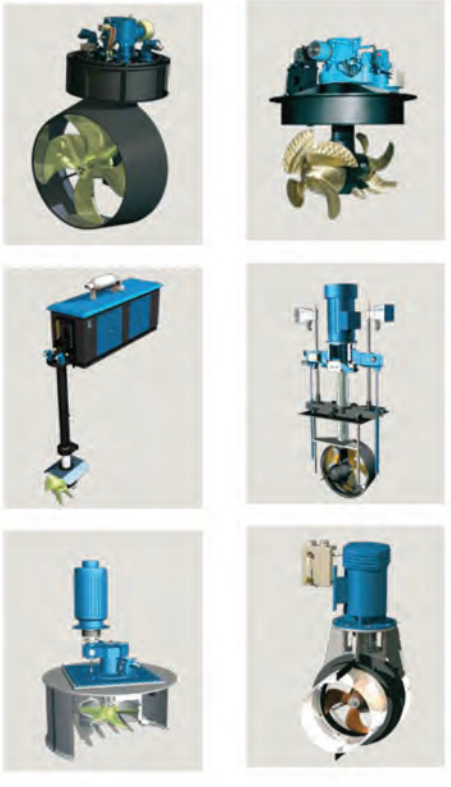
In evaluating pockets for potential growth, Schmid said his unit’s strategy will mirror the corporate mantra, to be selective and thorough.

“We see opportunities for expansion of the use of thrusters on the inland waterways,” Schmid said. While the maritime sector in general, and the inland sector in particular, are slow to uptake new technologies, Schmid said that in today’s environment where fuel prices are spiraling upward rapidly, the cost savings alone are compelling. “We have to really stress the benefits that a Z-Drive has to offer, particularly regarding the fuel savings. If we can show an operator that they can save 10 to 25%, that is huge.”

Opposition to Z-Drives on the rivers traditionally has stemmed not from technical issues, rather the ever-shifting river bottom and sediment build-up that can punish anything below the hull line. In response, the company is continuing to stress the strategic advantages of ZDrives in the inland market, including the significant fuel cost savings, the ability to use a smaller motor to get the same performance as well as the advantages in maneuvering the vessel. In addition, it is vigilant to stock spare swing units in key locales to ensure that if an operator runs into a problem, ZF Marine Propulsion Systems will be there in a timely fashion to get the boat working again.

“If you’re an operator, the savings can be staggering, to a point where the investment is nothing,” Schmid said.

Another area of obvious expansion would be in the Offshore Oil & Gas market, particularly in and around the Gulf of Mexico. “We already have good activity in the offshore market down in the Gulf of Mexico with our transmissions, but I think we have room to grow on the control and propeller lines,” said Schmid. While there are many strong opportunities ahead, Schmid said there are natural challenges to any business. “On the 30,000 ft. level, the challenge is how can we meet the demand of our board of management to grow our non-automotive business. We have found success in our customer partnerships. Listening to them and bringing to market products that help make them successful, through internal development or by strategic acquisition.



Søren H. Jensen, VP of R&D, MAN Diesel & Turbo

Recognizing Opportunities and Master of Challenges

More stringent emission regulations and increasing fuel prices require the development of environmentally compatible, fuel efficient ship propulsion. At the same time, there is a mild demand for new ships and engines. Against this background Maritime Reporter & Engineering News spoke with Søren Helmuth Jensen, Vice President of Research & Development, Low Speed Marine Engines at MAN Diesel & Turbo, discussing both the challenges and opportunities which he sees.

By Peter Pospeich, Germany

How do you describe your position as Vice President of Research & Development for the "big-bore" two-stroke engines of MAN Diesel&Turbo?

MAN Diesel & Turbo is a successful company, which is very active in attractive industries and markets. I see my responsibilities as to build up further on this basis, and together with my board colleagues and employees, prepare MAN Diesel & Turbo for future challenges. We will stay as a strong enterprise – with an innovative and market oriented solution portfolio in the shipping, energy and industrial segments. As such it is a concern to have a good mixture between these business segments as well as between newbuilds and service. Our long term target is clear: we will grow sustainable and profitable. When we are talking specifically about the shipping business, we see the implementation of the tightened IMO-Tier III standards as a very important challenge for the next years – needless to say apart from overcoming of the weak economy, which has almost seized the whole industry. To be more efficient we internally organized our strategic business unit "Marine Systems" and pooled the maritime engine business of the two- and four-stroke engines, inclusive after sales service, under the management of Dr. Stephan Timmermann, member of the executive board.

What is MAN's present situation of the maritime engine business related to two- and four-stroke engines?

Our 2-stroke license business is the market leader. In the 4-stroke business we see a general market weakening; however here, particularly in the offshore-sector and other market niches we see lots of possibilities. Following from the market development towards the further optimization of large container ships propulsion efficiency, we recently added two significant units to our engine program. The new engines G95ME-C9.2 and S90ME-C10.2 rank among the largest and most powerful engines MAN has ever released to the shipping two-stroke market. In parallel to this we introduced lately the ME-GI engine. That our decision with the new engine was the right one can be seen by the immediate received orders and it confirmed the growing demand to have the option to run ships on Natural Gas as well as HFO in the face of increased fuel prices. Owing to market interest, we have now extended our dual-fuel engine program with an ME-LGI unit that can run on liquid fuels.

What effects have the current shipping crisis had on the turnover of the two business fields, and which kind of development can be seen due to the incoming orders?

Of course, also MAN Diesel & Turbo is influenced from the slowdown in the shipping sector – this is valid for the two business areas: two-stroke as well as four-stroke. Nevertheless our shipping business is, even in tough economic times, still a main pillar of our business and our results.

Based on this background, which influence do you see on your employee structure?

As mentioned before, we adapted strategically our global organization to be closer to our customers. And we are expanding continuously our PrimeServ Service Network with new service centers as we did recently with the newly opened presence in Halifax at Canada's east coast. The employee structure has been changed in this respect, as the portion of employees has been increased noticeably. Although with the current condition of the market we must be very careful concerning recruitment.

You mentioned the challenge because of the more stringent emission guidelines. In January 2011 Tier II came in force, with beginning of 2016 Tier III will be in force. Till than NOx has to be reduced in the ECA's by around 80%. Which radical answers and concepts has MAN Diesel & Turbo, respectively on which solutions do you work?

That is a big task and we must take action on many fields to answer this challenge; which only with internal engine measures cannot be solved. In the four-stroke sector today we fulfill the preconditions of IMO Tier III with a catalytic system, the Selectiv Catalytic

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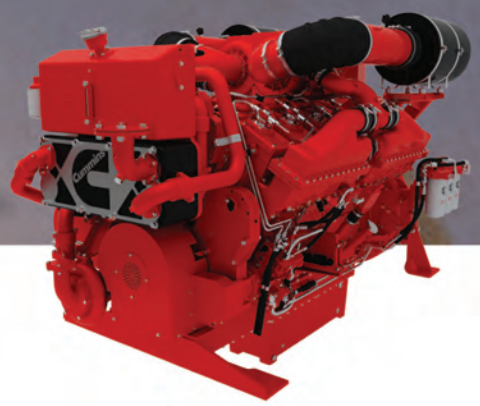

Inland river operators have been successfully running Cummins 38-liter engines for decades. Now Cummins is taking uptime to a new level with our QSK38 and QSK50 Tier 3 engines. These engines run cleaner and stronger, with exceptional dependability and durability. Barge, tug and towboat operators will also see improved fuel economy across the entire power range, especially from Cummins engines operating at our new 1600-rpm ratings. For additional details, contact your local Cummins distributor or visit marine.cummins.com. And see how we can help keep your business pushing ahead.

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"We see significant opportunities arising for gas-fueled tonnage as fuel prices rise and modern exhaust-emission limits tighten."

Søren H. Jensen, 49, Vice President of R&D at MAN Diesel & Turbo, who likes to work in a free-standing position at his desk.

Back in 2004, MAN Diesel & Turbo started the first test program with EGR on the large 4T50ME-X two-stroke diesel test engine in Copenhagen, in order to verify the effect of EGR. Image shows the cylinder-head platform of the test engine

Regeneration (SCR). Together with a diesel engine of the newest MAN generation the SCR-technology forms in future a complete system on board a ship. Furthermore, we made major steps forward with the exhaust gas recirculation technique on two-stroke engines. In general heavy fuel on board ships is used; this contains sulfur and releases during the combustion process NOx and SOx.

The legislation foresees that during the next 10 years such emissions must be reduced drastically. Our EGR-systems provide a high fuel flexibility, from heavy fuel towards distillates and gas; the NOX content is reduced by a partial recirculation of exhaust back into the scavenging air. This minimizes the oxygen content of the air in the combustion chamber which in turn reduces the combustion temperature and hence the NOx formation. Test at our "Diesel Research Center" here in Copenhagen have shown, that with the help of the EGR technique, the upcoming Tier III NOx limits are fulfilled. In the field of the big-bore engines we work as well on SCR solutions; together with one of our licensees we recently put the first IMO Tier III unit in operation.

In addition to this we feature a very remarkable portfolio of gas-engines. In the business unit Low Speed we introduced the ME-GI engine.

The ME-GI engine represents the culmination of many years' of work that began in the 1990s with the company's prototype MC-GI dual-fuel engine that entered service at a power plant in Chiba, near Tokyo, Japan in 1994. Depending on relative price and availability, as well as environmental considerations, the ME-GI engine gives shipowners and operators the option of using either HFO or gas – predominantly natural gas.

We see significant opportunities arising for gas-fueled tonnage as fuel prices rise and modern exhaust-emission limits tighten. Indeed, research indicates that the ME-GI engine delivers significant reductions in CO2, NOx and SOx emissions. Furthermore, the ME-GI engine has no methane slip and is therefore the most environmentally friendly technology available.

MAN Diesel & Turbo predicts a broad, potential market for its ME-GI engine.

As such, the ME-GI engine represents a highly efficient, flexible, propulsion-plant solution.

From the technical point of view I'm pretty sure that we at MAN Diesel & Turbo can solve the challenges. At the end of the day the question is open if our customers are able to invest in this, based on the new exhaust legislation, new technology, especially in consideration of the current weak world economical crisis.

About Søren H. Jensen

After graduating in 1990 from the Technical University of Denmark (DTU) as a Mechanical Engineer, Jensen started his professional career at MAN Diesel & Turbo in the R&D and Engineering Department. He held various positions in engine development and new design, 1992 – Research Engineer Vibration Analyses, 1998 – Research Engineer Engine Development, 2001 – Manager Engine Development, 2005 – Senior Manager New Design, before he was promoted in 2008 to Vice President of R&D, where he took over the responsibilities of R&D Marine Low Speed Engines. Jensen was member of the CIMAC Board from 2009-2011; since 2011 he is a member of the Advisory Board of the DTU Mechanical Engineering Department.

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Proving Compliance

Jeffrey Moller, Partner at Blank Rome, is the leader of Blank Rome's Products Liability, Mass Tort and Insurance Litigation Practice Group.
E: Moller@BlankRome.com

(Photo: Rai Deepak)

The failure of the United States to ratify an international treaty pertaining to maritime issues is, unfortunately, nothing new. But the Senate's failure to ratify the Maritime Labor Convention of 2006 (MIC), arising out of the 94th session of the International Labor Conference held at Geneva that year, will not give American operators in foreign trade an excuse for failing to comply. Complications could certainly arise – translation: expensive delays – when a government official in a foreign port demands a certificate or other proof of compliance. Operators based in ratifying countries will be issued certificates of compliance from their governments, but operators based in non-ratifying countries will be in potential difficulty.

Fortunately, the U.S. Coast Guard has recognized the quandary that American operators in foreign trade may find themselves in after the MLC comes into force on August 20, 2013. The Coast Guard has "come to the rescue" in setting up a voluntary compliance program that can lead to the issuance of a certificate to be used as evidence of compliance with MLC standards.

On July 30, 2013, the Coast Guard issued Navigation and Vessel Inspection Circular (NVIC) #02-13, entitled "Guidance Implementing the Maritime Labor Convention, 2006." This NVIC can be downloaded from the U.S. Coast Guard's on-line NVIC library, found at **www.uscg.mil/hq/cg5/nvic**.

As the NVIC explains, neither the Coast Guard nor any other U.S. government agency has issued actual and enforceable regulations pertaining to the MLC because the MLC was not ratified by the Senate or adopted as an actual law by Congress. The Convention contains a "no more favorable treatment" clause, however, that requires ratifying governments around the world to impose Convention requirements on vessels that call at their ports. If the vessel's operator is unable to prove that it has adopted a program which complies with the Convention, the foreign government may exercise detention powers under port state control regulations and/or refuse future entry.

The Maritime Labor Convention, as the name might suggest, pertains to the working conditions of seafarers. The MLC sets out standards in 14 subject areas such as hours of work and rest, professional qualifications, minimum employment age, conditions of employment, health protection, accommodations, food and medical care, payment of wages, and the like. There are certain mandatory standards and other non-mandatory "guidelines." The MLC allows ratifying countries to implement the mandatory provisions in several ways, including through national laws or regulations or through collective bargaining agreements. The full text of the MLC can be found at the "Labor Standards" tab on ILO's main website (**www.ilo.org**), at which can also be found a list of ratifying countries.

The primary mechanism through which the Coast Guard will be implementing its program are the Classification Societies.

The NVIC constitutes a request from the Coast Guard to the several recognized international Classifications Societies to conduct MLC compliance inspections and issue a "Statement of Voluntary Compliance – Maritime Labor Convention" (SOVC-MLC) on the Coast Guard's behalf. (Coast Guard Form CG-16450B.) The NVIC contains a helpful checklist which the Classification Society's inspectors should use as guidance in conducting the compliance inspections. Vessels that are not required to be "classed" as a condition of insurance or lender-imposed obligations can have the MLC inspections conducted by the Coast Guard's various Officers in Charge of Marine Inspection (OCMI), which will rely on the same checklist for guidance. The MLC does not apply to vessels less than 500 gross tons.

Fortunately, there are a number of laws and regulations in place in the United States which are functional equivalents of the MLC requirements. As a result, vessels that are already in compliance with U.S. law with respect to certain seafarer conditions may not need to change their policies and procedures radically in order to come into compliance. For example, the MLC requires that no person may be employed aboard a vessel who is under the age of 16. There is already a federal law in place which sets 16 as the minimum age for employment for most forms of non-agricultural work. (29 C.F.R. 570.2)

Therefore, compliance with that federal law constitutes compliance with the MLC's age requirements. The MLC also requires that seafarers be certified as medically and physically fit to perform their duties. The Coast Guard already has regulations and a thorough program for medical and physical qualifications of seafarers, which is found at 46 C.F.R. 10.215. The MLC requirement that seafarers be trained and certified as competent and qualified to perform their duties is in line with the Coast Guard's regulatory system for issuing credentials for seagoing officers and ratings, which, if being followed by the operator, would satisfy the MLC standard. And existing U.S. law pertaining to the payment of wages, hours of work and rest, manning levels and the like are all consonant with the respective MLC requirements. The Coast Guard's NVIC gives a full explanation and reference list for Classification Society inspectors and operators to follow.

The Coast Guard cautions that the SOVC-MLC may not be a panacea.

Although it constitutes prima facie evidence that the United States considers the vessel as being in compliance with the standards of the MLC, there is some chance that the SOVC-MLC may not be recognized by all foreign governments. The Coast Guard therefore suggests that operators be prepared to provide additional evidence if they should need to demonstrate compliance in some other fashion.

The Coast Guard is to be commended for its effort to assist the shipping industry and help to avoid unnecessary delays and expenses. This effort was not, to my understanding, compelled by Congress or specifically funded by a line item in any Coast Guard reauthorization bill. The Coast Guard seems simply to have seen an opportunity to assist the shipping industry and has, at its own expense during times of federal sequestration, undertaken to do so. This effort to help the industry safely navigate through international regulations is totally consistent with the Coast Guard's way of doing business and in keeping with the best traditions of that service.

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Efforts continue to improve the

Modeling of Thrusters

Robert Heerkink is project manager at the Ships department of MARIN, the Maritime Research Institute Netherlands. MARIN offers simulation, model testing, full-scale measurements and training programs, to the shipbuilding and offshore industry and governments.

E: r.heerink@marin.nl

www.marin.nl

MARIN uses thrusters in many projects. For a typical model scale, around 1:50 to 1:60, relatively small thrusters are required. Thrusters for these models are available ranging from 50 mm to 80 mm nozzle diameters. In the past these thrusters were always modelled with a horizontal shaft.

By tilting the nozzle, the closest possible match was achieved between the client specifications and the modelled thruster for the basin tests.

Due to the ever-evolving process in improving the models, new thrusters were built witha 7-degree tilted thruster shaft.

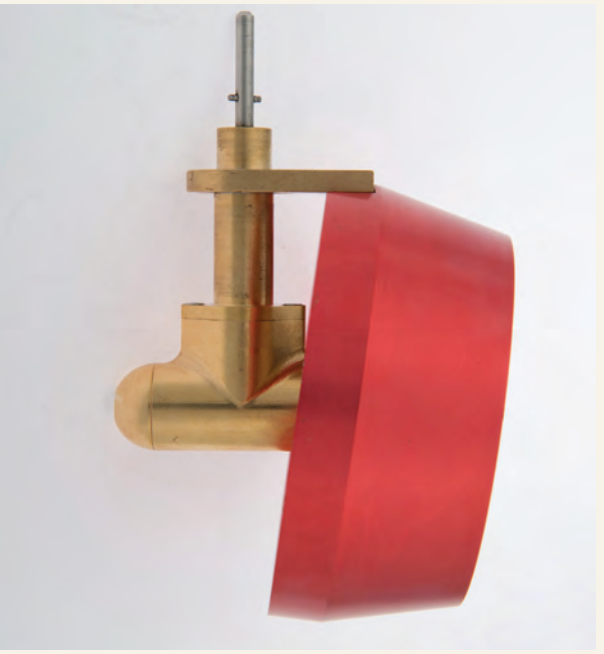
Special gears were made for a reliable and durable thruster model and with these new thrusters it is still possible to mount nozzles with a slightly different angle. See figures for examples.

The newly built thrusters give clients the ability to choose a more accurate representation of the thrusters used during model testing.

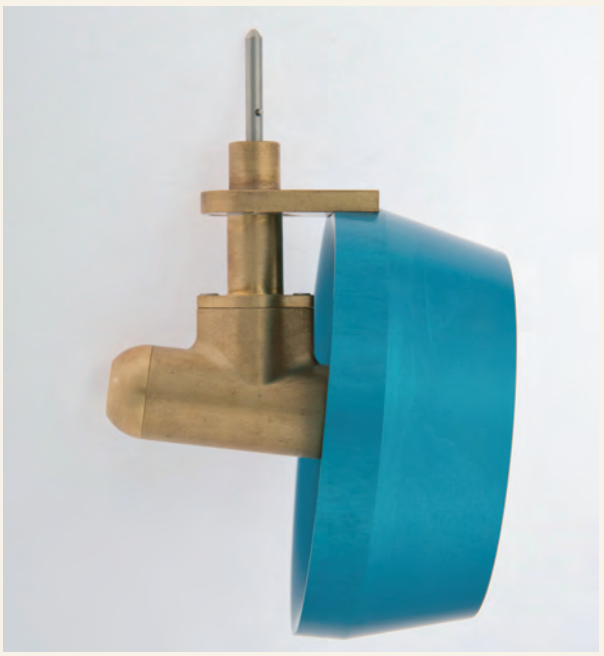
0 deg. tilted nozzle

5 deg. tilted nozzle

7 deg. tilted nozzle



7 deg. tilted axis, 5 deg. tilted nozzle



7 deg. tilted axis, 7 deg. tilted nozzle

Model with mounted thrusters

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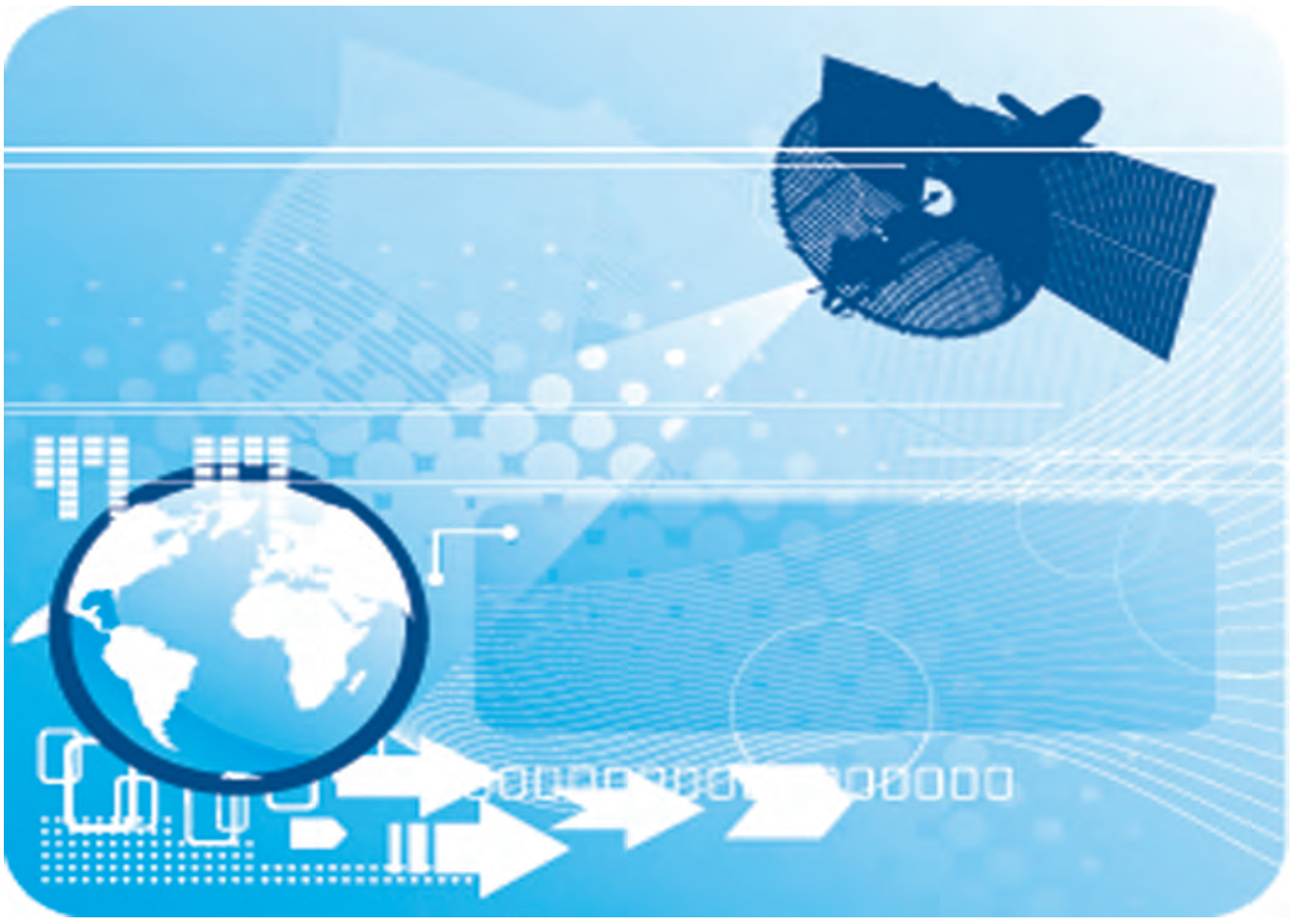
GPS Spoofing

Simple annoyance or potential security threat?



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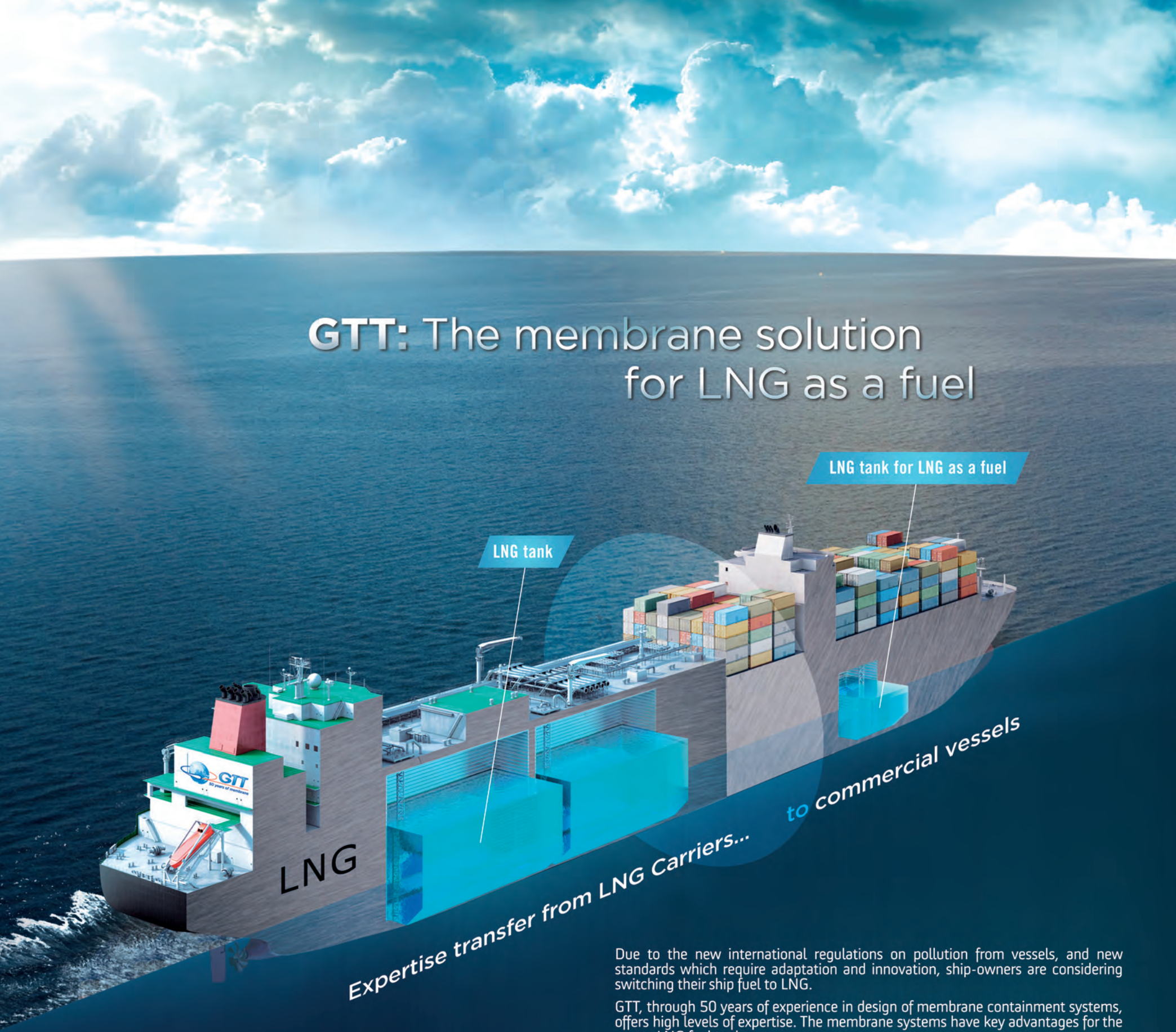
Spoof is defined as "a hoax or swindle." In the world of electronic networks, a spoofing attack is a situation in which one program successfully masquerades as another by falsifying data and thereby gaining an improper advantage. We have all heard of, and possibly fallen victim to, fraudulent card readers (often inserted on self-service fuel pumps). The fraudulent card readers copy security information from the credit card, which is then used to clone an illegitimate credit card and incur improper charges on the victim's credit card account. Most spoofing has a financial object, but that is not always the case.

It is now possible to spoof Global Positioning System (GPS) and other space-based positioning, navigation, and timing (PNT) services. To date (as far as can be determined), intentional GPS spoofing has been limited to research experiments to determine vulnerability. Iranian officials, though, claim that they were able to acquire an American stealth surveillance drone in December 2011 by transmitting false signals to the drone. The claim is almost certainly bogus, but impossible to totally disprove.

The reason that PNT receivers, such as the GPS receiver found on almost every commercial vessel in the world, are susceptible to spoofing is that the signal transmitted by the PNT satellite is of very low power. It does not take much in the way of power from a fraudulent transmitter to overcome that signal. The same is not true of a Loran signal, since it transmits at a much higher power level. Unfortunately, there only a few places in the world where the Loran system remains in operation. It is old technology, not as accurate or efficient as space-based PNT systems, but much more difficult to spoof or jam.

A GPS spoofing attack deceives a

GTT: The membrane solution for LNG as a fuel



Expertise transfer from LNG Carriers... to commercial vessels

Due to the new international regulations on pollution from vessels, and new standards which require adaptation and innovation, ship-owners are considering switching their ship fuel to LNG.

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Spoof

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GPS receiver by broadcasting a slightly more powerful signal than the real signals, and structured to resemble a set of normal GPS signals. This can be complex because a GPS receiver is usually receiving low-power signals from three or four separate satellites. Spoofing will become more complex in the future as next-generation GPS satellites broadcast more sophisticated signals. The spoofed signals are modified so as to cause the receiver to determine its position to be in a determined location other than where it actually is. Theoretically, this determined location could be anywhere on earth, below it, or above it (at least up to the level of the satellite orbits). If the location determined by the spoofer is initially very far from the actual location of the GPS receiver, though, the users will quickly detect that something is wrong. Therefore, it is necessary for the initial fraudulent location to be only slightly different from the actual location. The spoofing signal then slowly increases the deviation from the actual location. Many ships and aircraft operate much of the time on auto-pilot. Making the GPS receiver incorrectly determine the position of the ship or aircraft will cause a change in the course of the ship or aircraft to get it back to the programmed trackline. If the spoofing can be extended for a sufficient period, the ship or aircraft potentially can be taken far from its true trackline and destination.

In June 2013, a radio navigation research team from the University of Texas at Austin conducted a "proof-of-concept" demonstration on the 213-foot long luxury yacht White Rose in the Mediterranean Sea. The purpose of the demonstration was to measure the difficulty of carrying out a spoofing attack at sea and to determine whether sensors on the vessel could identify the attack. With the permission of the owner, members of the team boarded the yacht in Monaco en route Rhodes. When the yacht was about 30 miles off southern Italy, they transmitted false GPS signals slightly stronger than the actual ones. The signals were then modified to show that the yacht as slowly moving slightly to starboard. The signal deviation was slowly increased so as not to arouse alarm. The yacht, operating on auto-pilot, slowly adjusted its course to port to bring it to where the GPS receiver computed the yacht should be. The yacht stayed on the fraudulent course for the duration of the experiment.

One can correctly point out that spoofing to any significant extent can be detected by using an alternative means of determining one's position. In the real world, though, this is often not done. We have become so reliant on GPS that we don't question it.

In 10 June 1995, the cruise ship Royal Majesty ran aground in what amounted to a case of accidental spoofing. The ship was returning to Boston from a voyage to Bermuda. At dinner, the master explained to the passenger at his table how groundings were a thing of the past because the ship was equipped with all the latest navigation equipment, including GPS. Unbeknownst to the navigating team on the bridge, as the ship approached the Massachusetts coast, the wire connecting the GPS receiver (located in the chart room) with the GPS antenna came loose and disconnected. Because loss of the GPS signal can occur for various reasons, such as there not being sufficient visible GPS satellites at the moment to obtain a position fix, the GPS receiver automatically switched to the dead reckoning mode. When operating on dead reckoning, the GPS receiver activates a flashing red light. As the receiver was located in the chart room, no one noticed. Besides, the transition from ship's actual position to an estimated position was gradual. The ship continued for some miles on dead reckoning, but was pushed off its intended track by wind and currents. No one noticed until a buoy was unexpectedly seen where there should not have been a buoy. Unfortunately, the buoy marked the Rose

and Crown Shoal near Nantucket Island. The navigation team then checked the radar, the fathometer, and the Loran receiver. They quickly determined that the ship was far off course. Unfortunately, the grounding was unavoidable by that time. Fortunately, it was a soft grounding, as these things go.

The damage to the ship was relatively minor. The Royal Majesty was refloated by tugs the next day and completed its voyage into Boston, with some hull plating deformation and a lot of embarrassment. Things easily could have been much worse.

In the intervening years, most navigators have become more, rather than less, reliant on GPS. Other space-based PNT systems are now available or coming on line soon, including the Russian GLONASS system and the European Galileo system, as well as ones under development by the Chinese and the Indians. None of them are able to totally avoid vulnerability to spoofing because they all utilize relatively low power transmissions from orbiting satellites. GPS is now fully integrated into electronic navigation charting and the Electronic Chart Display and Information System (ECDIS), as well as other shipboard systems.

In what I consider to be a short-sighted move, the United States shut down its Loran network several years ago, just as that technology was transitioning to the more sophisticated and less manpower-intensive electronic Loran (eLoran) system. The United Kingdom has deployed a small eLoran network, but it is primarily effective only in the vicinity of the English Channel. Until and unless a wide-scale earth-based system such as eLoran is available, ships and aircraft will be vulnerable to spoofing attacks. The same vulnerability is present in unmanned vessels, aircraft, and vehicles. Theoretically, a malicious actor could also use spoofing to alter the timing perception of a GPS receiver, giving the spoofer at least the possibility of disrupting the precise timing required to operate our increasingly interlinked financial, communications, and power grids.

In 2001, the Volpe National Transportation Systems Center conducted a vulnerability assessment of transportation infrastructure relying on GPS. Among its findings was the following: "As GPS further penetrates into the civil infrastructure, it becomes a tempting target that could be exploited by individuals, groups, or countries hostile to the United States. The potential for denying GPS service by jamming exists. The potential for inducing a GPS receiver to produce misleading information [e.g., spoofing] exists." It should be noted that this study was completed 12 years ago, and little has improved in the interim.

The take-away here is that GPS and other satellite-based PNT services are susceptible to spoofing (intentional or accidental). It behooves users of these systems to not rely exclusively thereon when making important navigational and operational decisions.

Shock & Vibration

Repeated Shock and Whole Body Vibration Awareness

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For some time now, military agencies and specialist organizations around the globe have driven the evolution of high speed watercraft. As a trickle-down effect fast response craft now serve roles once typically serviced by displacement designs including pilot boats, dive boats, crew boats and offshore support. During high speed operations the repeated shocks (RS) and whole body vibrations (WBV) of this harsh environment are transmitted to the passengers, operators and crew aboard, creating avenues of owner liability if not addressed.

While economic considerations and fast transport of personnel are core commercial objectives [1], long term exposure to RS & WBV pose health risks to personnel. Quantitative evidence from military studies indicate that high-speed boat crews have a hospitalization rate that compares to construction workers [CN], firemen [FN] and air crews [AN] within the military community [3]. Self-reported injuries among US Navy special operations crews reveal the extreme nature of the environment. Of those surveyed, 64.9% reported at least one injury [3]. Some operators reported multiple injuries. Typical of high speed craft operators, injuries ranged from sprains & strains to chronic pain and severe stress fractures [3]. Other studies indicate the rate of injury on board U.S. Navy high speed craft is six times the overall U.S. Navy average [5]. A large percentage of those are acute and chronic lumbar spinal injuries presenting both immediate and long term ramifications to the effected crewmen [6].

Most waterborne injuries can be placed in the category of "motion induced" caused by the human body's reaction to the physical work associated with self-mitigating the shocks during transit [4]. Motion induced fatigue is more clearly defined as physical impairment that results from exposure to WBV and RS for long periods of time, including deficiencies in vigilance, perception, decision-making and reaction time. General discomfort, fatigue, post-transit degradation of performance and motion sickness when operating at low speeds are also among the wide spectrum of issues associated with motion induced fatigue [2].

As the exposure effects to extreme motions and repeated high acceleration slam impacts in high speed craft are becoming better known, increasing operational capabilities facilitated by enhanced watercraft designs no longer means that the vessel is simple to operate within the full operational envelope. Awareness of these issues have compelled specifiers and designers to consider best design practices of shape, form, function, ergonomics and seating solutions to counter the physical stresses that shock and vibration energies impart to the crew and passengers.

The roles of passengers also increasingly need to be considered by boat crews as they are being transported and perform tasks both at speed and once on-station [1]. Passengers will benefit from having a pre-voyage briefing - knowing what to expect and how to act in reducing their potential for injury.

As on-board systems become more complex the competencies demanded of operators move to a higher level and are more like those required by a helicopter crew where effective situational awareness and command & control become crucial for performance and safety. With new and retrofitted craft being capable of out-performing the crew it is essential that designers focus on human factors to ensure that they can operate the craft at the edge of its operating envelope and still ensure operational success and safety for the crew and passengers [1].

Reducing RS and WBV experienced by boat crews by slowing down, better training, and novel hull designs is widely recognized, but a great deal of research in the area of shock mitigation, has revolved around seating systems [7]. Notwithstanding the boat's structural limits, shock mitigating seats are also easily retrofitted onto existing watercraft to effectively upgrade the operator's environmental operational envelope.

The variability in operating conditions and human factors makes it difficult to design an ideal shock mitigating suspension system [4]. High Speed Craft (HSC) seat suspension design places unique challenges on manufacturers due to the diversity of maritime operating conditions. Fast craft can, on the same voyage, experience variations from calm seas at harbor, to potentially violent rough waves away from shore. Current automotive suspension systems are not appropriate for use in marine seats. For example, the sprung mass in automotive applications remains relatively constant when compared to marine seating, which can vary 300% or more. Similarly, ranges of environmental inputs in automotive applications are not comparable considering the extremes of sea conditions. As a result, approaches to marine seat design differ greatly from other vehicles.

Most shock mitigating seat designs currently use a passive suspension system to absorb the shock transmitted through the hull. Even the most advanced passive suspension systems can only be tuned for a relatively narrow range of conditions to operate effectively. Typical occupant weight and sea state must be assumed during the design and specification phases of a project and may not be suitable for all operations. Some passive systems have the ability to be manually adjusted, but this may be difficult while underway, at

Did you hear the one about the guy who fell asleep on the bridge?

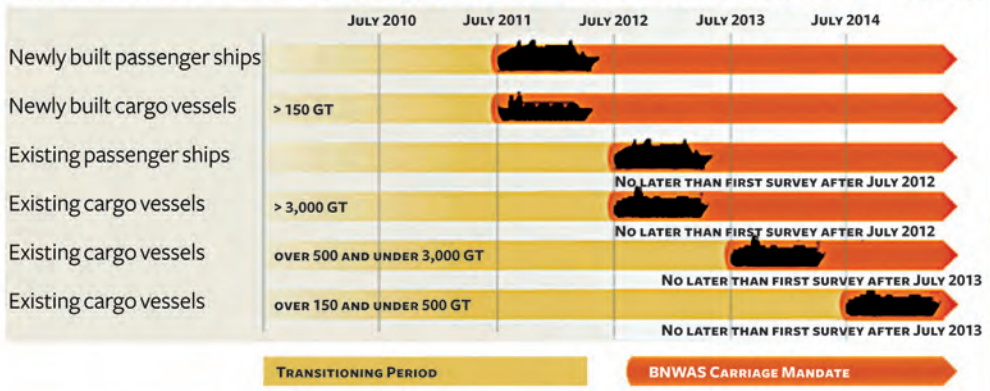
It wasn't funny.

The USCG states that thousands of preventable maritime accidents are caused by operator inattention, citing this twice as frequently as the next leading factor. Understandably, the International Maritime Organization is requiring the installation of Bridge Navigational Watch Alarm Systems (BNWAS) aboard mandated vessels to monitor operator fitness.

The Furuno BR500 BNWAS is designed with a wide selection of sensors, timer reset units and cabin alarm panels. Our external processor offers flexible positioning, providing ample space to easily secure all cable connections, including operator fitness inputs from existing Furuno and other similar bridge equipment. A single cable connects the easily accessed processor to a compact control head, significantly reducing installation time and expense. That's great news for vessel operators, as the mandatory IMO fitting dates are rapidly approaching.

BR500 BNWAS

Implementation Schedule of Bridge Navigational Watch Alarm System (BNWAS)



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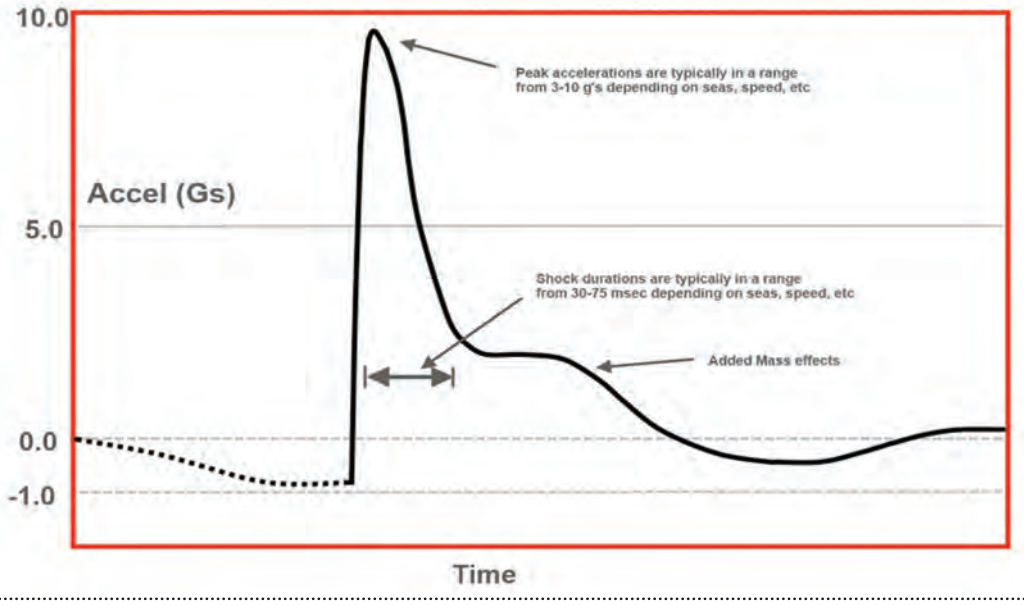
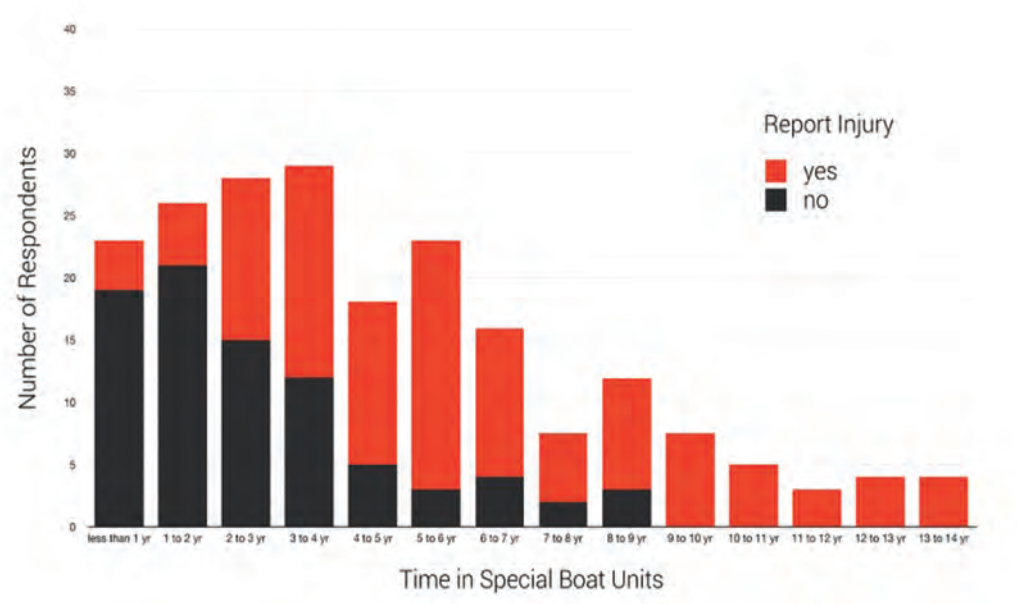
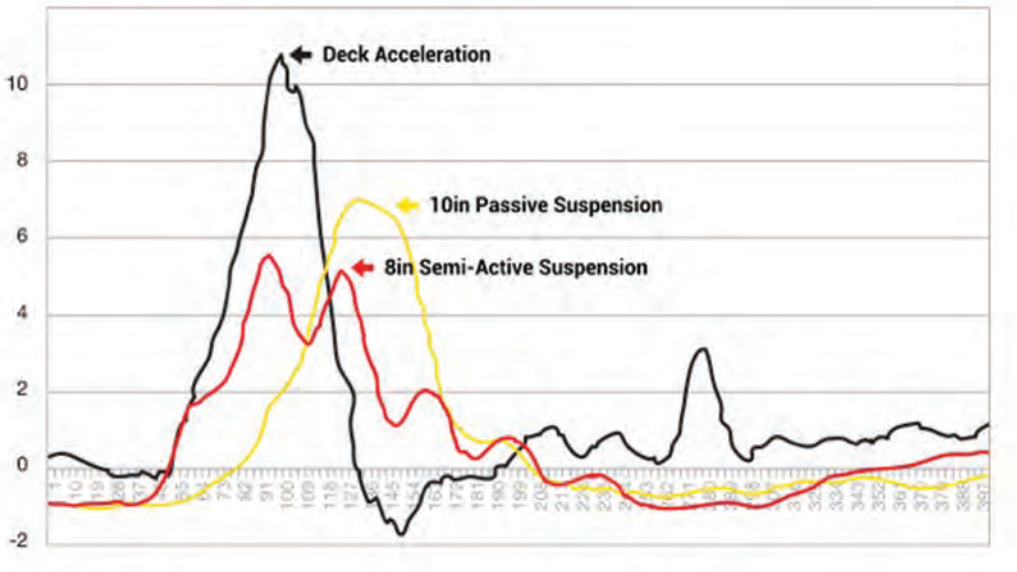


Typical acceleration curve observed for a single wave impact on a special operations watercraft. Deck accelerations of 16g are not uncommon.



High speed craft crews have reported larger numbers of personal injuries with increased frequency over their careers. Near the end of their careers 100% of respondents have reported some injury while aboard. [3]



Semi-active vs. passive suspension for a typical single impact event - showing that large reductions in peak seat accelerations can be realized using semi-active suspension technology over more common passive types.

night, or during extreme motion and requires operator competency training. Further, an incorrectly adjusted seat suspension can increase the potential for injury.

Semi-active suspensions, in response to wave conditions, adjust suspension parameters to control seat movements with an onboard computer. Semi-active systems automatically adjust damping parameters to maximize shock mitigation capability for any occupant weight and modify the seat response to each wave impact severity. As a result, dramatic increases in shock attenuation can be realized.

"The introduction of commercially available computer-controlled semi-active shock mitigation seats is an interesting development. It demonstrates that shock mitigation seats are evolving into more complex and hopefully more capable, advanced technologies. This holds the promise of enabling better protection for personnel operating in extreme conditions."

Builders and others in the maritime procurement chain should be aware of both existing and forthcoming requirements mandating RS & WBV mitigation. Government agencies, particularly in the European Community have recognized the importance of addressing the long term effects of WBV & RS by enacting legislation (2002/44/EC). This legislation sets limits and requires all employers to effectively mitigate personal exposure in the workplace. Because of the nature of operating in the marine environment, crews can exceed these limits in short periods in what would be considered "calm" seas. The EU legislation allows for some relief to maritime employers but is only applicable to certain groups under specific conditions with increased health monitoring. Other world governments see the issue as well and are learning from the challenges and successes of the EU experience. Beyond government, specialist and other military organizations at the highest levels are now recognizing the relevance and currency of reducing exposure to repeated shock and whole body vibration.

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LNG Capital Expenditure

Continued Upward Trend to Total $228B in the Next Five Years

Michelle Gomez joined DW's Singapore Office as a researcher, undertaking research and analysis for publications and projects. As the lead author of the 'The World LNG Market Forecast 2013-2017', Michelle has drawn on her project experience covering the international gas markets and LNG Capex trend analysis.

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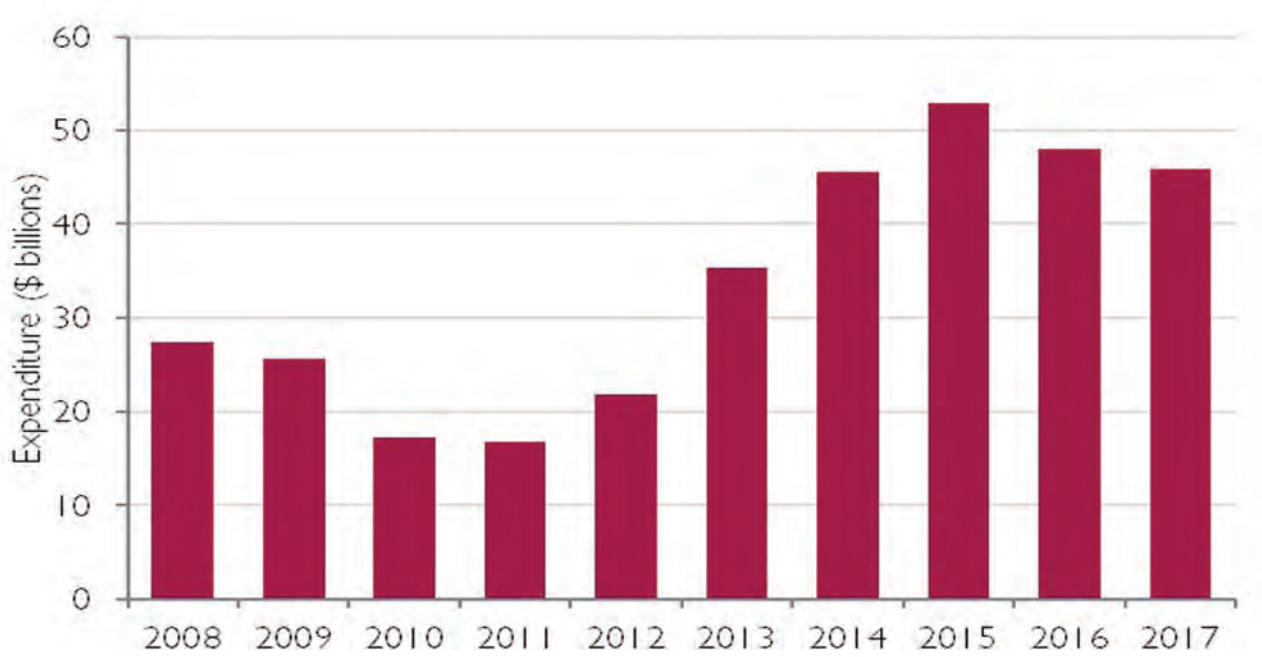
Global LNG Capital Expenditure on Facilities 2008-2017



A strong continuation in the recovery of LNG expenditure is underway worldwide, driven by a growing demand for natural gas. The new eighth edition of Douglas-Westwood's (DW) *World LNG Market Forecast* expects that global capital expenditure (Capex) will total nearly $228B during the 2013-2017 period. The surge includes capital expenditure on base-load onshore and offshore fixed LNG liquefaction, LNG carriers and LNG regasification, via both onshore and offshore fixed import terminals.

Activity over the next five years is underpinned by huge financial commitments to both liquefaction projects and gas import facilities. The liquefaction developments will drive expenditure, with Australasia and North America playing a fundamental role in bringing new supply into the international market.

Spend will peak in 2015 and decline slightly in 2016 and 2017. This is due to the surge of Australian LNG export projects reaching completion. The decline is, however, offset to some extent by significant growth in most other regions, particularly Eastern Europe & FSU, Africa and Asia.

Regional Forecast

Accounting for almost 40% of global expenditure, Australasia is expected to witness an increase of over 500% in expenditure on the 2008-2012 period. This is attributed to the region's construction activity in liquefaction terminals – a strong reserve base combined with a strategic proximity to high value demand markets in Asia makes the region an attractive LNG export hub.

Asia will continue to represent one of the largest LNG investment centers. This is driven by the combined expenditure on carrier shipbuilding and import terminal construction activity. Collectively, the region will represent 35% of forecast global Capex.

The North American shale gas boom has led to a shift in the supply and demand balance with the region now aspiring to evolve from a net importer to a net exporter. DW expects the region to represent 8% of forecast Capex, a 110% step up on expenditure for the previous five-year period. Overall, as the third largest investor, the region holds significant potential in becoming one of the top few exporting regions; however, regulatory approvals will determine the pace of export developments.

Notably, Middle Eastern investment has been in steady decline following the completion of a number of major projects during the 2009-2011 period; however, this has been further progressed by increasing supply constraints as a result of domestic demand pressures. Accordingly, only $1.92B (~1%) of total global expenditure is forecast in the Middle East through 2013–2017.

LNG Market by Facility

Global expenditure on LNG facilities displays a visible upward trend and is forecast to more than double to $227.7B. Although all segments display a noticeable increase in expenditure, the wave of new liquefaction projects under construction across Africa, Australasia, Eastern Europe & FSU and North America, coupled with carrier contracts and import developments in Asia will drive Capex at an overall CAGR of 7%. Over the forecast period, total liquefaction Capex will exceed $140bn, over 60% of total Capex. Import expenditure will represent the second largest proportion of Capex and is expected to increase at a CAGR of 8%. The key driving factor underpinning import investment is expenditure from Asia which represents over 80% of all import Capex.

LNG carrier expenditure is expected to increase to nearly $35B between 2013 and 2017. The carriers market witnessed a quieter period through 2009-2012 due to the global recession, rendering speculative carrier orders economically unviable at the time. However, with growing confidence in the LNG industry and with the wave of liquefaction projects in Australasia and North America, carrier buyers are more inclined to undertake investment.

Liquefaction Terminals

Through 2008-2012, almost 90mmtpa of liquefaction capacity was brought onstream. The forecast period will see over 100mmtpa come onstream through 14 new developments and nine expansion projects. Associated Capex in the construction of these terminals (excluding upstream costs but including all terminal costs – liquefaction trains, storage, marine facilities, etc.) will equate to over $140B.

There will be some differences between operator announcements and the DW forecast start-up years as DW believes that many of the proposed terminals are still in their infancy and have not attained necessary approvals or secured landing sites. Therefore, where appropriate, onstream years have been adjusted to incorporate these factors, thus, arguably portraying a more realistic view of the market.

Capex for the forecast period represents a 181% increase against 2008-2012. This is driven by a wave of new liquefaction developments in North America and Australasia due to shale gas and CBM developments, in addition to projects in Africa, Asia and Eastern Europe. It is worth noting that Capex forecast has been phased over the construction period and therefore includes expenditure on terminals which are expected to come onstream between 2018-2020.

Interestingly, during the 2008-2012 period, the Middle East represented a third of expenditure. However, liquefaction expenditure for the region is forecast to significantly decline to less than 1% as domestic demand for gas rises, minimizing export potential.

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Projected LNG global capital expenditure (Capex) during the 2013-2017.

500%

Accounting for almost 40% of global expenditure, Australasia is expected to witness an increase of over 500% in expenditure on the 2008-2012 period

$35B

LNG carrier expenditure is expected to increase to nearly $35bn between 2013-2017.

Due to significant cost escalations in Australasia, the region alone will account for approximately almost $90bn of expenditure. The continued trend in cost escalation could bring into doubt the viability and future of some Australasian projects, raising the question – could we see a significant slowdown in Australasian investment?

Due to developments in shale gas drilling technology and the associated rise in production, significant investments extending capabilities of existing infrastructure in North America will be made throughout the entire forecast period and beyond. However, the pace of development will be determined by the rate of regulatory approval. Its first export facility Sabine Pass, after Kenai terminal (recently decommissioned), will only be due onstream in 2016.

Eastern Europe will see increased investment in liquefaction with Russia building up its export capacity. Africa will also grow in importance as an exporting region given developments in Mozambique and Tanzania.

LNG Carrier Market

Over the forecast period, all shipbuilding activity will take place in Asia where the major yards are located. The carrier market will display heavy expenditure throughout the forecast period, increasing by almost 40% over 2008-2012's spending. This is expected to peak in 2016 at approximately $8bn.

During 2008-2012, 121 vessels were delivered, peaking in 2008 at 54 units. Carriers delivered were predominantly Q-max and Q-flex sized vessels, as per the direct requirements of the Qatari fleet.

However, the effects of the economic recession were reflected in the shipbuilding industry, negatively impacting the order book and associated expenditure levels from 2009 to 2012.

A large surge in deliveries is anticipated due to the onset of liquefaction facilities expected during and beyond the forecast period. Increased confidence in the LNG market as a whole will give the LNG carrier building industry an additional boost.

Pre-2008, some carriers were constructed in Western Europe. However, there has been a transition towards Asian shipbuilding because of increased familiarity with Asian-built vessels coupled with its lower cost offering. South Korean shipyards will account for the majority of new builds, while Chinese group Hudong-Zhonghua Shipbuilding will increase its market share through 2013-2017.

However, given the large number of deliveries anticipated from 2014 onwards, yard capacity constraints in Asia may become an issue. Western European shipbuilders may be well placed to take advantage during periods of exceptionally high demand.

LNG Import Terminals

Approximately 250mmtpa was brought onstream 2008-2012, with associated Capex totalling $32B. The next five years will see Capex increase reaching almost $50B, as similar import capacity levels to the 2008-2012 period is again brought onstream.

The previous five years saw significant investments in Asia, North America and Western Europe. However, 2011 and 2012 experienced a drastic reduction in import investment by North America, due to the possibility of monetising shale gas reserves at home, reducing their requirement for LNG imports and associated expenditure. Since then, North America has been moving towards LNG import independence.

Increased Capex for import infrastructure in Asia during 2013-2017, will represent a 180% rise in expenditure on the previous five-year period.

Comparing the two periods, 2008-2012 and 2013-2017, the demand side of the equation has evolved. As with the previous five-year period, developing economies in Asia will continue to be the dominant importing region, accounting for over 80% of import facility expenditure. In addition to established LNG importers, Japan and South Korea, top exporters Malaysia and Indonesia will drive further LNG imports as domestic demand dictates a reverse in trade.

Accounting for almost $30bn of forecast import Capex, key emerging economies China and India will contribute significantly to import expenditure due to growing domestic gas demand. Likewise, the Philippines, Singapore and Vietnam are anticipated to substantially increase their investments in import infrastructure during the forecast period.

Latin America's Capex will rise gradually throughout the forecast period is attributed to projects in Brazil, Chile, Cuba, Dominican Republic and Mexico. A poor gas demand climate has seen in Western Europe as it experience a $0.4B drop in forecast import spend. In the long term however, the European gas market should recover as gas-fired power demand returns to pre-recession levels.

A forecast of strong growth in global natural gas demand as a fuel for power generation and increasingly as a substitute for oil as a transportation fuel will drive increased expenditure on natural gas facilities worldwide. The discoveries of large reserves are, however, remote from the end users.

This geographic disconnect results in major regional gas price differences and considerable potential for arbitrage. One specific example is the U.S. with gas at some $3 compared with $9 in Europe and >$16 in Japan. Liquefaction enables these reserves to be brought to market.

Many areas in Asia, Latin America and the Middle East are seeing growing gas demand and LNG is also seen as a good solution to seasonal demand spikes. Other areas such as the UK are seeing a severe fall in gas production and are importing increasing amounts of LNG.

Growing environmental awareness is also an important factor – with natural gas only emitting half of the greenhouse gases of coal it provides a mechanism for rapidly reducing emissions.

The EU's emissions act in 2015 may incentivize shipowners to use LNG as an alternative fuel in addition to the price arbitrage effect. LNG is also being increasingly adopted in many countries in road applications for buses and trucks.

Unconventional gas reserves such as shale gas and coalbed methane will be both a feedstock and a competing source of natural gas. However, some of this may also, as a function of location, also be a candidate for liquefaction.

Successful production of unconventional gas may enable the U.S. to become a net exporter within the forecast period. However, regulatory approvals have been hard to obtain, to date impeding the development process.

We expect U.S. natural gas prices to increase as the full cycle costs of shale gas production are at least $7-8/mmbtu. Elsewhere in the world they are yet to be understood but are likely to be higher than the U.S. LNG from conventional gas plays can, therefore, be cost-competitive with shale gas.

In most regions natural gas prices are strongly discounted, compared to oil on a btu-parity basis. This suggests potential for increases in natural gas prices over time as the ease of trade and arbitrage increases.

DW expect continued change in the focus areas for LNG export projects. While the Middle East remains one of the top exporters, the region will see very little expenditure within the forecast period. Australian spend however, will surge, peak and start to decline somewhat. As in many other sectors of the oil & gas industry, reducing the costs of LNG projects remains a major challenge. However, beyond 2017, significant potential for major growth in LNG capital expenditure can be seen, due to the large discoveries in East Africa and Eastern Mediterranean, together with increased focus on exports of US shale gas. Furthermore, the considerable prospective reserves of the arctic offer a longer-term potential.

Get the Report

World LNG Market Forecast 2013-2017: The report covers capital expenditure on base-load onshore and offshore fixed LNG liquefaction, LNG transport by LNG carriers and LNG regasification via onshore and offshore fixed import terminals. The report details LNG trends by region and facility type, supported by analysis and insight for strategy teams within shipping companies, contractors, shipbuilders, oil & gas operators, gas utilities and financial institutions. Essential reading for companies associated with the LNG industry and potential entrants.

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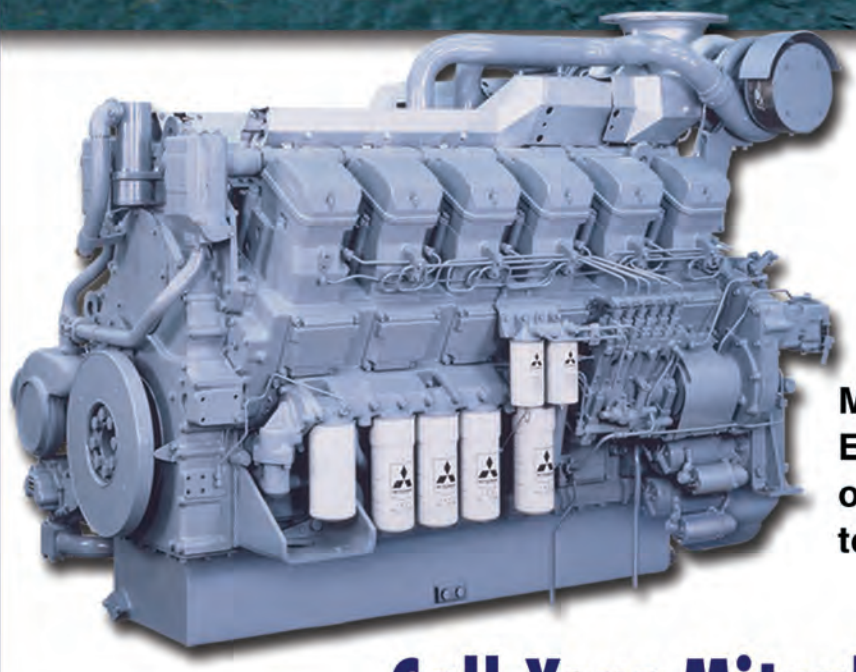

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Safety in Numbers

Attention to safety in shipyards is starting to pay dividends

Rich DeSimone is President of XL Group's North America Marine insurance business.
www.xlgroup.com

The U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) recently cited a shipyard for 61 alleged violations of workplace safety and health standards. Faced with $293,450 in proposed fines, the shipyard's alleged violations include electrical hazards, such as failure to guard lights from damage, failure to provide effective electrical grounding for equipment, failure to provide covers on electrical box openings, and failure to ensure wiring was protected from abrasion and strain. Additionally, the yard was cited for the lack of guardrail protections; failure to establish and implement a Lockout/Tagout program; lack of a respiratory protection program; failure to maintain good housekeeping practices; and failure to check, inspect and maintain portable fire extinguishers, among other alleged violations. Fortunately, this lack of safety example is more of an exception than a trend. While the shipyard industry has notoriously had some of the highest rates of injuries of any industry for many years, more attention to safety is showing its effectiveness. More shipyards realize that improved safety programs are not only important in protecting employees but also preserving profitable business opportunities and garnering new ones. When we hear of violations in the industry, however, now is a good time as ever to remind ourselves about the importance of safety in the continued prosperity of the maritime workforce and industry overall.

Safe Competition

U.S. domestic trade plays a vital role in our economy. The construction and operation of vessels for the domestic trades generates hundreds of thousands of employment opportunities for U.S. workers and billions of dollars in economic output. The Merchant Marine Act of 1920's Section 27, aka the Jones Act, requires that all goods transported by water between U.S. ports must be carried in U.S.-flag ships constructed in the United States and owned by U.S. citizens. As a recent report from the U.S. Department of Transportation's Maritime Administration (MARAD) points out – the nation's shipyards support $36 billion in gross domestic product. The report notes the U.S. shipbuilding industry has run a trade surplus in six out of the last 10 years, with a cumulative trade surplus of $410 million over this period. The report also shows that from 2010 to 2012, deliveries of vessels of all types, including tugs and towboats, passenger vessels, commercial and fishing vessels, and oceangoing and inland barges, exceeded 1,200 vessels per year, reaching 1,457 vessels in 2011. Remaining competitive in this and any industry requires staying operational to sustain production. Therefore, no shipyard needs a workplace incident that could stand in its way or hurt its reputation. In fact, in choosing its suppliers, the maritime industry plays close attention to what safety protocols are in place onsite to avoid delivery delays, media attention or other unwanted scrutiny. The International Marine Contractors Association released Guidance on Safety in Shipyards report in February 2013 to help its members evaluate safety at shipyards when they are preparing contracts and long maintenance periods for dry-docking vessels. Safety programs are integral in keeping workers well protected as well as avoiding unwanted harm to the overall business.

Watchful Eye on Risks

A shipyard is an active workplace place. And the nature of the onsite shipbuilding activity – working with huge equipment and heavy materials like iron and steel in small spaces involving welding and other industrial processes near or on water – presents even greater potential for injuries and other risks. While shipbuilders are concerned with production and quality, they need to be equally concerned with safety. After all, a workplace incident can halt production to zero and without production there is no need to worry about quality.

Fire protection is an area of particular safety concern in shipyards. According to the Bureau of Labor Statistics (BLS), approximately 25 percent of fatalities in shipyards result from fire and explosions caused by 'hot work'. Hot work – which includes welding, cutting, burning, abrasive blasting, and other heat-producing operations -- is a daily routine in shipbuilding and repair. Most often performed in confined and enclosed spaces, it presents an increased risk of fire and explosion hazards. OSHA has developed a variety of educational videos that examine how these hazards have lead to fatalities in shipyards and how they can be avoided.

Another related area of concern in controlling risk to shipyard workers is Lockout/Tagout procedures. Designed to disable or de-energize equipment while maintenance or service activities were carried out, Lockout/Tagout procedures play a vital role in preventing catastrophic workplace incidents as well as controlling insurance losses and potential safety violations. It's estimated that proper compliance with the Lockout/Tagout standard helps prevented approximately 122 fatalities, 28,400 lost workday injuries, and 31,900 non-lost workday injuries each year since its inception in 1989.

A Safety Culture

According to one old proverb, it is better to be a thousand times careful than once dead. Workplace incidents, even minor ones, are costly. Accidents in shipyards have cost lives. And they certainly cost time and money. Lost work hours, time spent with insurance adjusters or filing claims, plus the costs associated with repairs, work stoppages, out-of-pocket expenses and damage to a shipyard's industry reputation or public image are just a partial list. Possible lawsuits or an environmental cleanup can add to staggering price tag. While there is no "silver bullet" that will prevent injuries and accidents, without a strong safety culture and workplace where the workers are engaged, an organization will continue to experience the same results. Collaboration and communication are two essentials in creating a safe workplace. Ensuring safety in a shipyard is a responsibility of all the people working there but a little additional help and guidance can be helpful as well.

One place to start is with your insurance broker and carrier. Marine brokers and carriers are familiar with industry-wide loss trends. They know where accidents and mishaps most often happen in shipyards because they see the claims come in. Thus, from their collective experience, a shipyard can glean insight from safety lessons learned at other shipyard facilities. Oftentimes, insurers will provide risk engineering, loss prevention services or employee training as part of a shipyard's insurance program or access to qualified trainers or services for Lockout/Tagout training or ways to increase fire protection safety. In addition, there are also a variety of online educational materials available. Visit OSHA's Maritime Industry site for safety fact sheets and other educational materials. Also the National Maritime Education Council provides a variety of safety education resources.

Controlling workplace hazards in shipyards is an essential step towards protecting workers from injury and possible fatality as well as minimizing the potential for property damage, business interruption, legal liability, and costly operating expenses and will only continue to strengthen the U.S. shipbuilding and maritime industries.

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Poland's Maritime U.

Alan Haig Brown discovers a world-class maritime university in Poland

Polish officers have earned respect in the engine rooms and on the bridges of the international shipping fleet. With more than 4,000 full or part-time students and about 600 graduates per year the AkademiaMorska in Szczecin, Poland, is assuring the continuity of this reputation.

In addition to Polish students, the Maritime University is serving international members of the maritime community with a number of English language programs. They also offer specialized courses tailored to the specific needs of individual shipping companies.

The AkademiaMorska in Szczecin is a university in every sense of the word, with undergraduate and graduate programs to the PhD level as well as staff that carry out research and publishes scholarly papers in various areas of maritime study. Studies are divided into three faculties: Navigation, Marine Engineering, and Engineering & Economics of Transport. Additionally there is an inter-faculty Department of Foreign Languages to teach English and other seagoing languages. Satellite campuses support specialized offerings, such as the Marine Rescue Training Center, to meet a variety of specialized maritime needs.

The university supports instruction across faculties with a variety of sophisticated simulators. For navigation and shiphandling a Kongsberg-designed bridge simulator in the Maritime Traffic Engineering Center has the capability of presenting more than 30 different real world ports in addition to "at sea" challenges to students. From separate rooms, an instructor can vary conditions including both wind and tide to replicate real time challenges. This simulator also can be configured as a DP Class 2 bridge to teach students, both undergraduate and returning part time, the complexities of operating vessels with the increasingly common technology.

In addition to the multitude of ports that are programmed into the simulator it can also replicate the size and handling characteristics of over 15 different ships. This is of particular significance when students are manning the vessel in simulated confined waters where everything from bank effect to the influence of other ships being met in a passage can be replicated.

Deputy Rector for Maritime Affairs, Capt. AndrzejBąk, has spent consider-

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Przemysław Kowalak, from the Institute of Technical Operation of Marine Power Plants, Faculty of Marine Engineering with the engine being used for emission after treatment.

The training and research vessel Navigator XX1 moored in front of the Academia with the Maritime Museum in the background.

-able time at sea both before and after earning a PhD at the university.

"When students first come to the simulator," he said, "they often approach it as a video game, but with the instructor's ability to replicate a wide range of conditions encountered at sea or in harbor, they soon learn that operating a ship is a much more complex business."

Undergraduates are not the only students doing course work. Experienced mariners also return for upgrading on specialized short courses. Licensed pilots from various ports have participated in refresher training as well as carrying out research with the simulator.

Another pair of simulators replicates the bridges of a cargo ship and an assist tug. With an instructor controlling weather and tidal conditions from a third room, a pair of students can work both the tug and the ship into a port. Ship-to-tug commands can be delivered by "radio phone" just as they would be in reality. On a recent visit an observer was impressed with the way in which, when wind and wave conditions were heightened the waves could be seen coming over the bow and washing down the decks of the assist tug as it came alongside the simulated ship.

The Maritime University of Szczecin is co-educational. Women enroll in all faculties, explained the university's communications officer Bogna Bartkiewicz, but, for now, tend more toward the Faculty of Engineering and Economics of Transport (FEET). Established in 2002, FEET offers full time and part time studies in three fields: Management and Production Engineering, Transport and Logistics.

In addition to training students in shipboard services, the program can also equip students for jobs in the civil service and private sector.

LNG

The Liquid Cargo-Handling Simulator (LCHS) demonstrates this duality with ship and shore training.The LCHS lab includes a classroom set up with terminals for up to 16 students to simultaneously take part in tanker handling and safety activities, although instructor Karol Igielski prefers to work with about eight students at a time. The most dramatic aspect of the lab is the full simulation of an off load LNG port currently under construction on the Baltic Sea at Świnoujście.

In this simulator room a bank of screens on one side models the shore side port facility, due to open in 2014, while the other side of the room is from the perspective of an LNG tanker off loading at the facility.

The ship model is a representation, shown in great detail taken from the actual builders blueprints, of a Q-Flex LNG carrier. Nineteen of these ships, with capacity for over 210,000 cubic meters, have been built at several of the largest Korean shipyards for Qatar Gas, a major exporter of LNG.

Equipped with cargo re-liquefaction plants to return cargo boil off to the cargo tanks, the ships are fitted with a range of safety and fire fighting equipment that is replicated in the simulator model. "After they have completed their navigational training at the navigation simulator, they can come up here for the LNG offload training," said Igielski, who has extensive knowledge on liquid cargo ships.

Working from his Instructor's control center, Igielski introduces a leak in the simulator that is currently off loading at the Świnoujście port. A fire flares up at the manifold onboard the ship. The instructor watches for the student to turn on the dry powder and take other actions to contain the leak and the fire in the

The expansive bridge of the Navigator XXI has extra radar monitors and chart tables for students.

Karol Igielski, manager of the LNG simulator.

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Dr. Zbigniew Pietrzykowski, designer of NAVDEC, Navigation Decison Support System for Sea-Going Ships.

Deputy Rector for Maritime Affairs, Capt. Andrzej Bak, spent considerable time at sea both before and after earning a PhD at the university.

system that would also have undergone an automatic shutdown. Meanwhile, he could be watching the actions of another student who would be in charge of port-side operations to see the he or she carried out the appropriate actions there. From separate consoles, shipside and shore-side, operators can communicate with each other to coordinate responses.

Training at Sea

But not all navigation training at the AkademiaMorsaka in Szczecin is classroom theory of electronic simulation. The university has an excellent training ship, the 60 by 10.5-m M/V Navigator XXI which was purpose built at the Gdańsk Shipyard Remontowa in 1995. With accommodations for up to 30 students, six researchers and 11 crew, the vessel carries a wide range of navigational and research electronics. An expanded bridge provides extra chart table and radar monitors for student use. A sophisticated side-scan sonar (272 TD; EdgeTech USA), as well as an array of other instrumentation, is installed for researchers.

A recent addition to the vessel's electronics is a Kongsberg Maritime EM710 multibeam echo sounder. This device is a system for mapping the sea bottom working on sonar frequencies from 70 up to 100 kHz for a depth resolution of just one cm and a maximum working depth of 2000 meters. With transmitters affixed to the ships hull the system's software provides compensation for the vessel's role and pitch.

In late May the ship left Szczecin for a typical two-week voyage that would take 28 first year students on a familiarization experience. In the first week they would visit Kiel and then pick up three Polish fisheries inspectors. The ship's crew would operate one of the ship's two fast rescue craft to assist the inspectors in boarding fishing vessels of various EU nations in the Baltic Sea during the second week. A third component of the voyage would be the participation of a university researcher working with a new program in three-dimensional sonar image interpretation.

In the Engine Room

As a university, the AkademiaMorska in Szczecin undertakes leading edge research in a wide range of maritime related fields. The Faculty of Engineering has two teaching engines with one powering a generator and the other a shaft that passes through a watertight seal to a propeller in a large tank. This allows realistic torque loading and measuring. This engine, a classic built in 1956, has all the components necessary to introduce students to the principles of a diesel engine. To ready students for internships on deep sea vessels the faculty has operational simulators for a VLCC with a 5L90MC MAN engine and a containership with a Wärtsilä 12RTA84 main engine. Additional graphic simulators are provided for several more engine types.

At the same time, research is ongoing in areas such as after-treatment of diesel exhaust to meet the more stringent level 3 and 4 emission controls. In this work a new engine is installed in the shop and equipped with sensing devices to monitor combustion and other parameters. The after treatment device is tested for emission reduction at varied operational parameters. Other work, in the faculty research laboratory, works to determine variables in content and make-up of both oil and water in propulsion application. This is an extensive and complex facility with wide ranging capabilities for marine engineering research.

The Faculty of Navigation is also involved with cutting edge research. Deputy Dean of Science, Prof. Zbigniew Pietrzykowski has worked with his research-team to develop a navigational decision support system for sea-going ships. NAVDEC goes beyond the information coordination of ARPA and ECDIS to actually present navigational solutions to avoid collisions at sea by integrating the collision regulations with the electronic data received from the radar, AIS, electronic charts, GPS and oth-

A simulator that works with a tug simulator in a separate room.

Simulated fire prevention on an LNG ship.

er navigational aides. In the future, when both ships are equipped with NAVDEC, the systems will automatically communicate to assure that the two vessels make complimentary avoidance courses.

In a simulated demonstration, Pietrzykowski, showed how in a head on situation the system not only directs the navigator to alter course to starboard, but it also gives the new course in degrees. This will also take into account other targets in the area in the calculation. "In our system, the navigator can look at the screen and choose the best of the presented solutions," explained Pietrzykowski, "for example the system will show him what course to take for collision avoidance in one minute or in five minutes." Like so much of the research at the AkademiaMorseka in Szczecin, the NAVDEC system is complex and deserving of an article of its own. Much additional information on research is available by contacting the university at: http://www.am.szczecin.pl/en/about-the-university. Those interested in such maritime research will do well to bookmark this page. Similarly those who are looking for quality graduates or cadets from engine room to deck officers will also do well to keep this impressive institution in mind.

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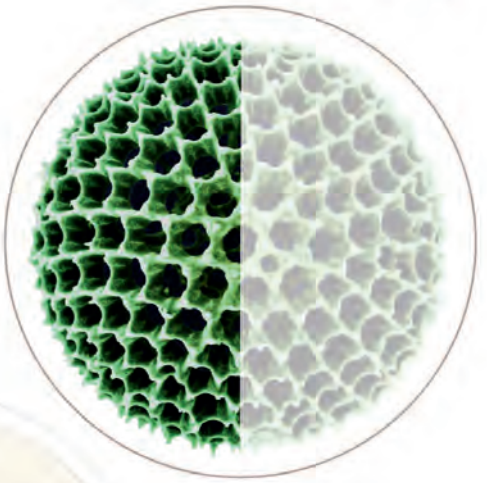

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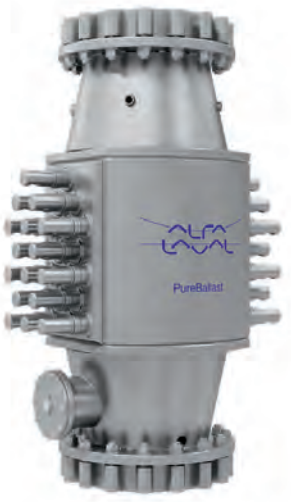

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Back to School

Vigor Industrial invests in Training & Education

by Kathleen Gleaves

For Vigor Industrial, a privately-held shipbuilding and repair company headquartered in Portland, Oregon, the future looked bright and a bit ominous at the same time. Work was coming in, dock space was filling up, future orders were signed, and new properties purchased; in short, business was booming. But dark clouds crept in around the edges of this rosy picture. As recruiters set out to find new talent to meet the growing demand, they encountered a candidate pool without the necessary skills to pick up a welding torch and go to work. With 20% of its workforce approaching retirement and the economy on the mend, the problem was set to get worse. Vigor's ability to meet expected demand hinged on a labor force that didn't appear to exist.

Workforce Development

Frank Foti, Vigor's CEO, isn't one to sit around and wait for problems to self-resolve. He decided the best way to find a skilled available workforce was to train them in-house. The Northwest communities in Portland and Seattle are the first to benefit from his vision of training the next generation of craftspeople for family-wage careers in the reviving American shipbuilding industry.

Skilled welders and other industrial craftspeople are a critical component for the country's economic recovery. Sue Haley, Senior Vice President of Human Resources for Vigor, states, "People want to work and industry needs a highly skilled workforce." However, the Pacific Northwest and Alaska have seen a decline in the number of trade schools teaching critical industrial skills.

Vigor's previous efforts to provide training to their workforce often lacked a cohesive program and a global outlook. Today Vigor is taking a more structured approach by teaming with local community colleges to provide shipyard-intensive welding courses.

Swan Island Training Center

It all started in Portland in 2008 when Mike Rasmussen, a welder since 1969 and a long-time Vigor employee, was approached by Portland Community College inquiring about renting space in the shipyard to train its welding students. Rasmussen passed the request to his supervisor who brought it to the CEO. Foti jumped on the idea telling his staff to

Instructor Mike Rasmussen working with student at the Swan Island Training Center in Portland.

(Photo credit: Vigor Industrial)

"make it work."

Eight weeks later, the Swan Island Training Center opened for class with 20 welding booths. PCC provides the students, and oversees enrollment, tuition and scholarships. They also grant college credits and industrial certifications. Vigor provides the instructors, the work space, and something a shipyard has plenty of – scrap steel for practicing. The classroom is located on Vigor's 64-acre industrial shipyard facility.

Rasmussen, the lead instructor and now a full-time PCC employee, is justifiably proud of his work helping his students gain meaningful employment and lifelong careers. He notes, "They can take the skills they learn in the classroom anywhere in the country."

Classes run four days a week, five hours a day. The program started with an evening class of 15 students, but quickly expanded to include an afternoon class. The Swan Island facility now has a waiting list of more than 160 students. "The demand is there," said Rasmussen.

While students aren't guaranteed a job with Vigor when they graduate, Haley says, "Vigor has hired approximately 40% of the qualified students from the PCC program that are actually looking for work." Some students already have jobs and take the course to improve their skills.

Harbor Island Training Center

With the success of the Swan Island facility, Vigor began thinking about a similar option in Seattle. One day in late 2012, Haley was hosting a labor management committee meeting when CEO Foti dropped by and announced they would be building a training center in Seattle and that it would open on June 1. With the announcement made public and a short deadline, Haley scrambled to find a training partner and space for the facility. Within two weeks, she had a commitment from South Seattle Community College (SSCC) and 20,000 square feet of warehouse space on Vigor's Harbor Island shipyard earmarked for future classrooms.

Vigor spokesperson, Brian Mannion, said Vigor built out the classrooms and weld-booths and supplied the equipment. There is currently space for 24 students, but plans are already underway to increase that to 48.

Vigor's investment in the facility topped a half million dollars. In addition, both the Washington State House and Senate budgets have provided funding for the program.

The Workforce Development Council, a local non-profit, grant-making agency provided financial support and tuition assistance to help veterans and displaced workers attend courses at the center. Says Mary Lockman, SSCC Program Advisor, "many students didn't even have appropriate shoes or clothes" for working in a shipyard. The WDC has helped meet those needs.

The educational partnership expanded when the United Association of Plumbers and Pipefitters, Local 32, joined the team. The Union donated welding machines and provides additional training and certification options for current employees wishing to maintain or improve job skills, making use of the training center during non-class hours. Says Haley, "The unions have been great to work with. They share our interest in having more skilled people join the trades."

The facility officially opened in June with the first class starting in July and running through December. The facility includes a computer lab and formal classroom space for morning lectures

(Photo credit: Kathleen Gleaves)

Each student has their welding booth. Shown are two of 24 units at the Harbor Island Training Center.

and informal discussion time.

Ken Johnson, lead instructor and now a full-time SSCC employee, says, "Mornings we cover theory, symbols, processes to follow, and we set our objectives for the day." Guest speakers, including current shipyard craftspeople, give the students insight into the options available to them in the industrial workplace. Afternoons are spent working with the equipment: cutting tables, industrial machining equipment, and the weld-booths. "Students will master multiple weld types using actual deck plate," says Johnson. "We anticipate each student will burn 25-30 pounds of [welding]wire."

Johnson has been a working welder for 32 years, many of those at the Harbor Island yard. He's worked as a supervisor and in QA, among many other jobs. His experience, patience and love of sharing his work with his students made him the perfect choice to emulate Rasmussen's role in Portland.

The working floor has 24 welding booths each assigned to a specific student. Students have a wide range of skill levels and each works at their own pace. At the end of the five-month program, successful students will receive their welding certification.

Daniel Stone, recently discharged from the U.S. Army, joined the first Harbor Island cohort. Says Stone, "This is a great opportunity to find a job in a high-demand occupation."

Fellow student Shannon Kelley is there because he "…wants to build ships." He enrolled at SSCC hoping to get a welding certificate and jumped at the chance to be part of the first self-contained program at the shipyard. Shaking his head with amazement at his own words, he says, "I look forward to coming to school every day!" On orientation day, Kelley rode the bus to the nearest stop, then walked a mile to the yard – and arrived early. He's been arriving early and leaving late every day since.

The college program brochure states;

Two quarters of training will prepare you to:

- Diagnose and cure common welding defects
- Demonstrate safe operation of oxy-acetylene equipment
- Complete FCAW welds in the vertical position for marine operations
- Demonstrate knowledge of welding practices, joint fit-up, pre-weld preparation, back gouging, shear points, weld stress and warpage, and environmental effects on weld procedures
- Execute shipyard specific skills

- Safely accomplish welds out of doors in all weather conditions, and more!

Mary Lockman, SSCC program advisor says, “It really takes a certain kind of person for this job,” referring to the welding profession. “You have to be willing to spend the entire day buried inside that heavy welding suit and helmet working outside no matter the weather.” She worried they wouldn’t be able to find enough students that fit the requirements, but she was happily wrong. The first class filled in four weeks with a small waiting list, a list that is growing as word of the program spreads.

The Seattle and Portland programs give students the chance to work in a real-life industrial environment, to test it out and see if the job and the lifestyle are for them. Rasmussen and Johnson both enthuse about the advantages of having their classrooms inside a working shipyard. Says Rasmussen, “This gives the students a unique opportunity to see what this type of training can lead to. They actually can watch the new construction of barges and the ship repair activities, it’s very real-world!”

The Seattle program has dropped only one student - for being late to class. As Johnson said, “If you can’t show up on time for class, you probably won’t show up on time for work.”

In addition to having pre-algebra math skills, some level of mechanical aptitude, and the ability to read and write English, students must pass a drug test, be at least 18 years of age and have a high school diploma or GED.

The success of the two programs has inspired Vigor to expand the concept. Says Haley, “We are already collaborating with the University of Alaska in Ketchikan, [where Vigor recently purchased the Alaska Ship and Drydock facility] as well as other community groups and will be building training options for each of the communities where we do business.”

Without exception, every person involved in the training programs credits CEO Frank Foti for the program’s existence. Says Johnson, “[Foti] was 100% supportive.” Mannion concurs, “If Frank says ‘make it happen,’ it happens.”

With lists of eager students, expanding classrooms, and support from multiple sources, it appears the problem of insufficient skilled tradespeople is quickly becoming a thing of the past for Vigor.

Student Josh Lanser displaying his recent welding project.

Pick Me Up

Mitch Hausman, President & CEO of Delta Rigging & Tools, Inc., discusses his company's strategy to expand its core business through acquisition, including insights on its largest ever: the purchase this summer of Morgan City Rentals.

By Greg Trauthwein

Delta Rigging & Tools is a provider of a wide range of Industrial lifting, rigging and associated products, serving diverse markets from energy to transportation, maritime and offshore to name but a few. The company is on a mission to grow both organically and through acquisitions, a strategy clearly evident in the maritime and offshore sectors with its recent purchase of Morgan City Rentals, which is a leading provider of offshore rental equipment and rigging supply in the Gulf of Mexico.

"One of our key strategic initiatives has been increasing our rental and rigging business, and to go deeper into the offshore oil and gas drilling and production markets," said Hausman. He said that the Morgan City Rental deal was particularly attractive as the company, led by Joe Sanford, Jr., comes complete with a high quality, long-tenured management team. Similarly attractive was the breadth of the company's product and service offering, as well as the fact that there was very little crossover among the company's existing client base. "It was pure growth for us," said Hausman. While he declined to share the purchase price of Morgan City Rentals, he did say that it was the largest acquisition to date for Delta Rigging & Tools'. "Once we began discussions, it was clear that combining with a large and growing operation like Morgan City Rentals the transaction would be transformational for both companies.

Strong Roots

Hausman is relatively new at the helm of Delta Rigging & Tools, having joined the company in December 2011 as President and assuming the role of CEO in January 2013. But he is hardly an industry neophyte, as prior to this he spent 31 years with Southwest Wire Rope, serving as President and CEO of that company for more than 20 years.

"I actually retired in 2010, but re-entered the business simply because of the unique opportunity with Delta Rigging & Tools. Delta Rigging & Tools is an acquisition business within the Austin Ventures portfolio," Hausman said. "Delta Rigging & Tools is a unique hybrid within the industry because we offer both rental and rigging. "With the acquisition of Morgan City Rentals a larger percentage of our revenues are now geared toward the rental market."

Looking at the domestic heavy lift business today Hausman sees plentiful small, privately owned companies; many family owned and perhaps with questions regarding leadership succession. Quite simply, many companies in this realm are seeking to monetize the business. But he said that a small percentage of the deals presented fit the company's criteria, as they seek to expand the depth and breadth of their markets and customer base, not simply bolt on revenue. In step with the industry's progression, changes are inherent to the business of heavy lift itself. "The business is very different today from the point of view of scale, as the lifts are getting larger," Hausman said. "Plus, requirements from a material point of view are becoming more stringent and regulatory compliance is a much bigger part of the process."

Promising Future

"I see a positive uptrend in the Gulf of Mexico for 2014," Hausman said, "but we were expecting more of an uptrend in the second half of this year. I honestly think this is simply due to project lag:

"One of our key strategic initiatives has been increasing our rental and rigging business, and to go deeper into the offshore oil and gas drilling and production markets."

Mitch Hausman

GOM projects are taking longer to come together." The Morgan City Rentals acquisition is a key plank in the company's plan to tap this growing market, and as a testament to the strength of the Morgan City Rentals brand and the leadership team, Hausman said it will be positioned as "Morgan City Rentals - A Delta Rigging & Tools Company" and left to operate as its own brand. " This is significant in that ever since 2002, Delta Rigging & Tools has integrated all acquisitions into the Delta Rigging & Tools' brand."

Established in 1970, Morgan City Rentals is headquartered in Morgan City, La., with additional locations in Golden Meadow and Broussard, La. It provides a wide range of offshore rental equipment, wire rope, rigging hardware & supplies, sling fabrication, and compliance load testing to the offshore oil and gas industry. Combined with Delta Rigging & Tools' existing operations in Broussard and Houma, the acquisition of Morgan City Rentals establishes Delta Rigging & Tools as the leading offshore rental and rigging company in the Louisiana gulf coast market, according to Hausman. "We're always looking for acquisition opportunities," Hausman said. "The Morgan City Rentals deal was unique in that they had both components of rental and rigging, and Delta Rigging & Tools was already built up on those two platforms; this combined with the fact that 100% of their rental market was offshore and our traditional legacy rental market was onshore it was just a perfect fit." While the offshore energy market is an obvious focus of many maritime entities, the land-based energy production, specifically the revolution of shale gas and the accompanying oil finds, is proving to be a fast-growing and lucrative market for many, from the companies that carry the products from field to market, examples include the inland boat and barge builders, and heavy lift companies such as Delta Rigging & Tools. "This is absolutely impacting our business in a positive way, as we have facilities as far north as Williston, North Dakota, with 18 locations overall."

"My career has been interesting because I started in a privately owned business that grew to a significant size and sold to a publicly traded company in 2002. Then In 2010 we sold again to another publicly traded company. That's when I retired. This phase of my career is probably the most interesting of all, as it is a very aggressive and fast-paced growth strategy."

Liebherr Wins Significant Ship Crane Order

Liebherr reports that there has been a positive trend in the heavy lift crane segement, a sentiment confirmed by a number of significant contracts recorded of late, including a contract for the delivery of six heavy lift ship cranes for the German shipping company Rickmers. Four of the heavy lift cranes are type CBB 4700 with a lifting capacity of 450 tons and the remaining two are type CBB 3450 with a lifting capacity of 120 tons. The six heavy lift cranes are being built by Liebherr-MCCtec Rostock GmbH and will be delivered in 2014. They will be installed on two ships in the Hudong-Zhonghua Shipyard in Shanghai, China and in the future will handle heavy and general cargo all over the world. In comparison with previous units of the same ship type, the crane capacities have been increased from 400 to 450 tons, a key factor in improving the ships' utilization.

The heavy lift cranes of the CBB series excel in their fast and precise Litronic control system, which is also used in offshore and mobile harbor cranes. Moreover, the CBB cranes have a comparatively low total weight and a low center of gravity.

Business relations between Liebherr and Rickmers date back to the 1970s. In 1985 a special board crane emerged from the cooperation between the two owner-managed family businesses. For the first time the crane was positioned at the side of a container vessel rather than on the vessel's center line. As Liebherr noted a year ago on the occasion of SMM 2012 in Hamburg, there is a positive trend the maritime heavy lift crane segment, and the range of heavy lift ship cranes will be extended by one type per year. In future, cranes with lifting capacities of up to 1,000 tons will be included in the ship crane portfolio.

Liebherr Expands in the U.S.

The Liebherr Group earlier this year unveiled its strong commitment to growth potential in the North, Central and South Americas regions, including the Caribbean, with the Grand Opening of its brand new sales and service center in Miami, FL, a facility which represents an approximate $20m investment. The new state-of-the-art facility – which this year will accommodate about 52 staff with ample room for expansion – is located in Hialeah Gardens, and will serve as a major hub for Liebherr's maritime cranes division and will further strengthen business relations to Central and South America and to the Caribbean region. The newly built complex is situated on a total property area covering about 431,000 sq. ft. (40,000 sq. m.). The building has a total area of 41,000 sq. ft. (3,800 sq. m.). 23,000 sq. ft. (2,100 sq. m.) of this is office area and 18,000 sq. ft. (1,700 sq. m.) can be used as storage area.

Qube Orders Liebherr LHM 280 For Melbourne

2013 has been a good year for Liebherr Maritime Cranes in the Oceania region, with deliveries of mobile harbor cranes, ship to shore container cranes, and straddle carriers to the area. Ship to shore container cranes have been delivered in Tauranga, New Zealand and Melbourne, Australia, while Liebherr straddle carriers are now operational in ports at Lyttelton and Tauranga, New Zealand. In Australia, the Liebherr Mobile Harbor Crane has been the popular choice, with two LHM 550s and one LHM 420 delivered to Patrick Stevedoring Pty Ltd. in Henderson, Western Australia, at the turn of the year. Also on the Australian west coast, a LHM 280 has been commissioned in Geraldton for operation with the environmental bulk handling system the Rotabox, while LHM 280s in both Fremantle and Bunbury are been assembled now. All three machines are for the company Qube Ports & Bulk, which provides services and facilities in 28 Australian ports. In total, Qube handles more than 40 million tons per annum of bulk products and expects volumes to increase.

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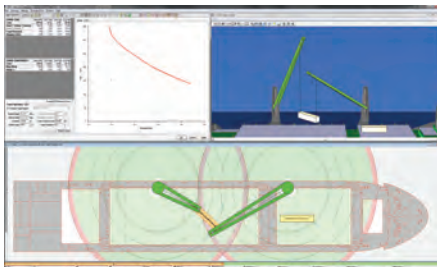

Autoship Systems Corporation (ASC) has been developing load planning systems for vessels for more than 25 years, with the goal of providing a solution that allows the operator to maximize efforts using whatever data is available. ASC believes the system should be able to function with minimal data when limited data is available, however, it should also be able to accept and use detailed information when it is available. This same concept was followed when developing the Crane Module.

By early 2012 the crane module had been installed on more than 500 vessels, including Rolls-Royce and North American Shipbuilding, which signed contracts to supply Autoload with the Crane Module for its new builds.

The Autoload 3D model includes a detailed model of the crane, including all moving components, winches, hooks and falls. When a user hooks a cargo to a crane, or multiple cranes, and moves it to another position, or moves the crane without a load, the vessel's floating condition, stability, and strength are updated in real time. The resulting calculations are accurate since the weight and COG of every separate part of the crane, plus the weight of wire paid out, and even the buoyancy of a load when hooked and partially submerged are taken into account. Further, due to the detailed 3D model used, Autloload is able to export accurate moment of inertia data to third party systems.

www.autoship.com

Rolls-Royce Cranes for Brazilian PSVs

Rolls-Royce signed a contract with Detroit Chile SA for the delivery of offshore cranes to four platform supply vessels (PSVs) under construction at Detroit Brasil Ltda. shipyard, in Itajaì, Brazil. The delivery from Rolls-Royce will include four ship sets of the dual draglink crane - eight cranes in total. Upon completion, the vessels designed by Guido Perla, will enter service on an eight-year contract with the state owned Brazilian oil company Petrobras. Brazilian Starnav Serviços Marìtimos Ltda, a subsidiary of Detroit Chile SA, will operate the vessels. The dual draglink crane is optimized for safer and more efficient load handling in harbor and on the ship's deck while at sea, and the cranes are designed to allow fast and safer loading, unloading and moving of cargo over the entire length of the main deck, Rolls-Royce said. "A configuration with two cranes provides a safer, highly efficient, redundant and independent load handling," said Ottar Antonsen, General Manager Offshore, Rolls-Royce. "These will be the first offshore vessels which can load and unload the deck using their own equipment."

www.rolls-royce.com

Okeanus Winch Fleet

Okeanus Science and Technology, LLC acquired a custom DT Marine 125-hp electric-hydraulic Slip-Ring Tow Winch, model DT-3125. The custom-designed winch is spooled with over 6,000 m (20,000 ft.) of 0.68-in. UNOLS coax cable.

MacGregor crane detail on the MPSV Bourbon Evolution 802, multi-purpose supply vessel of the Bourbon Evolution 800 series, in Singapore

Bourbon

Success with MacGregor Offshore Cranes

Ongoing experience of MacGregor's offshore cranes has played a role in Bourbon ordering another 150-ton active heave-compensated subsea MacGregor crane

The efficiency of shipboard cranes are critical in the maritime environment, but perhaps none more so than the offshore oil and gas business, where systems down cost millions per day, and reliability is the cornerstone to winning and keeping lucrative long-term contracts.

So when Bourbon, a major player in the global offshore market, invests repeatedly in the offshore cranes of MacGregor, it is a strong testament to the performance and reliability of the product.

MacGregor won an order for a 150-ton active heave-compensated (AHC) subsea crane from Bourbon, building on a contract that was won at the end of 2007 from the operator for 10 similar cranes.

The new crane will be delivered in August 2014 and is, as per nine of the previous orders, for a Bourbon Evolution 800 multi-purpose support vessel under construction at Zhejiang Shipyard, in China.

"Ongoing experience of MacGregor's offshore cranes and Bourbon shared return on experience on previous order to MacGregor has played a significant role in Bourbon ordering another 150-ton active heave-compensated subsea MacGregor crane," said Frode Grøvan, Sales and Marketing Director for MacGregor Advanced Load Handling.

Designed to meet the new development challenges of offshore oil and gas operations and operate safely at a depth of 3,000 meters, the Bourbon Evolution 800 series vessels offer an array of services at a par with deepwater offshore market in terms of operations and finance.

They fit well with Bourbon's strategy of standardizing its fleet, as illustrated by the choice of using the same 150-ton active heave-compensated subsea MacGregor crane for each vessel.

www.macgregor-group.com

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BAE

Yards busy with PSV newbuilds, ship repairs

BAE Systems' Mobile shipyard is adjacent to the 42 foot deep ship channel on Mobile Bay with direct access to and from the GOM.

BAE Systems continues to support the offshore energy market as it expands new construction efforts and maintenance, repair, overhaul and conversion operations at its shipyards in Mobile, Ala., and Jacksonville, Fla.

Earlier this year, BAE Systems began construction on the first of two platform supply vessels for GulfMark Americas, Inc. The 300-Class DP2 vessels are designed by MMC Ship Design and Marine Consulting, Ltd. of Poland and will be based on similar platform supply vessels currently under construction for GulfMark abroad. The green vessels will be U.S. flagged and will support the anticipated future demand in the Gulf of Mexico offshore market and other areas around the world and will be delivered in 2014.

The company also commenced construction on two of the four platform supply vessels it's building for Jackson Offshore Holdings, LLC. The vessels, which will support multiyear contracts in the Gulf of Mexico for Jackson, will be qualified under the U.S. Jones Act and will measure 252 x 60 ft.. Deliveries are scheduled for 2014 and 2015.

"There are numerous opportunities in the oil patch and a host of shipyards that can meet the demand," said Richard McCreary, vice president and general manager of BAE Systems Southeast Shipyards. "However, our customers recognize our commitment to safety and quality and our reputation for high-quality workmanship meets their stringent requirements. Dealing with a large stable, financially strong organization such as BAE Systems is equally important."

The company's Mobile shipyard is adjacent to the 42 foot deep ship channel on Mobile Bay – providing direct access to and from the Gulf of Mexico and major shipping lanes.

The Gulf Coast operation is an established expert in blue-water ship repairs and conversions, including those from commercial fleets, cruise ships and vessels that serve the U.S. defense cargo market.

The shipyard also has experience in the repair and conversion of drilling rigs and semi-submersibles serving the offshore energy industry. It offers drydock and heavy-lift capacity for the largest ships trading in and around the Caribbean and Gulf of Mexico region with significant pier space, industrial fabrication capability and marine fabrication equipment and systems.

The Jacksonville yard is located two miles from the Atlantic Ocean, at the intersection of the St. Johns River and the Atlantic Intracoastal Waterway.

Jackson Offshore Operators
PSV under construction at BAE Systems in Jacksonville, Fla.

US Shipping's Houston on Dry Dock Alabama in Mobile.

Two dump scows for Great Lakes Dredge & Dock Company under construction in Mobile.

The Ties that Bind

This month the M/V Karl Senner and the M/V Dickie Gonsoulin will be christened in Houma, La. While the event is centered on a pair of new, high-specification towboats, the celebration is the culmination of more than 45 years of business partnerships between Karl Senner, LLC and LeBeouf Bros. Towing.

By Greg Trauthwein, Editor

The inland towing business is filled with history, characters and long tales of business partnerships extending years, decades or even centuries. The partnership between LeBeouf Bros. Towing and Karl Senner LLC is one such story, a partnership forged more than 45 years ago between Karl Senner and Dickie Gonsoulin; a partnership solidified again this month with the delivery of M/V Karl Senner and M/V Dickie Gonsoulin in Houma, La.

A Strong Start

The partnership forged by Senner and Gonsoulin and extended today by their two sons, Ralph Senner and Jon Gonsoulin, all started in 1967 aboard the M/V Mary R, which was a single screw tugboat purchased by LeBeouf Brothers Towing after its incorporation in 1944. Mary R was originally powered with an Atlas six-cylinder, 160 hp engine. In 1955, the vessel was repowered with an Enterprise 6 cylinder inline "M" engine rated 400 hp at 800 rpm. Mary R sank in 1957, and after the vessel was recovered from the waters of Texas City harbor, it was refurbished and placed back into service.

In 1967, Karl Senner sold his first Reintjes gearbox for installation in the United States to LeBeouf Brothers towing.

The Reintjes WAV 721 gearbox was installed in the Mary R for use with the Enterprise 6 cylinder inline "M" engine. The Mary R operated successfully with no major repairs to the Reintjes gearbox from date of installation until the vessel was taken out of service in December 1981.

According to Jon Gonsoulin, President, LeBeouf Bros. Towing LLC, after the vessel was decommissioned "we pulled the gearbox out and gave it back to Karl Senner as a momento. They cleaned it up, polished it and put it on display at the Workboat show."

Ralph Senner said that the gearbox eventually was sent back to Germany for display at Reintjes, but that it will be back in the U.S. at the double christening, which was planned for September 14, 2013.

This boat will be the first ever to bear the name M/V Karl Senner, an honor that Gonsoulin said is appropriate. "Considering that Mr. Karl and dad were very dear friends for all of these years, it's a befitting time with the delivery of sister boats to have them both be named in their honor."

Changing with the Times

While Karl Senner LLC still is a private, family run business, and maintains much of the same character and principle upon which it was founded, it has been undergoing a transformation of sorts, with the ascension last year of Ralph Senner as the company's leader and the naming of Steve Valdes as CFO.

Just last month the company opened a new training facility on its premisis, a facility which is intially aimed at training and maintaining its own staff, but eventually intended to accomodate training needs for its customers as well.

"Finding quality trained personnel that can live the lifestyle of a service technician is challenge in our business," Ralph Senner said, noting that this was a driver to develop its own training center. The new training center, combined with expansion of its facilities Paducah, Ky. and Houston and buoyant business in nearly all of the sectors it serves, has the company running at full speed. But the business, as always, comes with fresh challenge.

One of the main challenges today is consolidation, the loss of small privtely held companies which are being bought by capital groups or public companies. "Publicly traded companies are not looking to the future as much as privately held companies like Jon's, which are willing to spend a little more money upfront because they wanted to know what that asset would be worth 10, 15 years from now," Ralph Senner said. "Some companies are looking to see how much money they can make now, getting that asset to work as quickly as they can, as cheaply as they can."

Gonsoulin agrees, noting that he is willing to spend more money upfront, for example to build barges with thicker steel plate, or to invest an extra $25k in a heavier duty gear, with the assumption that the investment in quality will pay off in the long run with less downtime and trips to the reapir yard.

"Having your own yard allows you a lot of flexibility," Gonsoulin said. "It might cost a bit more in the short term, but in the long term, building yourself, building it better to your spec, it makes a lot of sense to me to build it stronger from the beginning."

Jon is third-generation in the business, and he said the decision was made to start building its own boats in 2005 in the wake of hurricane Katrina, when a local shipyard who had bid on one of their jobs essentially said they could not bid the project.

The man with his jacket over his sleeve is Karl Senner, and the man to the right of him with his hand behind his back is Dickie Gonsoulin.
The woman to the left of Karl Senner is his wife Gerda Senner, and the man with his legs crossed, hands folded, and glasses was Mr. Muller, the managing director of Reintjes at the time. The photo was taken in Germany at the Reintjes factory in the 1970s, with Senner and Gonsoulin honorary guests of the city of Hameln. Dickie Gonsoulin remembers they were still rebuilding Germany at this time, but was amazed by efficiency, work ethic, cleanliness, and precision of the Reintjes factory.

A bond forged more than 40 years ago stands strong today.
L to R: Chris Senner, Jon Gonsoulin and Ralph Senner.

"It was December 23, 2005, and that lit a fire under me to build my own equipment. I started building my own tank barges. The first two barges were delivered in Q1 2008, and we're about to launch barge 537, so we've built 37 barges between 2008 and now."

The M/V Karl Senner and the M/V Dickie Gonsoulin are the second and third of a five boat series, all 95 x 34 ft., though the Karl will have Mitsubishi power and the Dickie Caterpillar 3512s. All, naturally, will have Reintjes gears.

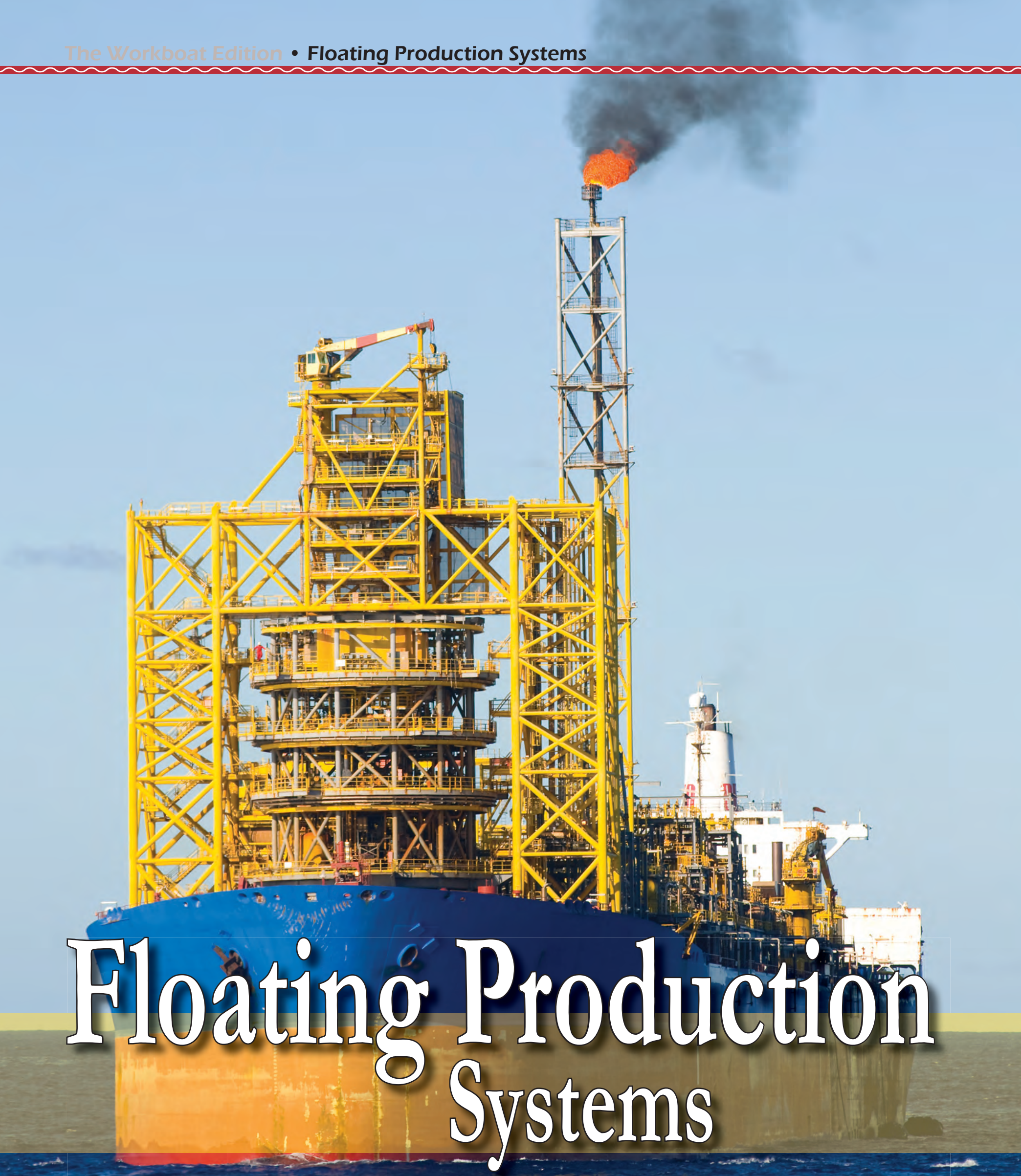
"The relationship (with Senner) goes back to my father and Mr. Karl," said Gonsoulin. "We became friends and business partners quite a few years ago. We don't exclusively have Karl Senner supplied Reintjes gears, but that's usually because of boats we bought that had other gears in them. But if we build new or repower, we go exclusively with Reintjes gearboxes."

Gonsoulin said the quality of the product is important, but more so the after sales service that has cemented the relationship with Senner. With the waterways being unpredictable, problems may arise unexpectedly, and when they do, resolving them efficiently and effectively is critical to the bottom line.

"It's all about trust and service," Gonsoulin said. "If we ever have a problem, these guys do a wonderful job as they get things done and the boats going for us.

They have swing gears sitting on the floor us, to get our boat operating again quickly. If it wasn't for their willingness to have a spare sitting on the floor for us in New Orleans, to have that money sitting on the floor, we would be down for the count (with a failure). We either would have had to wait for another unit from Germany or we would have had to install another gear."

According to Senner the company currently maintains approximately $14m in spare parts, and the main challenge is simply knowing which spares to stock. While many companies may eschew having that much capital tied up in parts, Senner sees it as a central plank to its business model. "We conduct an annual evaluation of the equipment we have running to give us a good indication of where we need to invest (in spares). But really, it simply comes down to communicating with the customers."



Floating Production Systems

Opportunities for Shipbuilders and Repair Yards
In a Huge & Growing Market

By Jim McCaul
International Maritime Associates, Inc.

Since the beginning of this year, orders have been placed for 17 floating production systems. The combined value of the fabrication contracts exceeds $16 billion. By year end there will likely be another five to eight contracts awarded and the overall contract value for the year will exceed $20 billion.

Stated in terms of conventional ships, fabrication of floating production systems in 2013 will equate to orders for 220 VLCCs, 360 Suezmax tankers or 800 Panamax bulk carriers. In other words, it is a big market. Yet relatively few shipbuilders are active in this sector.

This article highlights the opportunities that non-players are missing and suggests some options for positioning in this market space.

Floating production systems inventory – 269 floating production units are now in service or available. FPSOs account for 61% of the existing systems. The balance is comprised of production semis, tension leg platforms, production spars, production barges and floating regasification/storage units. Another 93 floating storage/offloading units (without production capability) are in service.

The number of production floaters has been growing steadily – there are 22% more units than five years ago, almost 80% more than 10 years back. Including units that have been scrapped, almost 300 floating production units have been delivered since the mid-1970s when floating production began.

Current order backlog – 72 production floaters are now on order, consisting of 40 FPSOs, six production semis, five TLPs, four spars, one barge, four FLNGs and 12 FSRUs. Delivery of the equipment will grow the production floater inventory by 27%.

In the backlog are 46 units utilizing purpose-built hulls, 26 units based on converted tanker hulls and 1 unit being modified from an existing production semi Of the production floaters being built, 41 are owned by field operators, 31 are being supplied by leasing contractors.

Brazil continues to dominate orders for production floaters – 23 units are being built for use offshore Brazil, 32% of the order backlog.

Future demand – Floating production is still in the exponential phase of growth and underlying industry demand drivers are very strong. Key signs – oil prices, planned projects, drilling activity – point to accelerating requirements for new floating production systems over the next five to ten years.

Spot oil prices have hovered in an $80 to $120 per barrel range over the past year and futures pricing is indicating $80 to $100 per barrel through the decade. This pricing environment supports investment in all but the most marginal deepwater developments. At these prices, a floating production system producing an average of 70,000 b/d over the next five years will generate $10 to 12 billion in revenue. After royalties and operating expenses, a $2 to 3 billion investment in the production floater and subsea field development looks pretty attractive.

The portfolio of new floating production projects under study or planned worldwide keeps increasing. As of July there were 241 new floater projects in the bidding, design or planning stage. These are declared discoveries that likely require a production floater for development. A year ago 233 projects were in the planning, design or bidding stage. Five years ago, the figure was 141 projects. Ten years back, 94 projects.

The number and utilization of deepwater drill rigs points to accelerating demand for new floating production systems. Deepwater drill contractors are now operating at full utilization and demand for deepwater drill equipment has driven day rates for drillships and deepwater drill rigs to a record level.

More than 90 additional drillships/semis are scheduled for delivery over next few years. These new drill units will increase deepwater drill capability by 30%, removing a bottleneck that has constrained exploration and development in deepwater. More drill rigs enable more

Exhibit 1

Forecast of Floating Production System Orders

Over the Next Five Years – 2013 to 2018

FPSOs – Orders for 90 to 130 FPSOs are forecast, with the most likely being 110 orders. Around 60 percent of orders will be placed by leasing contractors, 40 percent by field operators. Modification and redeployment of existing FPSOs will satisfy around 20 percent of future FPSO requirements. Construction contract value, assuming the most likely FPSO forecast, is estimated in the area of $75 billion

Production semis – Orders for 8 to 11 production semis are expected. The most likely forecast is 9 orders. All will be purpose-built hulls. Most will be directly ordered by field operators, a few will be ordered by leasing contractors or midstream companies. Construction contract value is estimated in the area of $12 billion.
Production spars – Orders for 5 to 10 spars are expected. The most likely forecast is 8 orders. All will be purpose-built. Most will be directly ordered by field operators, a few will be ordered by midstream companies. Construction contract value is estimated around $7 billion.

TLPs – Orders for 4 to 6 TLPs are expected, with the most likely forecast being 5 orders. All will be purpose-built. Most, if not all, will be directly ordered by field operators. Construction contract value is estimated to be in the area of $6 billion.

FLNGs – Orders for 2 to 10 FLNGs are possible. Most likely forecast is 8 orders. The wide forecast range reflects technical and commercial issues still to be resolved. Construction cost is likely in the range of $25 billion, but could be much higher or lower.

FSRUs – Orders for 15 to 23 FSRUs are likely. The most likely forecast is 20 orders. This is a rapidly expanding market sector. Construction cost is estimated in the area of $5 billion, but could be much higher.

FSOs – Orders for 25 to 35 FSOs are expected, with the most likely forecast being 30 orders. Around 33 percent will be purpose-built units. The remainder will be based on converted tanker hulls. Total construction cost is estimated around $4 billion.

Source: IMA

exploratory drilling. Exploratory drilling leads to finds. Finds lead to development decisions. Development produces orders for production equipment.

Given these underlying drivers, over the next five years we expect orders for around 160 production floaters. But the number of orders could be as high as 190 units or as low as 125 units – depending on the price of oil, growth of alternative supply sources and other future macroeconomic developments. In the most likely order forecast, the total value of construction contracts will be in the area of $135 billion. (Exhibit 1)

Competitive landscape

A relatively small number of yards have developed a position in this sector. Presently around 40 facilities are involved in major contracts to fabricate production floater hulls or topsides. They are primarily located in Korea, Singapore, China and (recently) Brazil – with a few others elsewhere in Asia, Europe and North America. (Exhibit 2)

Korean yards Samsung, DSME and Hyundai are the major players in turnkey contracts to fabricate large,

complex FPSOs and production semis. For example, Samsung recently signed a $3.1 billion contract with Total to supply a large FPSO for use offshore Nigeria. DSME has a $2 billion contract from Inpex to build a condensate FPSO for use offshore Australia. Hyundai recently signed a $1.9 billion contract with Chevron to supply a large FPSO for use offshore the Shetland Islands.

Singapore yards Keppel, Jurong, Sembawang are major players in converting existing tankers to FPSOs and FSOs. For example, Keppel has a contract with SBM to convert a Suezmax-size tanker to an FPSO for lease to Shell for use in the Gulf of Mexico, a $1 billion project. Jurong just delivered a $0.8 billion FPSO conversion to Modec for use by OGX offshore Brazil. Sembawang has an EPCCI contract from ExxonMobil to convert a VLCC to a $0.3 billion FSO for use in Indonesia.

Chinese yards CSSC, COSCO and CSIC are big players in building or converting hulls to be used as FPSOs. For example, CSSC Chengxi was recently contracted by SBM to convert two VLCC hulls for subsequent outfitting in a local Brazilian facility as FPSOs for use offshore Brazil.

COSCO Dalian has contracts from Modec to convert two VLCC hulls for subsequent outfitting as FPSOs at a local Brazilian facility.

CSIC Dalian has a contract from CNOOC to build an FPSO for use on a field in the South China Sea.

Brazilian yards, some still in the formative stage, have recently emerged as major players in the FPSO fabrication business. They are all focused on the local market. Ecovix is building eight FPSO hulls at Rio Grande Sul for use by Petrobras.

A consortium formed by Odebrecht is converting four VLCCs to FPSOs in Inhauma shipyard (ex-Ishibras), also for use by Petrobras. A third yard, UCN Acu, which is not finished, was to convert two VLCCs to FPSOs for OGX and integrate two other FPSOs for Petrobras. This plan has been disrupted by financial turmoil in OGX. Other facilities such as Brasfels, Quip, Brasa and Maua are involved in final integration of production floaters.

In other areas, MMHE/Technip in Johor (Malaysia) is building a large TLP for Shell for use offshore Malaysia. Paenal, a new yard in Porto Aboim (Angola), is contracted to finish topsides work on two FPSOs being built for offshore Angola. Technip is fabricating a production spar hull for Anadarko at its facility in Pori (Finland). In the U.S., Kiewit and GIFI have contracts to fabricate and integrate topsides for several production floaters destined for the Gulf of Mexico.

Is there space for others? – Absolutely. The floating production sector is still in the early stages of development, the pace of orders for new equipment is growing, production floater technology continues to evolve and cost pressures in Korea, Singapore, China, etc. will impact future pricing competitiveness of many current players. There will be many future opportunities to position in this market space.

Here's a few positioning possibilities:

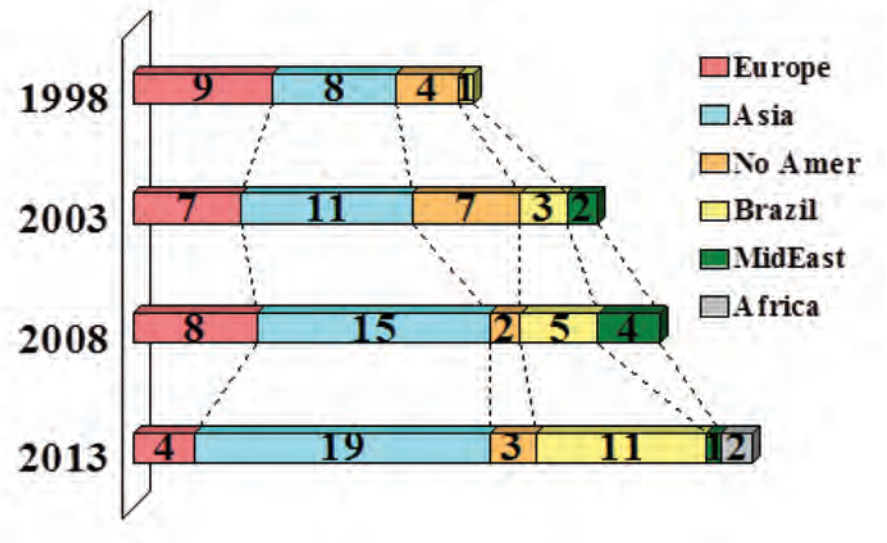
• Hull construction

Around 50% of FPSOs and 20% of FSOs utilize purpose built new hulls. Shipyards with Suezmax and VLCC building berths can target positioning in

Exhibit 2

Number and Location of Facilities Fabricating or Converting Floating Production Units

(as of end 2nd quarter each year)



this market. Typical FPSO/FSO new hulls cost $100 to 150 million, but can be as much as $450 million depending on size and owner specification. While stringent offshore service standards apply to the hull construction, the work scope is limited to completion of the hull. Topside fabrication and integration is under separate contract(s) and when finished, the hull is towed to another facility for completion.

• FPSO/FSO conversion

The balance of FPSOs and FSOs are conversions of trading tankers. Ship repair yards with drydocking capability for extended conversion of large tankers can target this conversion business. Of course, there are entry issues. The quality standards for FPSO conversion are more demanding than typical commercial ship repair and upgrade – and the scope of work can be much more complex, as the yard will typically be responsible for the entire conversion project. But this is a growth market that could interest ship repair yards looking for new markets.

• Module fabrication – An FPSO topsides is an assembly of prefabricated modules that house process plant equipment, power systems, accommodation facilities, etc. Each module is designed and engineered to be lifted and readily installed on the FPSO topside. Complex, large FPSOs can involve 15 to 20 modules in total weighing as much as 15,000 tons. Module fabrication could be an interesting market opportunity for yards that have substantial space for steel assembly and can work to stringent tolerances and offshore standards.

• New product development

Leapfrogging existing technology is another entry path. Recently, for example, we advised an investor on the feasibility of building standardized barge-mounted regas plants that would be leased to small power consumers as part of a network of LNG reception facilities. A shipyard could align with an engineering partner and leasing contractor to develop and of-

fer such a product line of standardized regas barges.

The customer would be utilities and power plants on islands and in areas that lack pipeline access. But this is only an example. There are many other possibilities for leveraging product development to enter this market sector.

But there are barriers to entry.

They include

(1) requirements for local content and/or local partner participation,

(2) experience with standards, rules and codes unique to offshore production units and

(3) frame agreements and established customer/supplier relationships that exclude new entrants.

This is also a very conservative industry in terms of accepting unproven suppliers who have no record of production floater performance.

Ultimately the question is whether this market can produce an attractive return on investment. In our view, we think it can be very attractive. It is a huge market involving big ticket purchases that shows no indication of slowing. And current competitors are likely not as entrenched as they might appear. Their costs are growing and the market is continuously evolving.

We think shipbuilders and repair yards not now in this sector should look into opportunities in the floating production market space.

Terms Used:

FPSO – Floating Production, Storage and Offloading Vessel

FSO – Floating Storage and Offloading Vessel (no production plant)

FSRU – Floating LNG Storage and Regasification Unit

FLNG – Floating Liquefied Natural Gas Plant

EPC – Engineering, Procurement and Construction Contract

TLP – Tension Leg Platform

About IMA & Jim McCaul

IMA provides market analysis and strategic planning advice to companies in the marine and offshore sectors. Over the past 40 years we have performed more than 350 business consulting assignments for 170+ clients in 40+ countries. Advising clients on market positioning strategy in the offshore sector is one of our specialties. We have assisted numerous shipbuilders, ship repair yards and equipment manufacturers in formulating a strategy and structuring a plan of action to penetrate the offshore market.

We have worked at all levels of the offshore supply chain. Our assignments have included advice on acquiring an FPSO contractor, forming an alliance to bid for large FPSO contracts, satisfying local content requirements and targeting unmet requirements through technology development.

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Email: imaassoc@msn.com
www.imastudies.com

No Ordinary Joe

When Joseph H. Pyne joined Dixie Carriers in 1978, little did he know the maritime juggernaut he would help to create. When he took over as president in 1984, the company owned about 20 boats and 50 barges, with a value of about $35m. Today, after nearly 30 years, 50 acquisitions, it has a market cap well in excess of $4B, and its fleet hovers around 350 boats and 950 barges, commanding approximately 35% of the U.S. market. Joseph H. Pyne, 65, recently spent some time with Maritime Reporter & Engineering News in his beloved Maine to reflect on the evolution and future direction of Kirby Corporation.

by Greg Trauthwein, Editor

(Photo: Greg Trauthwein)

Pyne pictured with his beloved Maine coast as a backdrop.

Assuming that as a young boy growing up in Maine you did not dream of become the CEO of a marine transportation company, can you tell us how you came to your career?

I grew up in Bremen, Maine, on the coast and a very rural part of Maine. We had a summer home which my grandfather built on an island off the coast. As a child, I would have to go by boat everywhere … to see my friends, to get a soda … everything was on the water. Then I went on to Tabor Academy which was in Marion, Mass., and also on the water. After I graduated from North Carolina I joined the Navy and was in for almost eight years. As I transitioned out of the Navy, I was trying to figure out how I could apply the skill sets I had acquired to something where I could make money. Back then (the late 1970s) the marine industry had moved south, principally in the Gulf of Mexico. I had some other peculiar skill sets in that I was a Navy diver, running one of their saturation systems. I came to places like Houston and New Orleans and met with many companies, one of which was Kirby, which back then was an oil & gas exploration company with a small marine subsidiary called Dixie Carriers, then a $30-40m business. I joined Dixie Carriers in February of 1978, which was a wholly owned subsidiary of Kirby.

Did you start at the top?

No. I had a variety of roles at Dixie Carriers, starting out as a project engineer, then moved to human resources, then to safety and operations, and I was named president in 1984. At this time the company was about $35m in revenue, 150 employees and maybe 18-20 boats and 40-50 barges.

How would you describe the business during this period?

This was in the middle of a very difficult time in the business, as they (like many others) had overbuilt. But you could see that this is a great business, a business that is fundamentally important to the U.S. economy. It is the best and the safest way to move bulk products throughout this country. The inland waterway system is a magnificent transportation system, perfectly located through the center of the country which really connects the heartland to the world. We were principally a liquid carrier back then, and the liquid business, particularly the chemical business lends itself to water transportation. Given that this was a fundamentally important business, one that wasn't going to go away. It was apparent to me that if you had the vision and the means, you could grow that business into a super franchise.

So it was smooth sailing from there?

Not exactly. The parent company (not the barge line) had some financial trouble back then, because simply they weren't really successful in finding oil and gas. In 1987 the board made the decision to get out of the oil and gas business and focus on the transportation business.

That's when we began to grow. After 50 acquisitions and a lot of hard work from a group of great people, we're where we are today: about 350 inland towboats and tugboats and 950 offshore tank barges, and we employ about 4,600, which includes about 2,600 seamen and staff in our diesel engine business.

People are often touted as a company's most valuable assets. Your thoughts?

The heart of the company are the employees. They see the customers more, they spend the money, they're the ones that deliver the service. A lot of our success is recognizing that we are not just a marine transportation company. We are a service company that uses marine assets to do what our customers pay us to do: move their product safely and reliably.

This marine business is a funny one, in that it is critically essential to U.S. commerce, but it often does not get its public and political due. How can this change?

To put it in perspective, maritime is a small part of the overall transportation system in terms of revenue and in terms of the number of vessels. However, the magnitude of what we move is significant. When you are such a small part of the transportation system it can be hard to get people's attention. Where you do get some attention, for example, was during last year's drought when commerce was getting ready to stop (due to low water levels).

The U.S. Coast Guard Foundation is set to honor you next month in New York. When you consider this award, what in your mind makes it special or unique?

I generally don't do these kinds of things. I get many requests to do these executive interviews and I turn them down, because it really is not about me. I don't want this to sound trite, because it isn't: Companies are successful because you have a bunch of people pulling their oars at the same time. They do the little things more right. That requires everybody working to make it successful. I've been the leader for awhile, and it's a great honor, but it's not about me. It's about the success of an organization and the people that make up that organization working hard every day. When I look at accepting this award, it is really for Kirby; it is Joe Pyne and the Kirby Corporation; I'm representing Kirby.

I've only done this one other time, and that's with the Seaman's Church Institute, and that's because I believe in what they do. The Coast Guard Foundation is really pretty easy too. What you're doing is helping people, particularly in a period where Congress isn't funding some of the basic needs of that organization. I spent the early part of the summer touring Northern New England stations with a couple of Foundation Board members, seeing some of the stations, the communities they are in, their role in those communities and what they do for the mariner. (Many of them are) in the middle of nowhere and don't have some of the tools to make their life a little easier. Given that, it is pretty easy to get out your checkbook and help this organization.

Frankly I had resisted getting involved in the Coast Guard Foundation for years, because you're so busy and when you get involved in something you either do it or you don't; you don't want to do it just to have your name on it. When I got more active and had a better understanding of what it does I became very enthusiastic about it, and I can see myself continuing.

When you wake up every day and you assess the business that you're in and the goals you set, what is the biggest challenge, in your mind, to running an efficient, safe and profitable business?

Remember that you've got close to 350 mobile worksites stretched from Hawaii to Maine; Brownsville to Pittsburgh. No other marine transportation company has this geographic scope or complexity as Kirby. We're moving chemicals, we're moving refined products, we're moving black oil … all of things that nobody wants compromised. But the thing I worry about most is an operating incident. We have been very fortunate to not have many, particularly when considering the number of moving parts that we have. The challenge is to really getting the message – and the procedures and the processes that accompanies that message – down to the people that implement the service we provide. From the captain to the deckhand, we want to do it right, safely and reliably. That's easy to say, harder to do

People need to be properly trained, so we have a very extensive training process at Kirby. I think probably that we are the only company in our business that can issue a certificate at our training center for all of the licenses that we need in our fleet. We spend a lot of money on training, and it is worthwhile.

If anything keeps me up at night, it's something that's going to happen out there that's going to affect a person or

"Our ego really isn't tied up in the number of assets that we own or the size of them; it's about servicing the customer."

(Photo: Kirby)

the environment.

How would you best describe your management philosophy?

It's hard to succinctly describe a philosophy. What I tell people: "When in doubt, do the right thing." I think what's made Kirby successful is that we're very disciplined in the way we invest; we're trying to get a 12% return on capital over the business cycle; when you make a capital mistake it lives with you forever; we're patient investors; we think that the market and your balance sheet will tell you what you need to do. There will be times when it makes sense to buy, like the last 24 months in the offshore space, where we went from essentially a zero market share to a 30% market share
There are times when it says that these assets are too expensive you don't want to buy them, you want to add capacity, and we're probably entering in that period now. You'll probably see us add some capacity offshore, and we've already added a little inland already. There are times that you look at your balance sheet and it's a little over leveraged and you want to focus on paying down debt; as a public company there are times when it is apparent that your stock is undervalued and you want to buy that stock back. I've never thought of Kirby as being just an owner of marine assets, I've thought of Kirby as a service company that uses marine assets to provide a service that our customer pays us for. Our ego really isn't tied up in the number of assets that we own or the size of them, it's about servicing the customer.

What we're looking for is a long term relationship that can go on for many years, that can be codified in a contract that continues to get renewed. At the end of the day, you want to be a part of that supply chain. Another thing we say is that we make decisions in this company as if we are managing it into perpetuity. So that drives the development of talent, that drives succession, it drives investment in fleet, people, training and support. It really isn't about how big is the biggest barge; it's about how you use the equipment and the people to give your customer something they need.

The Maritime business is a hard cyclical business …

Well I like cycles!

But can you put in perspective for me the recent economic crisis and fall out, and how it has fundamentally changed Kirby.

Remember that when I started to run Dixie Carriers, business was a lot worse than it ever was in 2008. The business collapsed. With challenge comes opportunity. Cycles create wonderful buying opportunities, and for a company that has grown through acquisition, we see those as opportunities.

We didn't see the financial collapse, but we did see that the path we were on was unsustainable, so we started to prepare for the end of this run; we had contingency plans in place that would take costs out of the business and scrap vessels. So when it happened in 2008, we were prepared. For the first time in my business career I had a consultant come in to challenge us, to make sure we were considering all of the right things. They did a really good job of that; we probably would have gotten two-thirds or three-quarters, but they got us all the way there.

So what was the strategy?

In 2008 and 2009 we took about 20% of our G&A out, and while our revenue went down, our margins went up. Part of that is due to how quickly we took some costs out of the business; part of that is we extended some contracts, and shuffled our spot to contract mix from about 70% contract to 80% contract. The result: coming out, we had a clean balance sheet … we didn't have any debt; we had cash on our balance sheet, and

"I've always been somewhat of a contrarian .. … when business gets really good I get nervous and when it gets really bad I get excited."

(Photo: Kirby)

Kirby Corporation

Earnings, Q2 2013 Snapshot (unaudited, $ in thousands except per share amounts)

	Second Quarter		Six Months	
	2013	**2012**	**2013**	**2012**
Revenues:				
Marine transportation	$ 423,868	$342,195	$842,386	$678,152
Diesel engine services	140,040	169,653	280,307	400,631
	563,908	511,848	1,122,693	1,078,783
Costs and expenses:				
Costs of sales and operating expenses	369,587	345,916	738,861	730,275
Selling, general and administrative	40 ,938	43,199	85,094	96,299
Taxes, other than on income	4,397	3,907	8,875	7,821
Depreciation and amortization	40,271	35,197	81,267	71,671
Gain on disposition of assets	(537)	(69)	(505)	(41)
	454,656	428,150	913,592	906,025
Operating income	109,252	83,698	209,101	172,758
Other income.	101	30	176	179
Interest expense	(7,219)	(5,901)	(15,207)	(11,741)
Net earnings	63,792	48,435	121,344	100,314
Net earnings attributable to Kirby	$ 63,093	$47,551	$119,671	$98,495
Marine Transporation Earnings				
Marine transportation revenues	$423,868	$342,195	$842,386	$678,152
Costs and expenses:				
Costs of sales and operating expenses	259,332	210,466	518,561	413,873
Depreciation and amortization	36,606	31,680	73,756	63,769
	326,305	270,465	655,570	537,932
Operating income	$97,563	$71,730	$186,816	$140,220
Operating margins	**23.0%**	**21.0%**	**22.2%**	**20.7%**
Diesel Engine Services Earnings				
Diesel engine services revenues	$140,040	$169,653	$280,307	$400,631
Costs and expenses:				
Costs of sales and operating expenses.	110,255	135,450	220,300	316,402
Operating income.	$ 14,932	$15,118	$28,954	$38,672
Operating margins	10.7%	8.9%	10.3%	9.7%
Marine Tranportation Performance Measurements				
Inland Performance Measurements:				
Ton Miles (in millions) (2)	2,969 .	3,194	5,981	6,476
Revenue/Ton Mile (cents/tm) (3)	9.7	8.3	9.5	8.2
Towboats operated (average) (4)	262	239	259	240
Delay Days (5)	2,520	1,164	4,569	3,635
Average cost per gallon of fuel consumed.	$3.22	$ 3.35	$3.24	$3.26
Barges (active):				
Inland tank barges			863	818
Coastal tank barges			79	57
Offshore dry-cargo barges			8	4
Barrel capacities (in millions):				
Inland tank barges			17.3	16.4
Coastal tank barges			6.2	3.9

(2) Ton miles indicate fleet productivity by measuring the distance (in miles) a loaded tank barge is moved. Example: A typical 30,000 barrel tank barge loaded with 3,300 tons of liquid cargo is moved 100 miles, thus generating 330,000 ton miles.

(3) Inland marine transportation revenues divided by ton miles. Example: Second quarter 2013 inland marine transportation revenues of $288,749,000 divided by 2,969,000,000 inland marine transportation ton miles = 9.7 cents.

(4) Towboats operated are the average number of owned and chartered towboats operated during the period.

(5) Delay days measures the lost time incurred by a tow (towboat and one or more tank barge

www.kirbycorp.com

"Companies are successful because you have a bunch of people pulling their oars at the same time. **They do the little things more right.** That requires everybody working to make it successful."

we had the opportunity to buy a significant diesel engine company, we bought KSea in 2011 and we were able to buy Allied and Penn Maritime. For us, that was kind of the normal business cycle that creates opportunity. Someone once told me that when business is bad, it's never going to get any better, and that when business is good, it's never going to get bad; I've always been somewhat of a contrarian: when business gets really good I get nervous and when it gets really bad I get excited!

Did the fast change in the energy profile of the U.S. take you by surprise?

Three or four years ago, as you'll see in our public comments, it was clear to us that natural gas would be a real game changer. What we didn't predict was the liquids that would come out of it.

The collapse of natural gas prices conspired to rejuvenate the petrochemical business, whereas people were talking about closing plants, they talked about building them.

New regulation is a fact of any industry. Today, are there any new rules and regulations coming down that you find tricky and/or troubling?

The best is to take a deep breath and accept it, because it's going to happen. Our strategy on regulation is to understand it, try to influence it in a positive way. We actually think that new regulation helps to level the playing field, because it's going to be easier on a company like Kirby.

I worry not so much about regulations that can impact us, I think I'm more concerned about regulation or policy that can be implemented on our customers. Regulations that change the competitiveness of the chemical or refining business would be detrimental to us because it would in turn reduce volumes that we carry. The energy and chemical renaissance that is occurring, principally because of the liquids that come out of shale deposits and natural gas, is very good for us. It went from a relatively mature business to one that is growing.

Which regulation(s) do you think has been the most positive impact on the market, on your business?

I think the Oil Pollution Act of 1990 had a positive effect in significantly reducing spills and that's good for society, the environment and business. I think the vapor control regulations in the handling and disposal, keeping them away from people, are positive.

As I already said, I don't think all regulation is necessarily bad. There are plenty of examples of bad regulations, where you have no idea of the conse-

quences. We are regulated for some pretty specific things, and for the most part I don't think they have been particularly harmful. They do increase your costs a little bit, but they increase everyone's costs.

Where they have been problematic is when they take one specific incident and try to build regulation to avoid that incident. OPA 90 is an example of that, but I think that ended up being OK.

The Sarbanes-Oxley Act for a public company is a response to Enron. Some of that is good, some of that is not very good, and a lot of it for a company like Kirby, we did it anyway. You're trying to regulate the bad actors, and what you're doing is imposing costs on all of industry, even the guys who are doing it right.

Your business depends on several things that are out of your control, from Mother Nature to waterways infrastructure. From where you sit, what are the most critical waterways infrastructure issues that must be resolved?

It's on the inland side of the system and it's the locks and dams. Many are more than 50 years old, and they simply require investment, as you are now starting to see some failures. Having said that, we have been working with the Corps of Engineers on a plan to reinvest in the infrastructure, including a funding plan, as the industry has agreed to pay increased user fees, an agreement that prioritizes the projects and finishes some of the ones that have languished. I'll feel a lot better if we can get that through Congress.

Politics, funding, diverse initiatives: is it harder to get things done today?

It is harder, and I think it is going to get even harder. We've run out of money. We had the opportunity to fund a lot of this in the Stimulus Bill early in the Obama Administration and we didn't do that. I look at infrastructure as an investment: it facilitates commerce, it makes things more efficient, it encourages development, it helps the country be more competitive. But it goes beyond the waterways. We need investment in highways and bridges too. We have a real problem, as we had a world-class infrastructure system 30 or 40 years ago, but today while it is not second class, but it is not world class.

Technology is a popular topic in our pages, print and electronic. When you look at technology, what do you credit with making your business more safe and efficient.

Technology is a double edge sword. In some business, technology renders you obsolete, and in our business it really doesn't do that. I think in our business it makes us safer, but truthfully I think the real key to safety is how you manage it, as some 80 percent of accidents are due to human error. Some of the navigation systems and electronics have helped tremendously. Computer based training has certainly helped. But the most important thing you can do to make someone safe is to make safety the number one priority at the senior level of the company, and to take responsibility for it, and force the management team to

One of the things I've talked to our management team about is "if you can't explain it so the average person can understand it, that probably suggests that you don't understand it."

in turn accept that same responsibility down to the captain through the deck hand.

All of the new technology helps, from the electronics to the alarms to the sensors that measure vapor levels, but all of the technology in the world doesn't replace taking personal responsibility for making safety a priority, starting at the top. You can delegate authority, not responsibility. We think safety is not only the right thing to do, but it is also great business.

Kirby historically has been a driver for consolidation. Is there more room for consolidation?

I think it is probably good for transportation safety that you have a more professional approach to the business. It's a very entrepreneurial business, which makes it great. It is sometimes very hard to pass that down to the next generation. I think it is going to continue to consolidate; I think we'll continue to consolidate. I have said that I think that we can get close to 40% of the market in both the inland and the offshore market. We've been as high as 35% on the inland business (based on the number of vessels).

You have spoken often about the value of the people who work for the company. What do you do as a company to attract and retain the people that you want?

Regarding the boat organization, what we've found is bringing people in early, taking them through our training process, and showing them how they have a career here, paying them fairly and being consistent. That's the secret to retaining them. You want them from the start and to be a part of your team forever. With our on-shore staff, we don't have a lot of turnover. For the most part they stay with us, and it's important to compensate them fairly. People need to feel like you are being fair with them.

The amount of training required for the mariner has ramped up steadily over the past decade. What is the value of your in-house training facility?

The only significant outside resource we use is the Seaman's Church Towboat simulator in Houston. We use it, but it's our instructors that teach. I think if you

USCGF to Honor Pyne

The Coast Guard Foundation said that its 33rd annual Salute to the United States Coast Guard will take place on Thursday, October 10, 2013 in New York City. The event honors the bravery and heroism of U.S. Coast Guard members across the country and pay special tribute to **Joseph Pyne** of Kirby Corporation for his strong support of the Foundation, and its programs and projects that benefit the Coast Guard and its service members. "Mr. Pyne and Kirby Corporation have answered the call to support the Coast Guard Foundation for more than 30 years," said Anne Brengle, president, Coast Guard Foundation.

coastguardfoundation.org

can bring someone in from high school, for example, and bring them through your training system, it helps to reinforce the company culture. You put them in the fleet for six months, bring them back in for more training to not only reinforce the culture but give to them an additional skill set, I think you not only have a much better chance of keeping the individual, but you have someone who really understands what you are about.

Have you investigated incorporation of LNG as Fuel onto your fleet. What do you think will be the impetus to make this a more standard option on the waterways?

The answer is yes, because the cost savings appear to be compelling. From a technology perspective I'm not sure that we have really figured out how to do it. The vessels are going to be more expensive, and how you store LNG on a vessel is problematic. Intuitively what I think is going to happen is that the industry is going to be slow to get there, and it's going to be dual fuel, it's not going to be strictly LNG at first. There is going to need to be a confidence that crude oil isn't going to collapse. The only reason this works is on a BTU basis. I personally think that we are going to get there. I think the pricing differential for the next 20 years are probably sustainable; the economics are compelling. The challenge: Are you going to replace all of your towboats? I don't think so. We're going to have to figure out how you convert diesel powered vessels to LNG powered vessels, storing the fuel either in a barge that's ahead of the tow or sponsons on the side of the towboat.

Where do you see future growth?

I think there are some opportunities for us everywhere, because we are in all of the markets. We would find consolidation attractive in almost any geographic area. We're not looking for another geography; for the U.S. flag we are in all of them.

Looking back at your career, of what are you most proud?

The people that I've had the opportunity to work with that have built with me a really great company that focuses on the right things. It has been successful in terms of building shareholder value, in terms of building revenue and reputation. It's not about me; it's not about an individual; great companies have great cultures, and a great culture is one that allows everyone to contribute to a company's success.

"It is pretty easy to get out your checkbook and help this organization. Frankly I had resisted getting involved in the Coast Guard Foundation for years, because you're so busy and when you get involved in something you either do it or you don't; you don't want to do it just to have your name on it. When I got more active and had a better understanding of what it does I became very enthusiastic about it, and I can see myself continuing."

Joseph Pyne, Kirby Corp.

Bollinger Builds

Bollinger Ramps Up for GOM Oil Sector and Builds for USCG

by Susan Buchanan

Lockport, La.-based Bollinger Shipyards, Inc. is humming with work from oil and gas companies and government agencies. Family-owned and operated, Bollinger has 10 shipyards -- nine in south Louisiana and one in Texas -- along with 28 drydocks and 3,000 employees in four administrative locations. Last month, we caught up with Ben Bordelon, Bollinger's Executive Vice President of Repair, for his outlook on the firm and the Gulf of Mexico. Bordelon is the nephew of Boysie Bollinger, who has been at the helm as CEO since 1985.

"Roughly 50 percent of our business is new construction and 50 percent is repairs," Bordelon explained. "Government new construction accounts for about 35 percent of our business, and commercial work related to oil and gas provides 50 percent." Bollinger is the largest vessel-repair company operating along the GOM. The company designs and builds military patrol boats, ocean-going barges, offshore oil support vessels, liftboats, tug boats, rigs, inland push boats, barges and varied steel and aluminum products.

Bordelon said capacity is tight within the shipbuilding industry now. "Coast Guard projects are keeping us very busy in Lockport," he said. "Our Morgan City facility recently delivered four ocean-class tugs for Crowley and a floodgate for Terrebone Parish. We're currently building three sludge ships for New York City. We're also building four 300' class platform supply vessels." Crowley Maritime Corp. is based in Jacksonville, Fla.

At Lockport, "we just delivered our seventh fast-response cutter, the Charles David Jr., to the Coast Guard," Bordelon said. "We have a total of 18 FRCs to build, and expect future awards to add to that contract."

As busy as its employees are, Bollinger will accept work that fits into it schedule. "We're currently considering and reviewing additional opportunities," Bordelon said.

Repeat Customers

As for Bollinger's clients, "with 68 years in the business, we have a lot of great customers and a lot of repeat customers, going back to my grandfather," Bordelon said. "They range from the USCG, one of our very best, to oil and gas companies, which are tops for us."

"The needs of our customers range from deepwater jack-ups to offshore tank barges and inland water vessels," he said. "Our broad customer base has been key to our success in this business over the years."

Asked about the contribution of inland push boats and barges to earnings, Bordelon said inland waterways are a significant, mature segment of the company's business from a customer and vendor standpoint. "They're a vital part of our repair and propeller work," he said. "We have a large customer base operating on the Mississippi River and the waterways, served by our machine and hydraulic shops and propeller services."

Transportation on interstate waterways is crucial to the nation's commerce, he noted. Bollinger's shipyards and drydocks, located between New Orleans and Houston, have direct access to the Mississippi River, Intracoastal Waterway and the Gulf of Mexico.

Presence at Port Fourchon Grows

Bollinger has invested heavily in Louisiana's Port Fourchon. "Fourchon was an emerging port 15 years ago," Bordelon said. "Our facility there has expand-

"Roughly 50 percent of our business is new construction and 50 percent is repairs. Government new construction accounts for about 35% of our business, and commercial work related to oil and gas provides 50%. Coast Guard projects are keeping us very busy in Lockport. Our Morgan City facility recently delivered four ocean-class tugs for Crowley and a floodgate for Terrebone Parish. We're currently building three sludge ships for New York City. We're also building four 300' class platform supply vessels."

Ben Bordelon, Bollinger's EVP, Repair

Business at Bollinger is buoyant, including (starting below left and continuing clockwise): US Coast Guard Cutters; Sludge ships for New York; state-of-the-art PSVs and a growing presence in Port Fourchon.

ed from a small, topside shipyard with 20 people 12 years ago." Bollinger Fourchon is now a full-service repair operation, with 1,550 feet of bulkheaded waterfront, providing access for deep-draft vessels and an area for jack-up rigs that can do hull and leg repairs and extensions. "We currently have two drydocks in operation at Fourchon, working 24-7, with between 125 and 175 employees," Bordelon said. "We've listened to our clients' needs and are expanding. We've taken on an additional 47 acres of property in the port's Northern Expansion area, and will add larger drydocks to our existing drydocks. We will accommodate bigger supply boats and IMR vessels. We'll be able to drydock vessels up 11,000 tons."

Also at Fourchon, "we're expanding and/or adding to our machine shop services, fabrication building, warehousing, propeller repairs, hydraulic services, offices and armature services," he said. "We're making a significant investment to better serve our clients. Our new area is in the engineering/bidding phase and will be in full service in 18 months and possibly sooner."

Port Fourchon is the nation's busiest oil and gas support terminal.

Offshore GOM Looks Promising

Bordelon is optimistic about the GOM's oil and gas sector. "We're seeing lot of positive indications now," he said. "Our facilities are supplying a widely diverse customer base. We see some legs, some sustainability, with major investments in deep water and shallow plays and also in oil-and-gas drilling on the land side. It all fits together, offshore and land. It's an exciting time."

Asked whether Gulf offshore drilling will return to pre-Macondo levels soon, Bordelon said yes. "It's happening now with deepwater and jack-up activity," he said. Bollinger expects to supply more

vessels to the GOM's deep than shallow waters this decade, he also said.

As for the GOM's post-Macondo bureaucracy, Bordelon said rule making after the federal drilling moratorium ended in October 2010 was sometimes difficult to understand. "But we've seen more clarity on regulations and the explanations about them recently. We know the new environmental rules that we have to follow. We now know where we're headed."

Cutter Contract with USCG Could Grow

Bordelon said Bollinger has been fortunate not to have been affected by federal budget cuts. "But it's something we're monitoring closely," he said. "The cutters we've built have been a successful program. We've delivered on schedule, the Coast Guard has been very happy with the vessels and we think our contract will be expanded." The USCG desperately needs more patrol vessels, he said.

When asked about the status of a federal, patrol boat lengthening suit against Bollinger, Bordelon couldn't comment since it's ongoing litigation. The suit, filed in July 2011, charges that Bollinger, under a Coast Guard contract to increase the length of eight patrol boats, delivered vessels that were unseaworthy. The hull on the first-delivered, restructured vessel buckled.

Building on Recent History

Bordelon was asked about management changes within Bollinger. "We haven't really had any major leadership changes recently," he said. In addition to President, CEO and Chairman of the Board Boysie Bollinger, the management team includes Christopher Bollinger, Executive Vice President of New Construction; Ben Bordelon; and Andrew J. St. Germain, Chief Financial Officer and Treasurer.

Founder Donald Bollinger retired in 1989 and passed away in 2001. The company considered going public in 1997 but decided against it when GOM oil exploration slowed for awhile. Shortly after his father's death, Boysie made an ambitious acquisition, paying $80 million in cash for five ship and offshore-platform repair yards from Friede Goldman. After that, Bollinger swelled into one of the largest ship repairers in the nation.

Future Plans

What is Bollinger investing in today for its tomorrow? "The easy answer is in brick, mortar and drydock facilities," Bordelon said. "But a huge component of our future is understanding the prospective needs of our clients."

"And our workforce, as our most important resource, is an ongoing investment," he said. "We're focused on recruiting, training and developing staff. We're working with colleges, vo-tech schools, high schools and trade organizations to attract good employees." The company is hiring at all levels and from around the nation. "Safety, a major part of our training, is a critical investment," he also said.

Bordelon said labor is tight in coastal Louisiana because of offshore oil and land drilling and workers having headed off to shale plays. "But lots of opportunities exist for people who want to learn a marine trade," he said. "And we believe our employees have benefited from our internal growth and our multi-facility operations. During our 68 years, our people have allowed us to stand out among our competitors."

Conrad Shipyard: Strength in Diversity

by Greg Trauthwein, Editor

Conrad Shipyard has been a fixture in the inland and offshore new construction and repair marine market for more than six decades. This year the Morgan City, La., company celebrates its 65th anniversary, and while much has changed since the company's inception in 1948, many of the company's core values stand strong, namely its adherence to building quality products.

Conrad specializes in the construction, conversion and repair of a wide variety of marine vessels for commercial and governmental customers. It has four shipyards – the main facility in Morgan City, two yards in Amelia, La., and a yard in Orange, TX – and a strong backlog in the newbuild, conversion and repair markets.

A recent addition to the Conrad stable, conveniently located adjacent to its Amelia, La., facility, it is dubbed "Deepwater South." It is a new construction facility, an additional 50 acres, with the ability to build barges more than 300 ft. in length.

In overview Conrad has a very diverse operation, and an adherence to a philosophy that focuses on customer service. It's focus on customer service and ability to spot new market opportunities make it a progressive, aggressive and capable competitor in the vibrant Gulf of Mexico region. "With four shipyards, we manage to keep capacity available to handle a diversity of projects," said Robert A. Sampey II, Business Development Manager, Conrad Shipyard.

"We've kept on time delivery as one of our key points."

Driven simultaneously by the need to replace aging petroleum barge tonnage and by the looming need to transport energy as a result of "fracking" activities in the Midwest, business for Conrad's signature 30,000 barrel petroleum tank barge has been strong, according to Gary Lipely, Director of Sales & Marketing. "Our shipbuilding business is diverse and strong," and some of the recent and current jobs include:

Conrad's specialty is building barges.

- Pushboats
- Tugs
- LPG Barges
- Tank barges
- Liftboats
- Deck Barges
- Crane Barges

"That doesn't include everything, but is a highlight of what we're building across our four shipyards," said Lipely.

Diversity is Key

While Conrad has built and maintained its reputation on its barge business, the diversity of its operation and continued eye towards new opportunities and markets keeps the company humming along. It, like the rest of the industry, is always looking for opportunities in the marine market. Sampey said that Conrad's build strategy, which stresses diverse manufacturing capabilities and quick delivery cycles, will continue to be key to success in existing markets as well as emerging markets. "When something does come up, we have the capacity to handle short run projects, we're going to have the building slots available to meet these short deliveries in the emerging market."

As the energy profile of the United States continues to change, so does the prospects for marine equipment. The quick evolution of the shale gas market has been a boom for builders, suppliers and transporters. "When you look at it, it's not only about the barges," said Sampey, "We're very interested in exploring all this market has to offer."

In assessing the current status and market potential of its business, Sampey and Lipely put it simply: "We have had a very successful run over the last few years."

Conrad Q1 '13 Results

In May Conrad Industries, Inc. announced its first quarter 2013 results and backlog. For the quarter ended March 31, 2013, Conrad achieved net income of $5.9m and earnings per diluted share of $0.99 compared to net income of $3.2m and earnings per diluted share of $0.52 during the first quarter of 2012. The diluted shares for the quarter ended March 31, 2013 are 6m compared to 6.1m for the quarter ended March 31, 2012.

Conrad's backlog was $125.5m at March 31, 2013 compared to $120.7 million at December 31, 2012 and $70.8 million at March 31, 2012.

"Shale Revolution" & Crowley Newbuilds

Crowley Maritime last month announced plans to build its fleet of petroleum vessels by contracting with Aker Philadelphia Shipyard Inc. (APSI) to build up to eight product tankers for delivery between 2015 and the end of 2017. Contracts have been signed with APSI for the first four 330,000-barrel tankers with deliveries in 2015 and 2016. Additional agreements between the two parties include options for building up to four more tankers and for expanding the cooperation initiated with Aker's sale and delivery of two product tankers, Florida and Pennsylvania, to Crowley in 2012 and 2013. If all options are exercised, Crowley's Jones Act petroleum fleet will grow to ten 330,000-barrel tankers and 17 articulated tug barges (ATBs), ranging in capacity from 155,000 to 330,000 barrels.

"Through this expansion and cooperative agreement with Aker we will be providing our customers with more options for transporting their product with greater safety and efficiency than they can get from any other U.S. service provider," said Tom Crowley, company chairman and CEO. The 50,000 dwt product tankers are based on a Hyundai Mipo Dockyards (HMD) design which incorporates numerous fuel efficiency features and flexible cargo capability. The vessels will be constructed with consideration for the use of LNG for propulsion in the future. APSI expects to invest in the partnership

"The shale revolution is creating industrial opportunities throughout the United States and specifically here in Philadelphia. We are pleased to expand our partnership with a first-class operator like Crowley to help meet the nation's long-standing goal of energy security," Kristian Rokke, President and CEO of Aker, said.

crowley.com
akerphiladelphia.com

Eastern Shipbuilding Deliver OSV

Eastern Shipbuilding Group, Inc. announced delivery of M/V HOS Red Dawn and the launch and christening of M/V HOS Renaissance, both vesssels for Hornbeck Offshore Services, LLC.

Hornbeck's first vessel, the HOS Red Dawn (H201) (pictured) now delivered, was launched on February 15, 2013. The HOS Red Rock (H202) launched on April 19, 2013 and is currently at Eastern completing final outfitting, regulatory and DP-2 trials. Delivery of the HOS Red Rock is scheduled for September 2013. The HOS Renaissance (H203) is the third of four vessels designated as the HOSMAX 300 series by Hornbeck Offshore. These vessels are capable of a maximum speed of 14 knots with a cruising speed of 12 knots. Captain Terry Hatton, who will be taking the vessel to sea as master once she delivers later this year, along with his wife Karen, had the honors of christening the vessel.

easternshipbuilding.com

SCANIA Powers Ahead in Workboat Market

Power providers are excellent bellwethers of the market at large, and according to Mikael Lindner, President, Scania USA, there are positive signs on the marine industry horizon.

By Greg Trauthwein

Scania USA today finds itself in an interesting position in the United States. While the parent company is a global powerhouse, with more than 40,000 employees worldwide and an enviable base of technological prowess and business success across many industries, in the U.S. workboat market Scania USA is in some regards still are relatively new but up and coming brand." According to Mikael Lindner, President of Scania USA and seated in its North American HQ in San Antonio, he is excited by the tremendous opportunity before his team to further penetrate established and new markets.

"One of the key differences I find with Scania is that we live and breathe our core values: the customer first, quality, and respect for the individual," said Lindner. "We are relatively new in the U.S. We have an excellent product, but we have to over perform in everything that we do."

Scania USA has registered strong growth in the U.S. in the past few years, expanding its network of dealers and distributors to more than 300. While this admittedly has been powered more on its industrial and power generation sectors, Lindner is seeing signs of growth in key marine markets and the marine network has grown.

"This year has been pretty good for marine, as I think we will do record sales even though the marine market is still stable at a low level," Lindner said. "There are though positive signs for sure."

Specifically, Lindner sees increased investment in projects across the board. "Last year there was a lot of activity but no one really pulled the trigger on projects," he said. "Also, some projects that have been discussed for many years are starting to materialize this year."

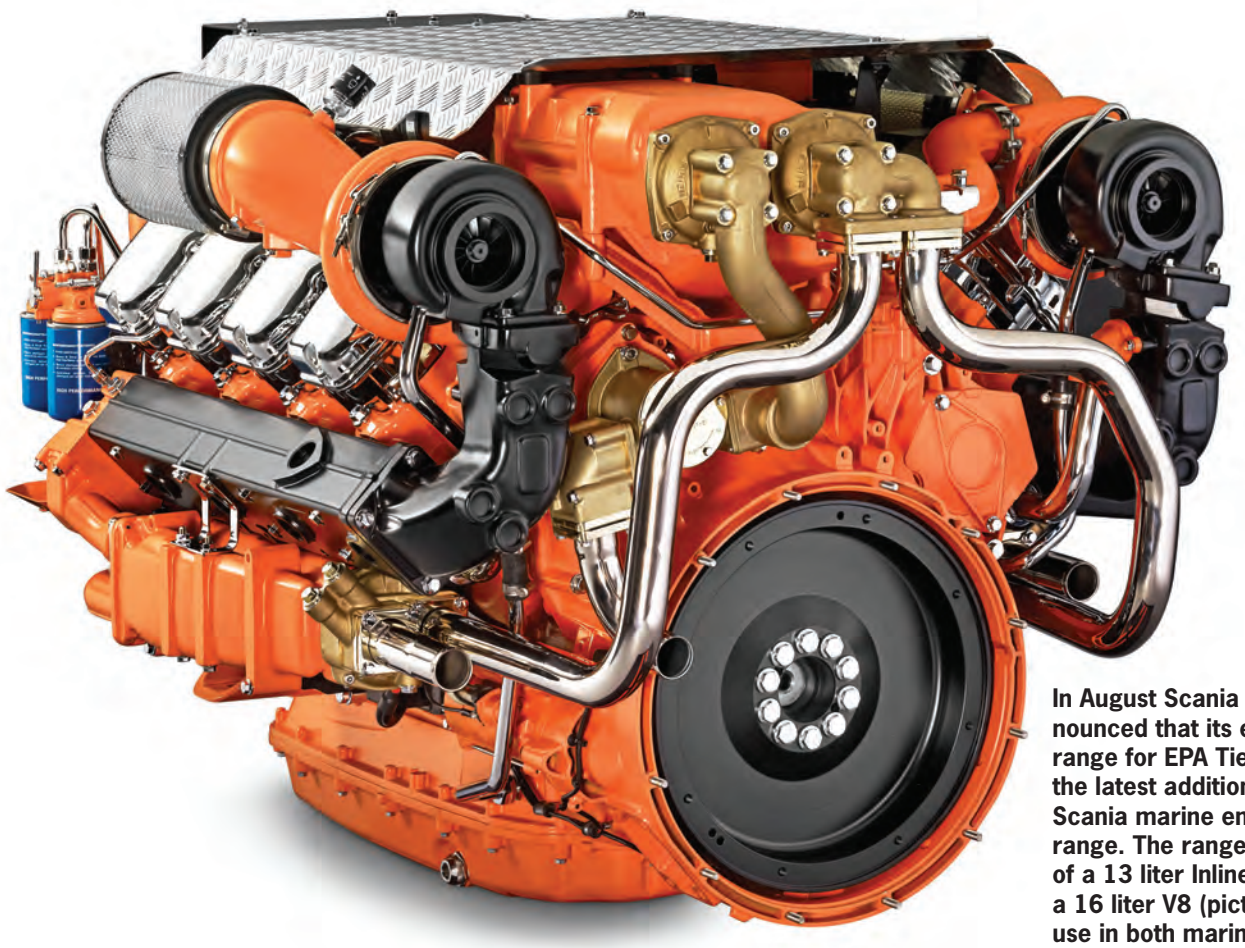
As the market picks up, the company is well positioned geographically to not only sell, but to service and maintain a growing and diverse client base.

"We have invested in a wide service network because if we don't do that, and we fail, then we are not going to be here anymore. We are here for the long run, so we put a lot of focus on support, after sales and installation."

Key to Scania's success in the marine sector has been its partnerships, and Lindner was quick to point out the value of its distributors.

"Our distributors have done a great job in making Scania successful within their markets, specifically the patrol craft sector previously, and now also in the workboat market in the gulf region, where there has always been a lot of untapped potential for Scania. Passionate distributors are, and will be the key to our success," Lindner said.

With a modern engine line, a growing market and a strong partner, Linder looks forward in a positive frame of mind. "As that market recovers, there are many opportunities for repowers on traditional workboats."



In August Scania announced that its engine range for EPA Tier 3 is the latest addition to the Scania marine engine range. The range consists of a 13 liter Inline six and a 16 liter V8 (pictured) for use in both marine propulsion and marine auxiliary applications.

Engine Innovation

Providing engines that meet and beat emerging environmental and emission regulations is simply the price of entry in today's marine power business. Long term players must accomplish this while simultaneously maintaining favorable fuel consumption numbers, and providing package solutions for those who want them.

"We deliver engines and instruments, and can deliver controls and gearboxes," said Lindner. "We basically stop where the propeller shaft starts."

The evolution of the marine propulsion maker as a single source stop for the complete power system is actually a topic of keen interest to Lindner, as he studied and followed these types of matters in detail when he was based in the factory. "One of my main activities at the factory was to look at the market and determine what was happening in terms of customer and market requirements," he said. As Scania studied the market and considered its options, they made the conscious decision to keep the focus on the engine, instruments, controls and gearbox for a very good reason.

"For propulsion, we looked at boatbuilding up to a certain length where our engines could serve as propulsion source

"This year has been pretty good for marine, as I think we will do record sales even though the marine market is still stable at a low level. There are though positive signs for sure."

Mikael Lindner, President, Scania USA

and we realized that boat builders were accustomed to buying shafts and propellers, and frankly, if you do that (seek to supply shafts and propellers), you take on a huge responsibility regarding the boat's performance. As a diesel engine manufacturer, if we start delivering shafts and propellers, we could be responsible for the speed of the boat." He explained that this is perhaps a consideration in the pleasure boat sector, where hulls are massed produced, but a riskier call in the commercial market, where there are many one-off boat designs.

Though Scania can provide packages, make no mistake that the core of the business is the development, manufacture and servicing of superior engines, and with emerging Tier 3 and Tier 4 regulations looming, much thought and attention is paid here.

"Most of the recent discussions have been on Tier 3 as it is connected to Tier 4 in 2017, determining how we line up the products strategy for Tier 3 versus Tier 4," Lindner said.

With that, the company in early August announced that its engine range for EPA Tier 3 is the latest addition to the Scania marine engine range. The engine range consists of a robust 13 liter Inline six and a powerful 16 liter V8 for use in both marine propulsion and marine auxiliary applications. These new engines will conform to upcoming EPA Tier 3 emission legislation for engines in North America which will come into effect on January 1, 2014 for engines in the power bracket 75 kW to 3000 kW, and 1.2 to 2.5 liters of displacement per cylinder.

And while engine development is the necessity to open the door to a business relationship, Lindner leans back on Scania's core values and customer-centric approach when describing his approach to keeping owners for the long haul; after sales service of the customer base is crucial.

"Service is going to sell engines, and products. Everyone is going to have challenges, but it's about the way you react, and the solution you provide your customers, that will make you stand out. No one is going to be perfect," he concluded.

MAN Diesel & Turbo and the Tier-III Age

by Peter Pospiech, Germany

The introduction of the electronically controlled camshaft-less low speed diesel engines (ME-range) are a milestone in diesel technology, a milestone that deserves a place in history similar to Rudolf Diesel's first engine in Augsburg for the 1912 motor vessel Selandia, the introduction of turbocharging on two-stroke diesels in 1954, and the first SCR (Selective Catalytic NOx Reduction) systems on ships in 1989.

The IMO Tier III NOx regulations that will come into force in 2016, when operating inside an Emission Control Area (ECA), means that NOx emissions from a large two-stroke diesel engines must not exceed a cycle value of 3.4 g/kWh, and NOx emission must not exceed 5.1 g/kWh at individual load points of the load cycle (80% NOx reduction compared to the Tier I level). Although IMO recently has postponed the Tier III introductory date Ole Groene, Vice President Marketing and Sales, said, "This has no consequences for our developments. We will continue our work to ensure shipping by sea as the most environmentally friendly form of transport."

The 80% load cycle NOx reduction requirement means that internal engine optimization is not sufficient – in other words, new technology is necessary.

The mode cap on the individual mode points of the load cycle means that the applied solutions have to suit a wide engine load range. As Tier III NOx limit only applies in emission control areas, the engine must be able to switch between Tier II and Tier III NOx levels.

Within the last two years, technologies to achieve Tier III NOx reduction have successfully been tested at MAN's Diesel & Turbo R&D center in Copenhagen. Both EGR and SCR have been successfully tested for Tier III compliance as stand-alone NOx reduction technology.

For the company's two-stroke marine engines, compliance will be achievable through tailored solutions. This goes for both the fuel sulfur regulation and the NOx regulation. For ships built from 2016, the operation of the main engine will be divided into two modes: operation inside and outside an ECA. This requires NOx reduction technology that can be switched on and off.

Large marine diesel engines operate on a wide range of fuel qualities, ranging from low-viscosity, ultra-low sulfur distillates to very high-viscosity residual fuels.

All MAN Diesel & Turbo Tier III engines will be capable of running on low-sulfur and, at the same time, options will be available for complying with the fuel sulphfur limits by other means, thus enabling heavy fuel oil (HFO) operation.

Selective Catalytic Reduction

A way of meeting the IMO Tier III NOx limits is to install a selective catalytic reduction (SCR) reactor. In the re-

The 14,120 GT Alexander Maersk was the very first test ship where a EGR-system has been installed on a MAN 2-stroke engine of type 7S50 MC featuring an output of 10 MW at 127 rpm

actor, NOx is reduced catalytically by ammonia (as urea) and water. MDT was involved in a targeted development of this technology together with Hitachi Zosen Corporation (license of MDT).

And in late 2010, MAN Diesel & Turbo confirmed that MAN B&W 6S46MC-C8 (output of almost 7 MW) engine with integrated SCR fulfils the IMO's strictest emission standards Tier III. This was the world's first Tier-III-compliant 2-stroke diesel engine. The engine was bound for a general cargo carrier, to be built at the Nakai shipyard and scheduled to enter active service later that year. The vessel was ordered by Japanese customer, BOT Lease Co. Ltd., and is operated by Nissho Shipping Co. Ltd.

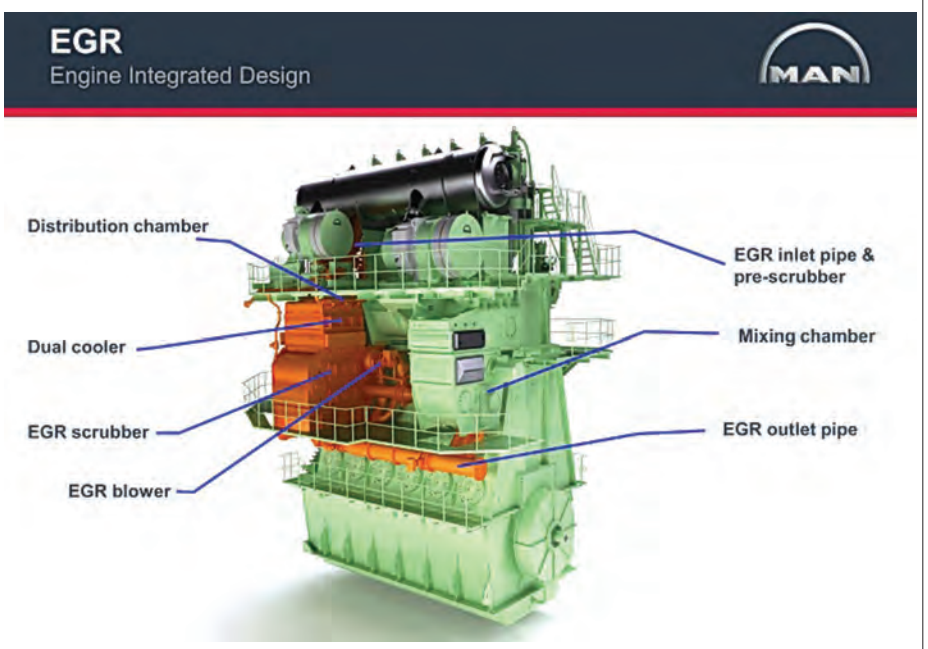
The first engine start took place in January 2011. A MAN Diesel & Turbo team optimized the integration of the SCR system that removes NOx from the engine's exhaust gas.

The SCR system features:

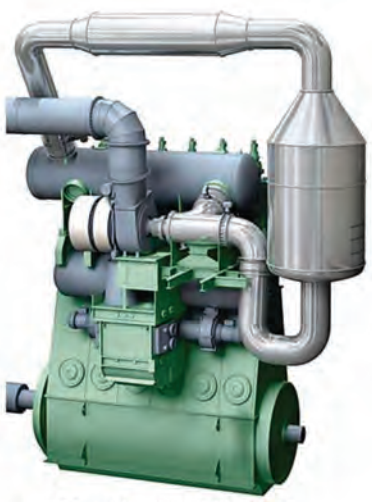
- more than 80% NOx reduction based on the load cycle
- more than 70% NOx reduction on each load point in the load cycle
- easy switching between on/off modes for optimal emission performance on high seas and coastal waters.

"We haven't just provided an engine and added an SCR system to it," said Søren Jensen, VP Research & Development, Marine Low-Speed MAN Diesel & Turbo. "On the contrary, we have delivered a bespoke system. As engine designer, builder and catalyst designer, MAN Diesel & Turbo and Hitachi Zosen comprise a group of specialists that have delivered an optimized propulsion/emissions package of engine, engine-control system and SCR system."

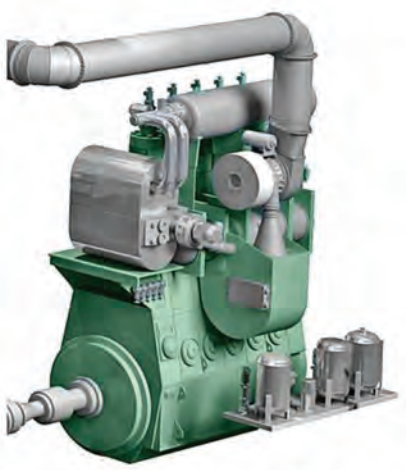
"In the future, MAN Diesel & Turbo wants not only to develop engines but



Components of the EGR-system with integrated scrubber



NO_x reduction with SCR (Selective Catalyst Reduction) & Urea Supply System



NO_x prevention with EGR (Exhaust Gas Recirculation) & Water Treatment system, WTS

Both EGR and SCR technologies have been successfully tested for Tier III compliance as stand-alone NOx reduction technology.

In Fact

The biggest diesel engines currently installed in ships are 14-cylinder, two-stroke engines whose output of more than 80,000 kW, is about 6,000 times higher than that of the first diesel engine of 1897.

Vessel Technical Specifications	
Length Overall:	764 ft.
Breadth:	106 ft. (Panamax)
Depth:	60 ft.
Draft:	34 ft.
Speed:	22.0 kts

Propulsion Plant	
Main Engine Type:	Dual Fuel Slow Speed (x1)
Main Engine Model:	MAN 8L70ME-C8.2-GI
Main Engine MCR:	25,191 kW x 104.0 rpm
Main Engine NCR:	21,412 kW x 98.5 rpm
Aux Engine Type:	Dual Fuel Medium Speed (x3)
Aux. Engine Model	9L28/32DF

Scheduled delivery for the first ship: Q4 2015 / Scheduled delivery for the second ship: Q1 2016

First order of a ME-GI dual-fuel MAN two-stroke engine of type 8L70ME C8.2-GI with an output of max 25.191 kW at 104 rpm plus three dual-fuel engines of type MAN 9L28/32 placed by TOTE Maritime. Scheduled delivery for the first ship will beQ4 2015

Hapag Lloyds Colombo Express (104,400 dwt) features a MAN 2-stroke engine of type 12K98 ME with an output of 68,640 kW.

also to design engines with complete, emission-reduction systems," Jensen said. "To that end, we envisage collaborating with many other partners in times to come in the same successful fashion as we have seen in Japan."

Technical Characteristics

To achieve the desired, higher exhaust-gas temperature and maximize NOx removal, the different elements of the emissions package are laid out in series, with the SCR system placed before the turbocharger. MAN Diesel & Turbo's engine-control system has a number of different ways to ensure the correct, exhaust-gas temperature.

- **EGR Application for Tier III**

NOx reduction in his magnitude on two-stroke diesel engines, requires add-on technologies like Exhaust Gas Recirculation (EGR) or Selective Catalytic Reduction (SCR).

Back in 2004, MAN Diesel & Turbo started the first test program with EGR on the large 4T50ME-X two-stroke diesel test engine in Copenhagen, in order to verify the effect of EGR. The effect of EGR on smaller four-stroke diesel engines used in the automotive sector has been known since the 1970'ies as a very efficient means to reduce NOx in combustion engines.

The HFO burned in large marine engines is a challenge when using EGR, due to the presence of high sulfur content and high content of solids thus a wet scrubber was introduced in the EGR system. In parallel with the EGR investigation on the 4T50ME-X test engine, MAN Diesel & Turbo planned to make a service test on a ship in order to investigate long term effects on the engine components. In March 2010, a retrofit EGR system was installed on a 10MW 7S50MC Mk-6engine onboard A.P. Moeller Maersk 1100 TEU container vessel Alexander Maersk. The recent EGR investigation and service test is a part of the large European development project named HERCULES-B with focus on high engine efficiency and low emissions.

The principle of EGR is based on exchange of the in-cylinder oxygen (O2) with carbon dioxide (CO2) from the exhaust gas which is recirculated into the scavenge air.

The exchange of O2 with CO2 leads to a decrease of combustion speed, resulting in lower peak temperatures during combustion. Besides the exchange of O2 with CO2 results in a higher in-cylinder heat capacity of the gas, which also lowers the combustion temperature. Lower combustion temperatures and especially lower

Although IMO recently has postponed the Tier III introductory date, "This has no consequences for our developments. We will continue our work to ensure shipping by sea as the most environmentally friendly form of transport."

Ole Groene, VP Marketing and Sales at MAN Diesel&Turbo

peak temperatures result in lower formation of thermal NOx during the combustion process.

"Our EGR-systems provide a high fuel flexibility, from heavy fuel towards distillates and gas; the NOX content is reduced contemporary by a partly recirculation of exhaust back into the scavenging air," Jensen said. "This minimizes the oxygen content of the air in the combustion chamber which in turn reduces the combustion temperature and hence the NOx formation. Test at our "Diesel Research Center" here in Copenhagen have shown, that with the help of the EGR technic, the upcoming Tier III NOx limits are fulfilled. In the field of the "big-bore" engines we work as well on SCR solutions; together with one of our licensees we recently put the first IMO Tier III unit in operation. In addition to this we feature also a very remarkable portfolio of gas-engines. In the business unit Low Speed we introduced the so called ME-GI engine. The ME-GI engine represents the culmination of many years' work that began in the 1990s with the company's prototype MC-GI dual-fuel engine that entered service at a power plant in Chiba, near Tokyo, Japan in 1994.

Depending on relative price and availability, as well as environmental considerations, the ME-GI engine gives shipowners and operators the option of using either HFO or gas – predominantly natural gas".

More than 98% of the ships worldwide (of more than 2,000 dwt) are powered by diesel engines today. Slow-speed two-stroke engines as the main propulsion account for 75% of the total installed output and hereof around 80% are of MAN Diesel & Turbo make. The diesel engine, with efficiency as high as 52%, is the most economical mode of ship propulsion.

The biggest diesel engines currently installed in ships are 14-cylinder, two-stroke engines whose output of more than 80,000 kW, is about 6,000 times higher than that of the first diesel engine of 1897. The recent developments described above impressively show that the diesel engine still has considerable potential; the limits of design development are far from foreseeable. The use of LNG in dual-fuel engines, in particular, is expected to play an increasingly important role in the industry. With regard to the upcoming IMO regulations – above all the global target of a 0.5% cap on SOx emissions from 2020 on – the days of heavy fuel oil, once so very important in shipping, could be numbered.

Diesel engine makers are preparing intelligent solutions for these challenges. It will still take quite some time before alternative kinds of ship propulsion have been sufficiently developed to offer an economically viable alternative to diesel engines.

MR DIGITAL

When you leave the page and head to the screen, Maritime Reporter offers the most digital and online news offerings. Here are select stories from last month on MaritimePropulsion.com

Bunker Fuel Blending

A Scrubber Alternative For Some Trades

The S3 switch (a marketing acronym for 'Smart Sulphur Switch) is a prototype developed by Denmark's Insatech in cooperation with O.W. Bunkers, to blend and adjust two fuels (HFO and MDO) to a desired sulphur content enabling monitoring and control of marine diesel engine exhaust gas emissions without fitting expensive scrubber units. The S3 is presently on trial aboard ships belonging to some of this major bunker supplier's customers in Northern European waters, and commercial production is planned for later this year.

Fuel Switching and Blending

On most modern ships two service tanks are provided: one service tank contains the higher sulphur fuel oil and the other may contain low sulphur fuel to ensure MARPOL Annex VI emission regulations are met. This arrangement will involve a fuel changeover at some point during the ship's engine operation, normally achieved by means of a three-way valve, and it is at this point that the S3 takes over, enabling both switching entirely over or a blending of the fuels to accord with operator-selected SOx limits.

Installation and Maintenance

Maintenance of the S3 Smart Sulphur Switch is negligible apart from an annual calibration to ensure that the documentation generated will be accepted by authorities worldwide. A retrofit is very simple as the unit is supplied as a small skid so only a gas oil line and a HFO line need to be connected at one end, and a discharge line at the other end. The skid has a foot print comparable to a standard pallet. Electrically all that is required is a standard power plug connector. In reality the installation can be accomplished in a few hours and with minimum costs.

Photo: Insatech

Insatech say that they expect their device mainly to be of interest for use in vessels that occasionally need to enter an ECA so that the investment in a scrubber solution is not viable. The secondary market being for vessels like Baltic Sea ferries whose operators choose to install scrubbers that cannot handle more than say 2% sulphur content due to space considerations: with the S3 system such vessels can purchase the cheapest available HFO and blend it down to the sulphur content that their scrubber can handle.

Excerpted from a post n MaritimePropulsion.com
by George Backwell, Thailand

New Fireboats Sport Voith Propulsion

By George Backwell, posted on MaritimePropulsion.com

Voith Schneider propellers and turbo couplings will be propelling two fireboats designed by Robert Allan Ltd. for the Port of Long Beach, USA. With a water pumping capacity of more than 40,000 gallons per minute they will be among the world's most powerful fireboats.

Robert Allan Ltd. has in recent years designed a significant number of emergency response vessels for major port cities around the world. Primarily configured as fireboats, these platforms also frequently serve as Command and Control centers or as primary response vessels for local emergency actions, such as pollution response and search and rescue. They have a diverse array of configurations and fire-fighting performance. Based on the successful operation of numerous prototype fireboat designs, the Vancouver-based naval architects have created the RAnger Class of fireboats in a range of lengths and Fi-Fi capacity. These are intended generally to be used simply as the starting point for each new fireboat design, in response to each port's unique operational needs. The current series design goes upward from RAnger 2000 to the RAnger 4600.

The vessels are currently being built by the Foss Maritime shipyard in Seattle. Delivery to the Long Beach port authority is scheduled for spring 2014 and autumn 2014 respectively. They will replace the two older fireboats Liberty and Challenger.

These new powerful fireboats will be equipped with two Voith Schneider Propellers VSP 26GII/165 AE45 (driven by two 1,350 kW diesel engines) each in the forward half of the vessel. The relatively short VSP blade length of 5.4 feet makes it possible for them to enter shallow areas of the port without compromising maneuvering safety and consequently they can also support onshore firefighting.

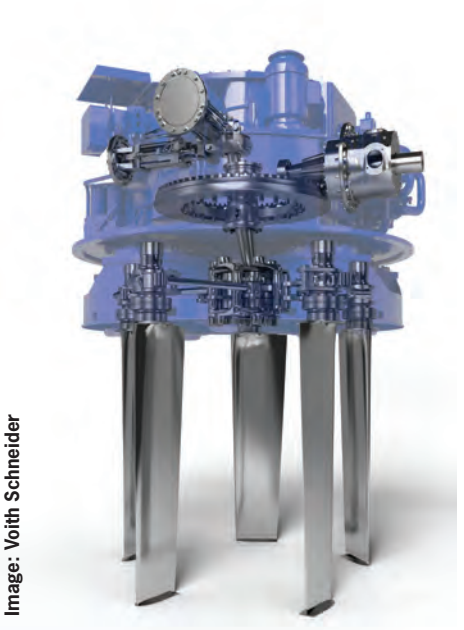


Image: Voith Schneider

For each fireboat, the Voith scope of supply includes not only two VSP but also two 866 DTL Voith turbo couplings as well as a twin control stand unit. Its positioning in the wheelhouse is such that the captain and crew benefit from a 360 degree panorama view.

The numbers are impressive: With a total of 10 monitors, each of the two identical fireboats is able to throw more than 40,000 gallons of water per minute. The water jets reach a height of up to 236 feet and a distance of up to 580 feet. Two of the total of four fire pumps are driven by the diesel engines which supply propulsion power to the VSP. When fighting a fire, the VSP propulsion power is limited to approximately 25%; the remaining 75% is available to the fire pumps as pumping power. This allows the fireboats to be positioned fuel-efficiently using the VSP while at the same time increasing the vessels' pumping power without requiring additional engines.

Volvo Penta Glass Cockpit System

Linking Driveline & Navigation

By George Backwell, posted on MaritimePropulsion.com

Glass cockpit system – though a term likely not familiar to sailors – was chosen by Volvo Penta to describe a new driveline and navigation display system, which it says changes the design of the boat driver's environment from scratch.

Basically, 'glass cockpit', as understood by aviators, features a large LCD or LED electronic instrument display on a single screen that can be adjusted to show information of interest from flight management systems; a development designed to allow pilots to put their focus on only the most pertinent information rather than on numerous mechanically linked dials and gauges. This is the concept Volvo Penta has developed and 'sailorized' in conjunction with Garmin International's marine business segment.

Offered in 8-inch, 12-inch and 15-inch multi-function display or a 15-inch, 17-inch and 19-inch monitor with accompanying black box processor, a Remote Input Device and SD Card Reader, the Volvo Penta Glass Cockpit System is versatile for installation in any boat type or location. The display itself is built with the all glass, flat-mounted design of the current GPSMAP 8000 Glass Helm Series offered by Garmin to boaters worldwide and incorporates a Volvo Penta user interface to Engine Vessel Control (EVC), Volvo Penta's electronic platform. The Volvo Penta Glass Cockpit displays are designed with ease of use and intuitive handling in mind, with touch and pinch-to-zoom functionality. The driver decides what functions should be displayed on the screens and how they should be distributed. Depending on boat type and size, one or more displays can be mounted on the dashboard. The system is fully integrated with the Electronic Vessel Control (EVC), Volvo Penta's unique electronic platform. That means that all Volvo Penta's Easy Boating options such as Dynamic Positioning System, Interceptors and Autopilot can be monitored and controlled through the displays. It also means that when the boat is powered up, all screens are lit up simultaneously, in an automobile-like manner. All settings that are made, including instrument dimming, are carried out concurrently at the helm and the flybridge.

The unique Auto Guidance function is one example of the many extremely useful features in the Glass Cockpit System. By searching through all relevant nautical charts, it creates a route that guides the driver to avoid shallow water, buoys and other obstacles. Coupled with the Volvo Penta Autopilot, the Auto Guidance will not only show the way, it will actually take the boat there!

The Volvo Penta Glass Cockpit System will be exclusively sold through the Volvo Penta distribution network, while compatible radar, sonar and additional marine network accessories can be purchased from any Garmin retailer. **The new system will be available in the fourth quarter of 2013.**

Is methanol the future of maritime fuels?

By Peter Pospiech, Germany, posted on MaritimePropulsion.com

It's not a secret anymore that the shipping industry today is facing some serious challenges with respect to meeting upcoming exhaust gas emissions regulations. The contribution from shipping to sulphur oxide (SOx) and nitrogen oxide (NOx) emissions today is considerable, thus the need for reductions. Three main alternatives – switching to low-sulphur fuels, installing exhaust after-treatment devices, e.g. scrubbers, or using natural gas – have been investigated to some extent, but very little information is available on methanol as a marine fuel.

Methanol is a Clean Fuel

Methanol does not contain sulphur. Emissions of particulate matter and NOx from methanol combustion in marine engines are expected to be lower than those resulting from the combustion of conventional fuels. Methanol is widely available, can be safely transported and distributed using existing infrastructure, and in 2012 it is currently much cheaper than marine distillate fuel based on energy content. It can be produced from both renewable and non-renewable feedstocks, as well as by recycling CO2 from flue gases or capture and recycling of atmospheric CO2. When "green" methanol becomes more widely available it will help ship operators meet greenhouse gas reduction targets and move shipping to a fossil fuel free and low-carbon future.

Methanol as a Marine Fuel

The Baltic Sea is part of a designated Sulphur Emission Control Area (SECA) where the maximum allowable sulphur content in marine fuels will be reduced to 0.1% in 2015. To help meet these requirements, as well as for other environmental reasons, in 2012 several companies and governmental agencies partnered to form SPIRETH ("Alcohol (SPIRits) and ETHers as marine fuel"), a full-scale pilot project for testing the application of methanol and DME as sulphur-free marine fuels. The project is expected to be completed in March 2014, less than one year from now. Should project results be positive, as expected, another driver of the fuel methanol market is likely to emerge, broadening the base for methanol producers around the world. The main goal of the project is to test methanol and di-methyl ether (DME) in a full scale pilot project, to contribute to finding the best environmental and economic alternative for a sustainable and successful maritime transport industry.

But before the shipping industry can use methanol fuel two preconditions must be fulfilled: the respective engine must be available and new rules for low flashpoint maritime fuels must be developed.

Developing methanol engines for Methanex ships

On 1 July, 2013, MAN Diesel & Turbo announced the development of a new ME-LGI dual fuel engine for Waterfront Shipping, which is wholly owned by the world's largest methanol producer, Methanex. The engine expands the company's dual-fuel portfolio, enabling the use of more sustainable fuels such as Methanol and Liquefied Petroleum Gas (LPG). The engines will run on a blend of 95% Methanol and 5% Diesel. Should Methanol-based marine fuels deliver the anticipated emissions and fuel cost reductions, it could usher in a new era in shipping and bolster demand for methanol around the world. MAN developed the ME-LGI engine in response to interest from the shipping world in operating on alternatives to heavy fuel oil. Methanol and LPG carriers have already operated at sea for many years and many more LPG tankers are currently being built as the global LPG infrastructure grows. With a viable, convenient and economic fuel already on-board, exploiting a fraction of the cargo to power a vessel makes sense with another important factor being the benefit to the environment. MAN Diesel & Turbo states that it is already working towards a Tier-III-compatible ME-LGI version.

The four G50ME-LGI units are targeted for the end of 2013, with engine delivery to follow in the summer of 2015.

DNV: First with New Rules for Low Flashpoint Maritime Fuels

DNV (Det Norske Veritas) release rules for using low flashpoint fuels such as methanol for bunker fuel. Interest for methanol as ship fuel is growing in response to the need to reduce NOx and SOx emissions. However, with a flashpoint of just 12°C, it poses safety challenges, and DNV's new notation, an industry first, covers every aspect of safe design. Methanol is most commonly produced from natural gas but it can also be produced from a wide range of biomass. It has a lower flashpoint than conventional fuel, so additional safety barriers are required. Flashpoint is the lowest temperature at which a volatile liquid can vaporize to form an ignitable mixture in air. Methanol has a relatively low flashpoint, is toxic when it comes into contact with the skin or when inhaled or ingested and its vapour is denser than air. As a result of these properties, additional safety barriers are required by DNV. The new mandatory notation LFL FUELLED covers aspects such as materials, arrangement, fire safety, electrical systems, control and monitoring, machinery components and some ship segment specific considerations.

Maritime Route Optimization It Really Can Save Money

By George Backwell, posted on MaritimePropulsion.com

The multi-functional construction and pipelay vessel Ceona Amazon, which will be built by Lloyd Werft Bremerhaven AG for the British operator Ceona, will be equipped with two 9L32/44CR engines and four 8L32/44CR main gensets, providing a total output of 28MW. This was recently announced by MAN Diesel & Turbo who had won the order. Based on a drill-ship design, the 33,000gt, 199.4m-long and 32.2m-wide Ceona Amazon boasts exceptional sea-keeping characteristics, making it ideal for operations in remote and challenging locations, the engine manufacturer noted. The construction vessel has a large, under-deck storage capacity for line pipe or umbilicals, together with a large deck area that allows the further storage of line pipe and standard, flexible installation reels. It is fitted with two heave-compensated mast-head cranes, and a single heave-compensated knuckleboom crane. The pipelay system consists of an inclinedlay system and a rigid, pipeline firing-line system. The vessel can lay rigid pipelines, flexible pipelines and umbilicals, and can install large, subsea structures using one or both of its cranes in tandem-lift mode to depths of up to 3,000m. It does not require a spool base to support its operations and can be remotely operated, making it extremely well-suited to overall field development, MAN said. Keel laying is planned for this month. Fabrication of the hull will take place at Polish yard Crist SA, and the vessel will be outfitted at Lloyd Werft Bremerhaven. Delivery is scheduled for December 2014.

Each engine will be manufatured at MAN Diesel & Turbo's Augsburg production facility in southern Germany, and later transported to the company's Frederikshavn, Denmark site for a full electrical test before the gensets' delivery to the shipyard.

Shippers Pay for Violating CA Fuel Regs

The California Air Resources Board (CARB) fined three shipping companies a combined $440,250 for failure to switch from dirty bunker fuel to cleaner, low-sulfur marine distillate fuel upon entering Regulated California Waters, as required by state law.

- **Hoegh Inchon** operated its main engines within Regulated California Waters on bunker fuel. Hoegh Autoliners Shipping AS Co. of Oslo, Norway, was fined $299,500.
- **Ikan Bawal** failed to switch its engines over to the required cleaner fuel while operating within Regulated California Waters. N.C.N Corporation Panama, was fined $87,750.
- After it docked at the Port of Los Angeles, K-Pluto was cited for failing to switch to cleaner fuel. Twin Phoenix Shipping S.A. of Singapore, was fined $53,000.

Offshore Service Vessels

Flexible fuels, Bold designs ... "It's not your father's OSV"

Eastern Shipbuilding Group has arguably been one of the more progressive and aggressive U.S. builders of high-spec Offshore Service Vessels in recent years, winning a number of high-profile contracts for operators globally. Eastern recently delivered M/V HOS Red Dawn and christened M/V HOS Renaissance, both for **Hornbeck Offshore Services, LLC.**

HOS Red Dawn (H201) – now delivered – was launched on February 15, 2013. HOS Red Rock (H202) was launched April 19, 2013, and is currently at Eastern completing final outfitting, regulatory and DP-2 trials. Delivery was scheduled for this month. HOS Renaissance (H203) is the third of four vessels designated as the HOSMAX 300 series by Hornbeck Offshore. The vessels are capable of a maximum speed of 14 knots with a cruising speed of 12 knots. The remaining six Offshore Supply Vessels under contract are 302 x 64 x 26 ft. designated HOSMAX 310 Offshore Support Vessels. The total below-deck capacities of the HOSMAX 310 include 285,649 gals of diesel fuel, 609,227 gals of drill/ ballast water, 21,509 barrels of liquid mud, 14,347 cu. ft. of dry-bulk mud, 2,212 barrels of methanol and 62,538 gal. of potable water.

In early August Eastern Shipbuilding also christened and launched M/V Bravante VI for Boldini S.A., **Bravante Group of Brazil**, the second vessel in a series of five.

The second of five vessels is a series are ABS A-1, SOLAS/IMO, FFV-1, DPS-2, AC Diesel-Electric powered, twin propulsion PSV's. These high-tech vessels feature four Cummins 16-cylinder turbo-charged IMO Tier II diesel generator engines each rated at 1825 kW at 1,800 rpm. Cummins also furnished the four Marathon Model 744 690VAC main generators. Main propulsion power is provided by two 690VAC electric motors driving two Schottel Combi-Drives Single Fixed Pitch Propellers with Nozzles rated at 2,500 kW at 750 rpm each for a total of 6,700 hp. Schottel also provides two STT 4 Fixed Pitch Reversing Tunnel Thrusters rated at 1,180 kW at 1,170 rpm, each with direct coupled Hyundai 690VAC electric motors. GE Energy provides the complete system integrated diesel electric package, including the thruster drives, motors, control systems, DP system, switchboards, motor control centers, automation and navigation/ communication electronics. These vessels are capable of a maximum speed of 14 knots with a cruising speed of 12 knots.

All five vessels under contract are Marshall Islands Flag, IMO/SOLAS, ABS Classed A1, Offshore Support Vessel Ocean Service, Loadline, AMS, ACCU, Circle E, with additional ABS Class notations UWILD, ENVIRO, DPS-2. Starting with the BRAVANTE VI and including the remaining three vessels will feature the added Class notation ABS FFV-1. STX Canada Marine provided the design.

Wärtsilä won the contract to supply the design and an integrated solution for a new large platform supply vessel (PSV). The ship will operate primarily on liquefied natural gas (LNG) and is owned by **Siem Offshore**, the Norway based provider of marine services to the oil and gas industry. It will be oper-

The next generation of Platform Supply Vessels equipped with GE Power Conversion's dynamic positioning and vessel automation technologies.

(Photo: GE Power Conversion: GEPCPR192, © Mariane Martins Nass)

ated under charter by A/S Norske Shell. The PSV is being built at the Remontowa Shipbuilding's yard in Poland. The contract's scope of supply includes the Wärtsilä VS 4411 LNG PSV initial, basic, and detailed ship design, as well as the complete diesel electric system with Wärtsilä dual-fuel generating sets, the Wärtsilä LNGPac gas storage and handling system, and the complete electrical and automation system, including a four-split Wärtsilä LLC (Low Loss Concept) solution. The Wärtsilä LLC will help the vessel fulfil the highest possible Environmental Regularity Number (ERN) of 99.99.99.99., which represents the vessel's capability for maintaining its position and normal operations under certain weather conditions. The 89.2 m long vessel is scheduled to commence operations in 2015 and will be used to support offshore drilling and production activities in the North Sea. It can accommodate a crew of 25.

GE Power Conversion was tapped to equip four state-of-the-art Platform Supply Vessels (PSVs) being built by **Detroit Brasil Ltda.** The 90-m, 4,500-dwt capacity PSVs will be able to stay stationary situated only a few meters from an oil and gas platform, as it transfers fluids, equipment and personnel in challenging weather conditions, largely courtesy of GE Power Conversion's dynamic positioning and vessel automation technologies. The Brazilian Shipyard Detroit Brasil Ltda. is building the next generation of PSVs for Brazilian operator **Starnav Serviços Marítimos Ltda,** and the ships will operate under a long-term arrangement with Petrobras.

GE's newest advancements in DPS and vessel automation will enable the ships to perform such operations with stability, safety and precision and will substantially contribute to the ships' overall efficiency and operational effectiveness.

"We insist on having the very best in terms of performance," said Carlos Eduardo Pereira, general director at Starnav Serviços Marítimos Ltda.

"Second best is just not good enough for the kinds of environments they operate in. Offering a total solution means you understand the world of the mariner with innovation and technology that makes their life easier, this is where GE Power Conversion excels and why we are proud to be able to have them as a partner."

ROC Shipyard in China was tapped to build two (with two options) platform supply vessels (PSV) based on the Ulstein PX121 designs for the **ITG Group**. **Ulstein** maintains that the PX121 has become popular among shipowners and investment companies, and ROC is a new yard entering the stage of constructing vessels carrying the X-BOW hull line design from Ulstein. This signature inverted bow is designed for reduced speed

HOS Red Dawn, built by Eastern Shipbuilding for Hornbeck.

(Photo: Eastern Shipbuilding Group)

Siem Offshore selects Wärtsilä's design and integrated solution for another LNG powered platform supply vessel.

loss in waves, and consequently less fuel oil consumption, as well as the absence of slamming. The ships measure 83.4 x 18 m and are designed to meet the requirements of DNV's Clean Design notation. They have a load capacity of approximately 4,000 tons and a cargo deck of 840 sq. m. Maximum speed is stipulated to 14.5 knots. This version of the medium-sized PX121 platform accommodates a 30, and the vessels will be prepared for an ROV mezzanine deck and a subsea crane for future installation. The vessels are planned for delivery in the first half of 2015.

Island Crown is the latest vessel of the UT 776 CD design from Rolls-Royce for **Island Offshore**. The design brief was for a vessel that will usually spend its time connected to an offshore platform, acting as a hotel for people working on the platform. Island Crown can also carry out a separate set of functions – subsea construction and ROV operation – and is equipped to transport all the liquid and bulk supplies needed by rigs and platforms.

This is the latest and longest (99.8m) version of the UT 776 CD. Also specified were other Rolls-Royce ship systems similar to these on other Island Offshore vessels, such as a four-generator set diesel electric propulsion system, Azipull main thrusters and twin tunnel thrusters with a swing up azimuth thruster at the bow, cumulatively giving a high level of redundancy to meet DP2 class Dynamic Positioning System. Vard Brevik shipyard was chosen to build the vessel

The vessel will provide accommodation for a marine crew of about 40. The hotel block is placed aft of the main superstructure, with a hospital and services at main deck level and two decks of two-person cabins, day and meeting rooms above.

Rendering of Ulstein PX121 PSV.

Caspian Provider, a 6,300 BHP PSV operating in Topaz's Caspian fleet.

Singapore's Jaya delivers new deepwater PSV.

Rolls-Royce Subsea Construction vessel delivered to Island Offshore.

Platform workers living on the ship have to transfer between ship and platform at the change of shift, and they do this via a transfer gangway positioned at the port aft corner of the deck. Island Crown is flexible enough to link to many different types of platform, with a variety of heights above water level of the platform entry port. To cater for these variations, and also the relative motion between vessel and platform in a seaway, the access system is made up of two main components: one is a telescopic tower and staircase which takes care of the initial height differences; the other is the gangway itself, linking the top of the tower and the docking point at the entry port. The gangway is hydraulically positioned but free to pivot, allowing for relative motion. Its length can also be varied. Normally, the vessel will maintain a fixed distance from the platform under DP, at a heading that as far as possible minimizes the energy required by the thrusters to keep station. Uptime supplied the gangway and Ulmatec provided the telescopic tower.

Topaz Energy and Marine won multi-year charters in the Russian Filanovsky project for nine of its offshore support vessels (OSVs) amounting to approximately $20m. The vessels have been deployed to offshore contractor Saipem and will support the development of the Filanovsky oil and gas field in the Northern Caspian Sea. The vessels will provide anchor-handling and tug services as well as transport of supplies and personnel. The total proven reserves of the Filanovsky field are estimated to be around 1.3 billion barrels.

"The developing Russian sector offers a great deal of exciting new prospects for Topaz which is already well-established in the Caspian," said Roy Donaldson, COO, Topaz Energy and Marine. "Our fleet is young, diverse, well-equipped, and can stand up to the challenge of working in harsh climates and arduous environmental conditions like in the Northern Caspian. We also enjoy a good working relationship with Saipem having worked with them for several years in their projects in Kazakhstan. Following Saipem into this new market is a natural transition for Topaz and we now have significant operations in the four corners of the Caspian Sea." Topaz has been operating in the Caspian Sea since the acquisition of BUE Caspian in 2005 and currently has more than 60 offshore support vessels in the region. The company has also seen the recent mobilization of the new build anchor-handling tug supply vessels Topaz Dignity and Topaz Triumph. **Jaya Holdings Limited** report that its new PSV Jaya Valour was delivered on schedule, and that on delivery it went on-hire immediately, embarking on its maiden voyage as part of a long term charter contract in South East Asia with an existing customer undertaking fracturing work. Jaya Valour is one of the four PSVs in Jaya's new build program, of which three have already secured contracts for charter. The total value of these three contracts is more than $60m, including optional extension periods. The new vessel has more than 1,000 sq. m. of clear deck space, fire fighting capability and dynamic positioning to DP-2 class and has accommodation for up to 60 people on board including workout equipment and an internet café. Jaya Valour has the capacity to carry up to 5,500 tons of cargo deadweight and her versatile cargo capacities have been upgraded to be able to load, process and deliver specialized fracturing components to stimulate production from offshore oil and gas wells.

W&O Expands Repertoire

Insights on recent moves from Michael Hume, CEO

We have watched for years as W&O has transformed itself from a pipe and valve supply company to an engineered solutions provider. When you look at W&O today, what do you see … or perhaps more importantly, what do you want the industry to see?

W&O's evolution during the past 40 years has been fun to watch. We have evolved from being a core supplier of pipe, valves and fittings, to dramatically expanding our product and service offerings as well as our geographic footprint. We now bring to market a variety of engineered and technologically advanced products and solutions that address the holistic needs of our customers, which has been the driving force of our growth. When I look at W&O, that is exactly what I see — a company that has evolved and grown to now more than 300 employees, each of whom is solely committed to the marine and upstream oil and gas industries. Customers recognize how our team identifies their specific needs and goes above and beyond to deliver to those requirements, in a timely manner. Another result of our targeted mission is that we are keenly aware of and understand the challenges and trends of the market today and tomorrow. Combining that knowledge with our employees' forward thinking and innovative approach to problem solving results in solutions that help improve the profitability and safety of our customers.

We are like athletes, constantly pushing ourselves to grow and deliver beyond the expectations of our customers, and it is this approach and our passion to perform that will keep us leading and growing for 40 more years.

Recently W&O announced a number of key partnerships, specifically with Norway's PG Marine and Bestobell. What is the significance of these deals from the W&O perspective?

During the past six months, W&O has engaged in partnerships with several leading OEMs, including PG Marine and Bestobell. The key to these partnerships for both W&O and PG/Bestobell was the common goal of seeking out industry leadership. We recognize the high quality products and the dedicated maritime teams that each of these OEMs possess, and that is why W&O is so excited to partner with them. Likewise, these OEMs recognize W&O's large geographic footprint and long-standing customer relationships in the industries we serve, and identified us as the best partner to bring their solutions to market. PG Marine and Bestobell continue to invest in R&D and technological enhancements and, as a result, continue to roll out industry-leading products. Combined with W&O's footprint, industry specialization, vision and close relationships, this sets the stage for a mutually beneficial partnership for everyone. We want every world-class OEM to identify W&O as the best partner to bring their solution to market given our capabilities: 70 dedicated marine and offshore sales people worldwide, 18 global branch/stocking locations, $45 million in inventory, and more than 33,000 product SKUs. It is because of our vision to provide long-term, lifecycle solutions to our customers that we are very judicial about what partnerships we pursue. We are confident based on the proven track record of both companies that these partnerships will flourish and provide tremendous value creation for all customers.

Specifically regarding the partnership with PG Marine, our focus is on bringing leading cargo-handling solutions for the offshore construction vessel market in North America. PG's innovative solutions are well accepted and installed on vessels worldwide. The state-of-the-art products that PG Marine provides combined with W&O's network and relationships creates an ideal opportunity for both of our companies to further support this demanding market. This partnership supports W&O's strategy of continuing to expand our product and service capabilities to the offshore oil and gas industry.

"The brown water segment of the tank barge industry is very strong, as is the offshore vessel market (PSVs, AHTS, OSVs). Backlogs in the shipyards are healthy and a steady workload is already forecasted, in many cases, through 2014."

Michael Hume, CEO, W&O

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ENERGY
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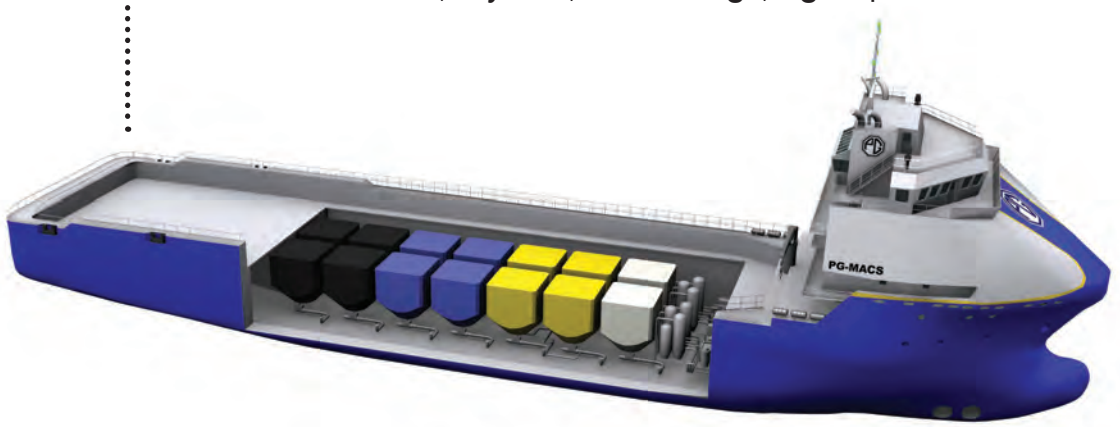
WÄRTSILÄ

"**Bestobell** is a leader in the cryogenic valve space," said Hume. Pictured left is the Bestobell Actuated globe valve with flanged end connections.

PG Marine is renowned in the offshore industry, and the deal with W&O brings its expertise to the Gulf of Mexico. Illustrated are its under deck tank configuration, the PG-MACS tanks, with full cargo flexibility for wet-, dry-bulk, drill cuttings, rig slops and recovered oil.



Specifically regarding the partnership with Bestobell, the Liquid Natural Gas (LNG) trend that is steadily growing in shipbuilding and ship conversions in North America is demanding different solutions and valve requirements, and Bestobell is a leader in the cryogenic valve space. To participate in the LNG space, we recognized that we needed to partner with the best—and out of us seeking the best products, and Bestobell seeking the best partner to bring their cryogenic valves to the North American market, this partnership was born. LNG is going to be a game changer in the marine industry in the future, and Bestobell and W&O's combined strength will be there to serve this growing segment of the industry.

As this is our Workboat show edition, can you give to us your overview of the U.S. maritime market today. When you look at the coming 12 months, are you happy, sad, and why?

When looking at the next 12 months, we at W&O are very bullish on the commercial marine marketplace and, in particular, our Gulf of Mexico branches from Houston to Mobile, AL. They are doing exceptionally well given the strength of the energy markets in that region and our close ties in serving those key industries. More specifically, the brown water segment of the tank barge industry is very strong, as is the offshore vessel market (PSVs, AHTS, OSVs). Backlogs in the shipyards are healthy and a steady workload is already forecasted, in many cases, through 2014. We are also seeing the blue water barge business start to pick up as well. Conversely, the commercial blue water market still has its challenges as does our military segment. New construction funding for the Navy/Government segments has continued, but repair schedules and availabilities have been significantly cut. Overall, we continue to see opportunities for growth; the key is to be in tune with industry trends, be a problem solver and create value through innovative solutions.

During your tenure at the top of W&O, what do you count as the top challenge to running and maintaining a profitable, efficient business?

As we continue to grow and evolve our business model to more of a complete systems provider, our ongoing key challenge is to find, recruit and develop key talent to support this mission. To accomplish our goals, we need more individuals who know a ship from bow to stern, who understand the mechanics of a vessel, and who have strong customer relations skills. This blend of talent is hard to find and we continue to seek out individuals who will thrive in our environment. It is all about our talented team, armed with the right skills and solutions, who are able to exceed our customer's expectations. Pretty simple.

Looking at your tenure at the top of W&O, how has the company and its mission changed most significantly?

Our mission has always been the same: to be the market leader in supporting our customers in the marine and upstream oil and gas industries. The mission has evolved to expand our product and service offerings to more systems on board the vessel or rig. Our customers view us as a technical solutions provider and resource, which has been our goal. We have not nor will we change our mission; we are simply expanding on how we accomplish the mission for the benefit of our customers and this mindset continues to serve us well.

Colfax CM-1000

"Smart Tech" for Efficient Sea Water Cooling Pumps

As ship owners scrupulously search for means to cut costs by saving energy, Colfax offers the CM-1000 Series, a smart technology which helps to monitor and control sea water cooling system pumps. It can help to save more money than you think.

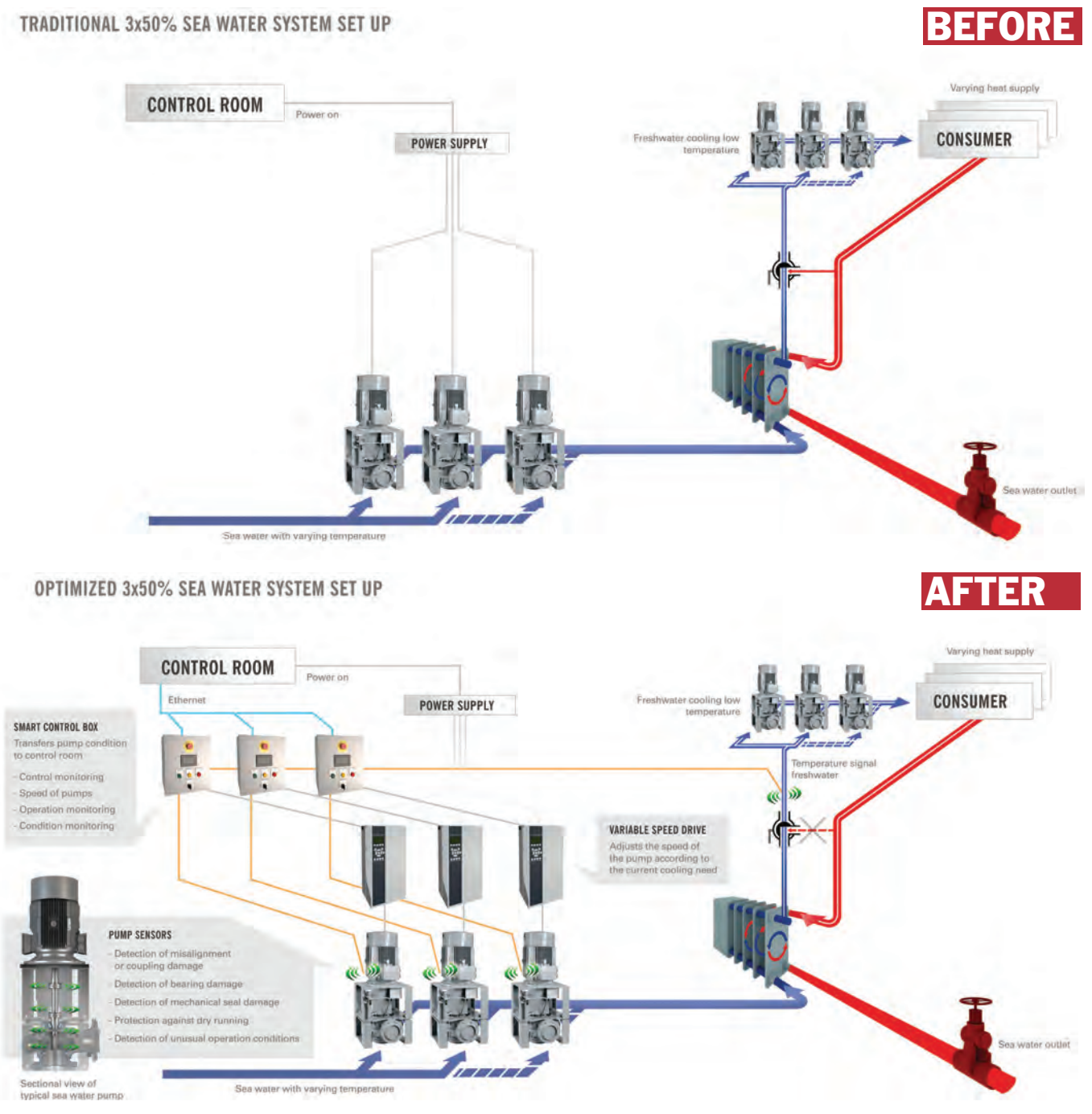
By Greg Trauthwein, Editor

Colfax introduced earlier this year the CM-1000 Series, a smart technology designed to help monitor and control sea water cooling system pumps in a manner that senses water temperature and speed to optimize the pump use.

Savings for the shipowner come not only via fuel used to power the pumps (in some cases, up to 80% in fuel consumption reduction and 50% in maintenance cost reduction have been recorded), but also the benefit is an appreciable reduction of wear and tear on pump parts and maintenance.

"Twenty-five percent of energy consumption of auxiliary equipment is via pumps, and most of that is for seawater cooling pumps," said Christian Martin, Director Product Management, Colfax Fluid Handling Commercial Marine. "So this was a natural area of concern and study."

As he explained, seawater cooling pumps are generally designed for operation in the warmest waters with the ship moving at the fastest speed. But in reality, the operation spectrum is in cooler waters at slower speeds, meaning that the seawater cooling pumps can over perform and burn energy unnecessarily. Accurate condition monitoring allows the pumps to operate based on real-world conditions, burning only the energy needed.



The Solution: CM-1000

Colfax Fluid Handling earlier this year introduced the Colfax Fluid Handling Smart Technology CM-1000 Series, which is touted as an intelligent sea water cooling system controller designed to maximize shipboard pumping efficiency while lowering operating and maintenance costs and maximizing uptime.

CM-1000 can be applied in both newbuilds or retrofits of existing sea water cooling systems, and according to the manufacturer it is designed to work effectively with both 2 x 100% and 3 x 50% pumping configurations. The CM-1000 offers:

- **Variable Speed Operation** that adjusts and lowers motor and pump speed, providing energy savings between 40 and 80% and reducing the loads to provide longer equipment life and minimize maintenance; this replaces the traditional system design that features continuously - running pumps at full speed for worst-case conditions (32 degrees C sea water, full load of all equipment, plus a bypass control)
- **Condition Monitoring** that detects potential wear and/or fault conditions such as bearing damage, misalignment or coupling damage, mechanical seal damage and dry running, to help to prevent catastrophic breakdown
- **Operation Monitoring** that extends mean time between failures (MTBF) by

avoiding part load and overload operation to decrease bearing load and cavitation occurrences and to provide safe operation and consistent pump performance.

"Lowering revolution speed by 20% is designed to reduce flow by 20% and effectively cut energy consumption by 50%," said Martin. "Reduced fuel use means a greener, more sustainable vessel. Reducing overall loads enhances the life of equipment; that means reduced maintenance and an enhanced return on equipment investment."

According to the company, which offers a potential savings calculator directly on its website (see details at end of this story), return on investment in the CM-1000 is generally one year.

In parallel to its primary task, the CM - 1000 is designed to provide constant and reliable cooling to all shipboard consumers of energy, such as the main engine, generator and auxiliary equipment, even at sea water temperatures up to 32 degrees C. As temperature conditions change on the freshwater side, the system reacts by varying the speed of the electric motors of sea water pumps accordingly, using only the speed – and energy – required to provide optimal cooling conditions. This effectively reduces hydraulic loads and enhances the lifetime of the motors, pumps and related equipment through reduced usage and wear.

The CM - 1000 Series uses sensors to monitor equipment and the operation conditions of each specific pump. Then the CM - 1000 exchanges data through an Ethernet and provides real-time information and status indicators to the control room.

smart.colfaxcorp.com/CM1000

Case Study China Navigation

When China Navigation Company was planning for a new series of eight 31,000 dwt "S" Class multipurpose vessels, energy savings and sustainability were high on its list. Built at the Zhejiang Ouhua Shipyard, Zhoushan, China, and designed for containers, breakbulk and bulk cargo, the first of the vessels, the MV Shansi, launched in mid-April 2013 and will be part of Swire Shipping's multipurpose liner trade that link north, east and southeast Asia to key markets in Australia, New Zealand and island nations of the South Pacific. The new "S" Class vessels are designed for high speed cargo handling and the versatility to carry a wide range of cargo types. The new "S" Class vessels are designed for best-in-class environmental initiatives, including fuel efficiency and emission reduction to deliver the lowest carbon footprint possible from operations, including

- Reusing exhaust gases from the main engine and generators
- Hull form that combines high cargo capacity and low fuel consumption
- Wake ducts to improve fuel efficiency cargo cranes that use 40 to 50% power of traditional cranes

One specific area identified for energy savings as well as operational and maintenance savings was the sea water cooling system, for which it selected the **Colfax Fluid Handling Smart Technology CM-100 Series.**

Clean Marine wins Samsung EGCS Contract

Clean Marine AS was chosen by Samsung Heavy Industries in South Korea to supply Exhaust Gas Cleaning Systems (EGCS) for two new shuttle tankers being built for AET. The order will enable the new AET vessels to comply with future legislation relating to sulfur emissions without fuel switching. Today AET is an owner and operator of 83 modern petroleum tankers, recently entering into a long-term contract with Statoil to operate the two specialized DP2-type shuttle tankers. The two vessels will serve oilfields in the Norwegian sector of the North/Barents Sea. To operate in these harsh environments, the two twin-skeg 120,000 dwt tankers will be built to a high specification, fully adapted to operations in adverse weather conditions and equipped with high power thrusters and engines.

Clean Marine developed an EGCS based on the Advanced Vortex Chamber technology that provides particulate matter trapping efficiency. The system's integrated fan and gas recirculation technology allows the one EGCS unit to simultaneously serve several combustion units.

"For vessels sailing in European waters and other emission control areas (ECAs), a maximum sulfur limit of 0.1% will apply from 2015," said Nils Høy-Petersen, CEO of Clean Marine AS. "The Clean Marine system supplied to AET will clean both sulfur oxides (SOx) and particulate matter emissions from two main engines, five auxiliary engines and three boilers. In total, a single Clean Marine EGCS unit will manage 10 exhaust sources."

Installation of the EGCS units is scheduled to take place during 2013 and 2014, and Samsung will deliver the first state-of-the-art tankers at the end of 2014 and the second in the beginning of 2015.

www.cleanmarine.no

Van Heck Launches Sea Trophy

Van Heck, known for its water management systems in the maritime and dredging sectors, launched a complete pump system that it claims enables the controlled, contained, fast fuel/oil recovery after incorrect or 'off-spec' fueling and in the event of grounding or calamity at sea.

Dubbed Sea Trophy, the pump is designed to ensure a fast, easy and well controlled solution for the removal of fuel/oil which will limit, or even eliminate, any or all economic and environmental

damages. Sea Trophy tests have revealed its capabilities to quickly and cleanly remove oil at a rate of 70 cu. m./hr. @ 100cSt. It is hydraulically driven pump and can be used for both light and heavy oil. Its compact and manageable design (150mm, length 613mm) making it ideal for use in the most demanding situations, even onboard a listing ship. The Sea Trophy's modest size allows entry to tanks through vent- and sounding pipes. The Milk can and riser pipe accessories make it adaptable for use in cargo tanks/holds and it will fit through an access as small as 200mm.

Email: info@vanheckgroup.com
www.vanheckgroup.com

New Series III RO Fresh Water Maker

Compass Water Solutions released the all NEW AQUA-SEP Series III Reverse Osmosis Fresh Water Maker for Offshore Duty. Standard systems are readily available for quick delivery with flows from 25 cu. m./day to 100 cu. m./day. Series III is designed for easy installation, constructed with durable offshore-grade components, including an ABS-approved full-color touch screen for automatic or manual operation, and using the lowest consumable requirements in the industry.

The New Standard Series III is pre-engineered for all offshore requirements with a fully closed-loop control system, built with NEMA 4X integrity. It designed for ease of maintenance with easy access to all critical components on a single skid. The system will fit through a watertight door.

Compass designs and manufactures separation systems for fresh water and oily water to meet the most stringent requirements worldwide. Compass has been in business for 40 years and has provided technical expertise in separation and membrane separation technology since 1973.

Email: info@compasswater.com
www.compasswater.com

New Series III RO Fresh Water Maker

Trellborg Acquires Crogenic Technology

Trelleborg finalized an agreement which will see its Trelleborg Industrial Solutions business area acquire cryogenic hose system technology from SBM Offshore. According to Trellborg, this transaction will enable the company to accelerate and strengthen its offering in the supply of equipment for the floating liquefied natural gas (FLNG) market.

Launched at OTC 2013, the new system is derived from existing and proven technologies and is set to become a key component in offloading systems for future offshore FLNG projects. By enabling offshore transfer of LNG in tandem configuration, the cryogenic floating hose from Trelleborg will pioneer a step change in the safety of this critical operation. The system will also allow FLNG projects to be considered in harsher conditions.

A "Look Under the Hood"

Students glimpse the U.S. Navy's Newest, Hottest Engines

By Max Piff

On April 25 2013, my family and I went to the Naval Surface Warfare Center, Carderock Division (NSWCCD), Ship Systems Engineering Station (SSES), for national "Take Our Daughters and Sons to Work Day." Most of the people who work there are engineers. Personnel at SSES design and create extremely technological naval ships and submarines, while figuring out new means of power besides oil.

Throughout the day, children and parents were put into nine groups, and each group visited nine stations throughout the facility.

Stop number one was the DDG-1000 Land Based Test Site (LBTS), where Kevin McMaster spoke to us. At his station, which is a full-scale mock up of one main propulsion plant of the Navy's newest Destroyer class, he told every group what technology, design and improvements over the last models will be in the DDG-1000. One example of this new design using the Integrated Power System (IPS) that produces 80MW of electrical power is that the all-electric DDG-1000 is more fuel efficient. This improvement is a major improvement - less fuel stops will be needed when out to sea, therefore costing less over time in terms of fuel cost. I was very impressed with the size of the IPS - just the electrical generator is larger than the largest SUVs.

The second stop was the High Temperature Superconductivity Lab, explained to each of the nine groups by Pete Ferrara, Theresa Vaites, Kevin Woods, Dan Santosusso and Navy Commander Jeff Nowlin.

Station two was to show how new superconductive cables would help transport more electricity with less cables at extremely low temperatures. What was impressive is the superconductive cables can carry the same amount of current in one tenth the cable space. After the explanation of how the Superconductive Cables worked and at what temperatures they would operate, Pete, Theresa, Kevin, Dan and Jeff showed us what temperature liquid nitrogen is, and what it does to normal everyday objects. For example, a volunteer was asked to just simply throw a rose onto the floor that was soaked in liquid nitrogen: the result was that the rose shattered to pieces.

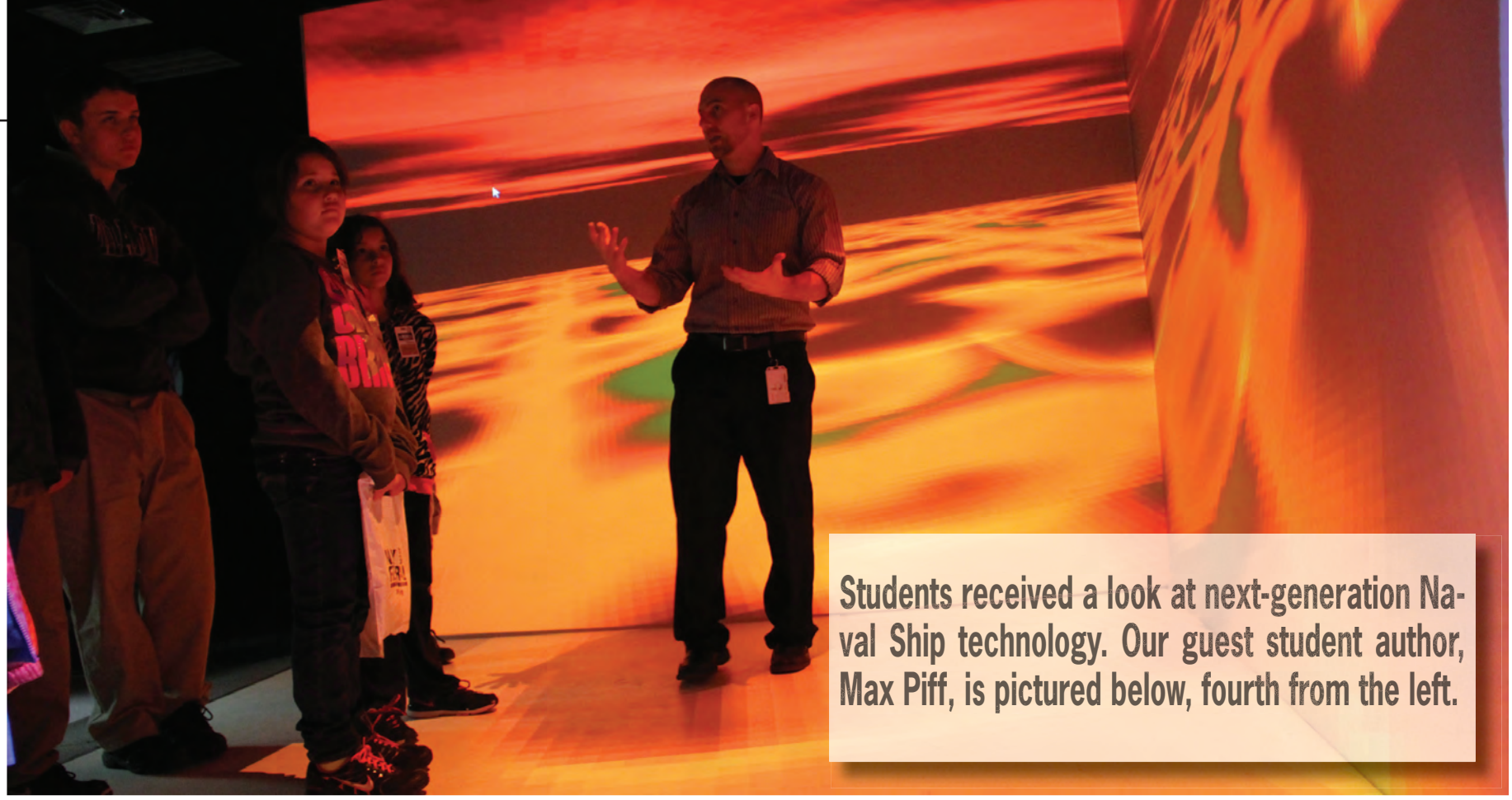
Third on the list was the Melville Conference Center, with Tom Perotti, whose presentation was about, "what do engineers do"? He gave a lot of examples of what engineers do in many fields. To me it's very impressive in how many areas engineers make an impact.

Fourth on the list was the Automation and Intelligent Systems Laboratory from Dr. Qing Dong, Matthew Bosack, and Jason Batcho. Their job is to make a sort of remote controlled/ computer controlled robots. The robots are a work in progress, so not everything is 100% operationally successful. One of the robots is controlled over Wi-Fi, so the security system will need a major bump up. Secondly, they are working on a control algorithm for many different machinery systems. What impressed me most is that the onboard computers are small and light enough so that they don't greatly affect the performance of the robot.

Fifth of the day was the High Speed Generator, with Eric Manna, who explained how much wattage the generators produce, what concerns they have with the generator, how it stays cool and how they have advanced it from the last generation. Firstly, he explained how the generator has wattage banks, because it produces about 14MW, and that it has a tractor trailer-sized motor control room. Secondly, they have some big concerns with the amount of vibrations the generators produce at 7,000 rpm (the generators installed in ships today operate at 1,800 rpm.). Also, since the generators produce so much heat spinning at 7,000 rpm, they cool the generator by directly spraying coolant onto the generator. What impressed me was the fact that the size of these new generators are about the size of a 4MW generator from older models. This will make a major difference in ship design.

The sixth stop of the day was the Integrated Data Environment Lab or RAVE, presented by Patrick Violante, Scott Storms, Russ Philipp, Pinkesh Bharatia, and Caitlin Swee. This is a simulation environment meant for training sailors if an emergency happens on a ship, and how they would fix it, without being on an actual ship, with real broken parts. (At SSES one use they have for RAVE is to help engineers see how new machinery and systems could fit into existing spaces.) They do this by mounting one 20 x 8 ft. and two 10 x 8 ft. projection screens. I would like to see these screens used in movie theaters. The lab also has a 3D printer that if a part on a ship was broken, they would print out a model of that piece, and see what or where or how the piece was broken.

The Seventh stop was the Machinery Network Development & Integration Facility, with Alicia Sasso, who showed a movie about ship modernization. The movie explained how renovating a ship would be much cheaper to do than make



Students received a look at next-generation Naval Ship technology. Our guest student author, Max Piff, is pictured below, fourth from the left.

a whole new ship, and just renovating a ship would expand the life of it for about 15 to 20 years.

Second to last was the Chilled Water Automation Site, presented by Mark Cybulski. He explained how the entire ship is cooled down, via cold water. The piping has many smart valves that if a pipe bursts, the valves in that vicinity would shut off, by a program from the Automation and Intelligent System Lab. I was impressed by how the engineers are using automation to reduce manning and ensure that the system continues to operate in battle conditions.

Ninth and last of the tour was the DDG-51 Test Facility, presented by Lee Skarbek. This Lab tests the new engines and exhaust systems. The new engines produce a whopping 25,000 horsepower, 23,800 more than the most powerful, fastest street legal road car, the Bugatti Veyron SS. The inside of this ship will house four of these engines, and will have some extremely big exhaust systems. The engineers have moved from analog devices to computer controlled devices with touch screens. I was impressed by how much more information the operator is presented on the touch screen and how much easier it will be for him or her to operate the ship.

At the end of the tour I was shocked at some of these numbers, and technological improvements, 25,000 horsepower per engine, 14MW generators, smart valves that control water flow throughout the ship, autonomous controls, and how to more cost effectively increase a ships life.

In Maritime Reporter's continuing efforts to encourage young people to careers in science and engineering, we are pleased to offer here some insights from Max Piff, who finished his freshman year at Walter Johnson High School in Bethesda, MD. He took a normal course load of English, Math, Science, Social Studies, Physical Education, Band, and one special elective – Introductory Engineering Design.

Control Panel for Beier Radio's newest product the IVCS4000 Series DPS.

Beier Radio

Evolving with the tech since 1945

Beier Radio was established in 1945 as a family business in a garage workshop. In 1945, two-way radios were the most technologically advanced electronics on the market, hence the name Beier Radio. As the technology has evolved, so has the company, and although Beier Radio continues to sell and service radios, this is only a small part of its business today.

The company has remained on the cutting edge of technology, and today it manufactures, sells and services vessel control systems, steering systems, computer-based alarm and monitoring systems, cargo control systems, general alarm systems, thruster control systems and engine control systems. It also sells and service radars, external communication systems, interior communication systems and navigation systems, including ECDIS.

The vessels under construction today are complex, and Beier Radio's engineering department works with the vessel owner, the shipyard and other vendors to provide system design support, installation support and system integration. Beier Radio also provide Class and Flag State required drawings and submittals; a hands-on approach designed to reduce installation times, increases system reliability and ensures the vessel performs as designed.

Beier Radio presented the new Beier IVCS 4000 DP System at the 2012 International Work Boat Show in New Orleans. The Beier IVCS 4000 DP System builds on the core principles of its predecessor, with the addition of new hardware, software and graphics. The system is designed to be extremely easy to use and maintain while providing the lowest cost of ownership.

The company has one of the largest service departments in the industry, with 24-hour remote and field service capabilities, and a large parts inventory strategically located along the central Gulf Coast.

The Beier Radio Training School is another way to serve its clients which includes a DP Operator Training curricu-

lum accredited by the Nautical Institute of London. Certifications are offered in Induction and Advanced DP Operations, utilizing actual IVCS DP systems as simulators. Technical training helps customers maintain, troubleshoot and repair the most common problems experienced offshore. Beier Radio ECDIS Training is scheduled to begin in the fourth quarter of 2013. The company is building a new training facility in Gray, La., with completion scheduled in May 2013.

www.beierradio.com

The Technical/Maintenance Training Simulator Room, which is used to train crews on trouble-shooting and maintenance.

Carnival to Develop New Emission Reduction Tech

In the quest meet stringent new emissions regulations, cruise industry major Carnival Corp. earlier this month reached an agreement in principle with the U.S. Environmental Protection Agency (EPA) and Coast Guard to develop its own advanced emission control technology to be used in waters surrounding U.S. coasts. According to the EPA, Carnival will develop and deploy a new exhaust gas cleaning system on up to 32 ships over the next three years to be used in Emission Control Areas (ECAs), the area around U.S. and Canadian coasts where ships must reduce air pollution emissions.

The new controls to be developed and deployed combine the use of sulfur oxide (SOx) scrubbers with diesel particulate filters, which essentially combines technologies well known in the power plant and automotive sectors, but not previously used together on a marine vessel.

The technology can also provide additional benefits in the reduction of particulate matter and black carbon, and according to the release from the government, will provide an opportunity for ECA compliance at a significant (50% or greater) reduction in cost and may yield emission reductions beyond those required by current requirements.

Carnival will drydocks 9 ships in 2014; 16 ships in 2015 and 7 ships in the first half of 2016 to install new exhaust gas cleaning systems.

The ECAs were developed by the U.S. and Canada through an agreement with the International Maritime Organization (IMO) in order to protect human health and the environment by significantly reducing air pollution from ocean-going vessels. By 2020, ECA limits will reduce nitrogen oxide (NOx) emissions by 320,000 tons, particulate matter (PM) emissions by 90,000 tons, and SOx by 920,000 tons. Each year, the standard will also result in the prevention of tens of thousands of premature deaths while relieving respiratory symptoms for nearly five million people.

This announcement follows a growing trend, as in late 2012 U.S. containership owner TOTE announced its plans to build a series of high-spec ships at NASSCO that incorporated MAN Diesel & Turbo engines capable of burning LNG as fuel.

A joint letter from the Coast Guard and the U.S. EPA to Michael Kaczmarck, Carnival's VP of Shipbuilding, said: "Under the proposed trial program, Carnival will install exhaust gas cleaning systems for engines on 32 vessels that operate in the ECAs, and those systems will help enable the vessels to meet or exceed the sulfur emission levels required within the ECAs. We understand that Carnival will install sufficient exhaust gas cleaning capacity on each of the ships to meet or exceed the 2015 ECA fuel sulfur requirements. Additionally, these exhaust gas cleaning systems will be installed during vessel drydocks on the following schedule: nine ships in 2014; 16 ships in 2015 and seven ships in the first half of 2016."

Naval Surface Warfare Center Gets Wavemaking Upgrade

Naval Surface Warfare Center, Carderock Division (NSWCCD) completed major renovations of the Maneuvering and Seakeeping Basin (MASK) facility, Aug. 16.

For more than one hundred years, the Navy has built and conducted extensive testing on physical prototypes of ships called scale models before building the real ship in full scale. In 1962, Carderock built the MASK in order to test the scale model performance of ships, platforms and moored systems in realistic sea conditions. The 360-foot-long and 240-foot-wide facility holds approximately 12 million gallons of water and is used to evaluate the maneuverability, stability and control of scale models.

"By simulating the ocean's most extreme conditions in this facility, we can test scale models up to 30 feet in length in order to predict the full-scale performance of ships in the open ocean," said NSWCCD Hydromechanics Facilities Engineering and Operations Division Head, Joseph Moeller. "We are very excited to begin exploring the facility's new capabilities and integrating them with our existing test equipment,"

During the six-year upgrade, NSWCCD replaced the original pneumatic wavemaking system in the MASK with 216 individually-controlled electro-mechanical waveboards that significantly enhances the capability to create a precise wave environment.

"This new finger-style technology provides the Navy with an unprecedented capability to create a realistic ocean environment inside of the facility, which enables us to collect more precise test data," said NSWCCD Naval Architecture and Engineering Department Head, Jon Etxegoien. "This upgrade, along with the size of the facility, makes the MASK the most advanced test facility of its kind in the world."

Naval Surface Warfare Center (NSWC) Carderock Division, part of the Navy's Science and Engineering Enterprise, leads the Navy in hull, mechanical and electrical engineering. Headquartered in West Bethesda, Md., NSWC Carderock employs approximately 3,600 scientists, engineers, technicians and support personnel and includes the Ship Systems Engineering Station located in Philadelphia as well as detachments in Norfolk, Va., Cape Canaveral, Fla., Andros Island, Bahamas, Fort Lauderdale, Fla., Memphis, Tenn., Bangor, Wash., Ketchikan, Alaska and Bayview, Idaho.

Nicholas Malay, NSWCCD Public Affairs

Wärtsilä Power for Six Offshore Brazil PLVs

Wärtsilä received an order to supply the propulsion solutions for six new offshore pipe laying vessels being built by IHC Merwede. Three of the ships are to be built for Subsea 7, the seabed-to-surface engineering, construction, and services contractor to the offshore energy industry. The other three vessels have been ordered by Seabras Sapura, the Sapura Kencana and Seadrill partnership entity.

All six vessels are scheduled to be delivered during the first half of 2015 and the second half of 2016. They will be deployed to serve the Brazilian offshore market by Petrobras, the multi-national energy corporation. Wärtsilä signed its supply order for the first vessel in the second quarter of 2013, and the remaining orders in the third quarter. The scope of supply for each ship comprises six eight-cylinder Wärtsilä 32 engines, two transverse thrusters, two retractable thrusters and three steerable underwater de-mountable thrusters.

Wärtsilä will begin deliveries already in February 2014, with further deliveries following at four month intervals.

"These are very important orders. The delivery schedule is challenging, but we have frequently demonstrated that our world class manufacturing and logistics processes can handle fast-track projects such as these," said Aaron Bresnahan, Vice President Sales, Wärtsilä Ship Power. Both Subsea 7 and Sapura Kencana already have vessels with similar Wärtsilä equipment installed, and Wärtsilä has enjoyed a long-standing and successful relationship with IHC Merwede. Furthermore, for Subsea7, Wärtsilä has an existing worldwide services and spare parts contract.

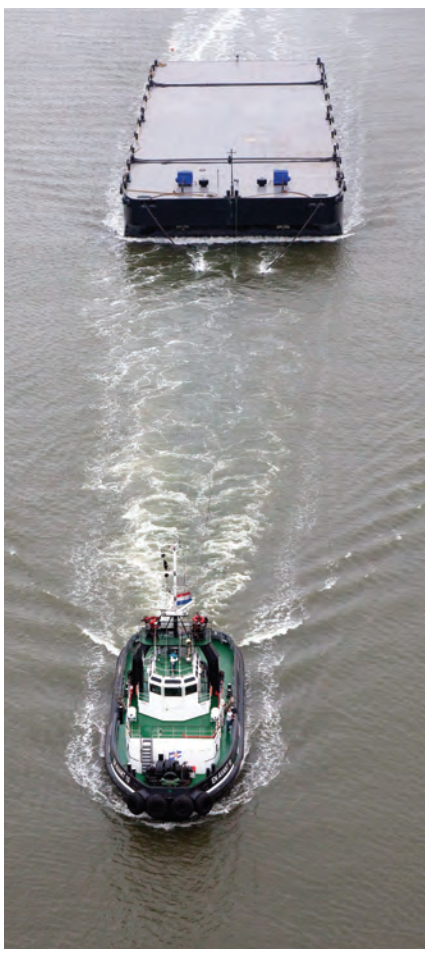
The specifications of the Type 550 pipe laying vessels:
Overall length: 145.97m
Breadth: 29.94m
Depth main deck: 13m
Summer draft: 8.3m
Scantling draft: 8.5m
Draft (max): 8.3m
DWT at summer draft: 10,800t
Accommodation: 120

www.wartsila.com

Damen Stan Pontoon for McKeil-Malaspina

Damen reports that the largest pontoon ever stock-built by the company was sold to the Canada's McKeil-Malaspina partnership to be used to support offshore construction operations. The Damen Stan Pontoon 12032 measures 120 x 32.2m, has a deadweight capacity of approximately 20,000 tons and a hold of 8.1m. The barge is equipped with a sophisticated ballast system, generating set and mooring winches. With a deck load of 20 t/sq. m., this barge can be used for complex RoRo operations and transport of large offshore constructions. Earlier this year Damen shipped 16 newly built pontoons from its shipyards in China to Damen Shiprepair Rotterdam. Most of the stock-built pontoons are sold, leaving only two Stan Pontoons and a Damen Transshipment Barge (including Liebherr crane) for direct sale. A new shipment of Damen Pontoons is scheduled to arrive early 2014 in the Port of Rotterdam to ensure short delivery times.

www.damen.com



New Ferries for Clyde Crossing

Photo: Cammell Laird

Cammell Laird Shipyard built a pair of 45-car ferries and recently launched them into the River Mersey at Birkenhead. The sister ferries are the first complete vessels built at the yard in 20 years.

The MV Sound of Soay and MV Sound of Seil continue the tradition of their owners, Western Ferries, of naming vessels after Scottish Sounds. Once interior details are finished and sea trails completed, the twin ferries will enter service on the company's 2.2-nautical mile Firth of Clyde route between Gourock and Dunoon.

The double-ended RoRo ferries are each 49.95-m overall with 13.5-m beams extended over the sponsons to around 15 m. The molded depth from the car deck is four meters while the ferries will operate with a draft of 2.5 meters. With capacity for up to 220 passengers each ferry will be powered by two IMO and EU emission compliant Cummins QSK19-M diesel engines producing 600 HP (447 kW) at 1,800 RPM. Each engine will power an independent Rolls Royce Aquamaster azimuthing thruster mounted fore and aft.

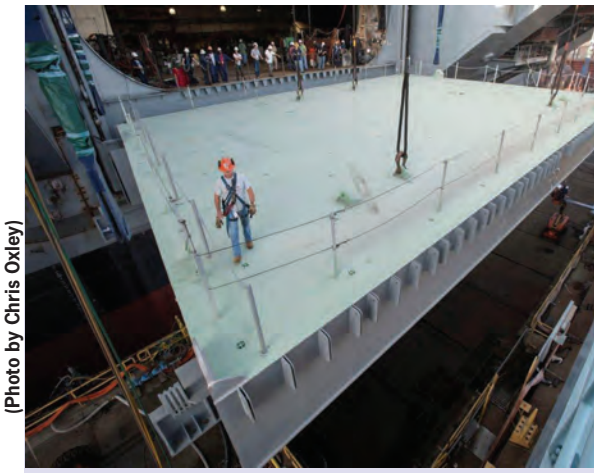
Nordic Yards to Build Deckhouse for Russian Icebreaker

Nordic Yards won the contract to build a deckhouse for a Russian icebreaker. A contract for the fabrication of a deckhouse as part of the superstructure for the icebreaker LK-25 was concluded between the St. Petersburg Baltic Shipyard, which is part of the Russian state-owned United Shipbuilding Corporation OSK, and Germany's Nordic Yards. According to the terms of the contract, the deckhouse weighs 2,500 tons and is fully fitted out. The keel-laying for the icebreaker Viktor Tschernomyrdin, otherwise known as Project 22600, took place in October 2012 in dock at the Baltic Shipyard. The total cost of the project is approximately $267m, and the delivery of the ship to the Russia's state-owned seaports agency Rosmorport is scheduled for December 2015.

The icebreaker is equipped with a 25-MW diesel-electric propulsion system to provide the vessel with the capability to break ice up to two meters thick and ensure the free passage of ships in and out of frozen harbor basins and along the Northern Sea Route.

www.nordicyards.com

Nordic Yards rendering of Icebreaker LK-25



(Photo by Chris Oxley)

Final Aircraft Elevator Installed on U.S. Aircraft Carrier

Newport News Shipbuilding recently installed the final aircraft elevator platform on the aircraft carrier Gerald R. Ford (CVN 78). The elevator is used to move aircraft from the hangar bay to the flight deck quickly and safely.

The elevator is located on the starboard side of the ship and measures 85 x 52 ft. and weighs 120 tons. "The Ford class is designed with three aircraft elevators, one less than the Nimitz class," said Rolf Bartschi, NNS vice president, CVN 78 carrier construction.

huntingtoningalls.com

Austal Celebrates Keel Laying

Demonstrating the rapid progress of the Cape Class Patrol Boat Program, Austal hosted the keel-laying ceremony for the third vessel, Cape Nelson, one of eight 56-m patrol boats that Austal is designing, building and supporting for the Australian Customs and Border Protection Service. Although Austal's design and manufacturing approach is thoroughly modern, the ceremony retained long held shipbuilding traditions. This included placing three specially minted coins under a keel block as a symbol of good fortune and to bless the ship. These coins will be removed just prior to the patrol boat's launch. The three coins were placed by Michael Pezzullo, Chief Executive Officer, Australian Customs and Border Protection Services; David Brekenridge, Chief Engineer Australian Customs and Border Protection Services; and Graham Backhouse, President and General Manager Austal. In doing so, the keel block was formally positioned by two of Austal's high achieving apprentices, Wes Ramshaw and Jacob Kerr. Austal was awarded the contract for the design, construction and through-life support of the Cape Class patrol boats for the Australian Customs and Border Protection Service in August 2011. The eight 58-meter aluminum monohulls are due to be delivered between March 2013 and August 2015. The support contract extends for a minimum period of eight years and encompasses a full range of intermediate and depot level maintenance activities. Further options can be exercised by the Australian Customs and Border Protection Service for In-Service Support for the life of the Cape Class Patrol Boat Fleet.

austal.com

(Photo by Steve Blount)

Ingalls Shipbuilding launched the fourth USCG National Security Cutter, Hamilton (WMSL 753), on Aug 10.

Ingalls Launches Fourth USCG NSC

Huntington Ingalls Industries' (HII) Ingalls Shipbuilding division launched the company's fourth U.S. Coast Guard National Security Cutter (NSC), Hamilton (WMSL 753). NSCs are the flagship of the Coast Guard's cutter fleet, designed to replace the 378-ft. Hamilton-class High-Endurance Cutters, which entered service during the 1960s. Ingalls has delivered three. Hamilton will be christened on Oct. 26 in Pascagoula by ship sponsor Linda Kapral Papp, wife of Adm. Robert J. Papp Jr., commandant, U.S. Coast Guard.

Keel laying for Ingalls' fifth NSC, James (WMSL 754), took place on May 17. The ship is currently 32% complete and will launch the spring of 2014. Ingalls has started construction on nine units for NSC 6. An advance long lead material procurement contract has also been awarded for a seventh NSC.

NSCs are 418 ft. long, with a 54-ft. beam, displacing 4,500 tons with a full load. They have a top speed of 28 knots, a range of 12,000 miles, an endurance of 60 days and a crew of 110.

German Federal Minister Names DFDS Ro/Ro Vessel

The Danish shipping company DFDS and Volkswerft Stralsund held a ceremony for the newbuild on the fitting-out quay at the shipyard the special-purpose Ro/Ro vessel, Ark Germania, named by Prof. Dr. Johanna Wanka, German Federal Minister of Education and Research. The Ro/Ro transporter has a length of 195 meters, a container capacity of 342 TEUs, and a load capacity of 3,000 lane meters, on which up to 185 HGVs can be transported. The ship is scheduled to be deployed on the international freight route service. In addition to its actual usage as a Ro/Ro ship, the new vessel will also be made available to the Danish armed forces and German army as and when required, for so-called "secured commercial strategic marine transportation" purposes. Germany and Denmark have been cooperating in the domain of strategic military transportation at sea since 2006.

Hessellund, Captain of the Ark Germania; Berthold Brinkmann, Administrator of P+S Werften; Dr. Alexander Badrow, Lord Mayor of Stralsund; German Federal Minister Prof. Dr. Johanna Wanka; Peder Gellert Pedersen, Executive Vice President Shipping Division DFDS and Axel Schulz, Representative of the Administrator at the Volkswerft Stralsund

IHC Merwede to Build Six Pipelay Ships for $1.3B

IHC Merwede's Offshore division won orders worth more than $1.3B for the design, engineering and construction of a total of six pipelaying vessels. The agreements for these six ships have been signed with Subsea 7 and Seabras Sapura, the partnership between SapuraKencana and Seadrill. IHC Merwede will supply three fully integrated pipelaying vessels to Seabras Sapura. These will include the complete pipelaying spreads, which comprise of a twin-tensioner tilting lay tower, two below-deck baskets and support equipment for the loading, spooling and routing of products. The integrated automation system, full electrical installation and electrical machinery package will also be designed and delivered by IHC Merwede. In addition, to assist Seabras Sapura in the training of their offshore personnel, a pipelaying simulator will be provided. The orders secured with Subsea 7, IHC Merwede's long-standing customer, are for three ships of identical design to the recently launched Seven Waves. With an overall length of 146m, a beam of 30m and a Class-2 DPS, these vessels will be equipped for transporting and installing flexible flowlines and umbilicals in water depths of up to 3,000m.

Nord Orders More Windfarm Service Vessels

Strategic Marine said that Njord Offshore, a U.K. fleet operator of Crew Transfer Vessels for the European offshore windfarm sector, has confirmed the option for two more high performance crew transfer and service vessels, taking the total order to eight vessels.

The two new sister vessels ordered will be certified for MCA CAT 1 requirements for operation up to (150nm) from CAT 2 due to the distance from shore the vessels are being required to work at. The vessels will also be given increased fuel tank capacity from 10,000L to 18,000L for greater range and bunkering capability.

160th Ship of Mitsui's 56 Series Delivered

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) completed and delivered a 56,000 dwt type bulk carrier M.V. Ocean Bright (MES Hull No. 1848) at its Tamano Works on August 7, 2013 to Mingtai Navigation Co., Ltd., Taiwan. This vessel is a handy-max type bulk carrier of 56,000 dwt with a large cargo hold capacity over 70,000 cu. m. and marks the 160th ship of its series.

New Brazilian Navy Ship Leaves U.K.

Araguari is the third of three Amazonas Class ocean patrol vessels delivered to the Brazilian Navy by BAE Systems in the U.K. It is designed for maritime security, as well as being able to support humanitarian relief and search-and-rescue operations. Her two sister ships, Amazonas and APA, were delivered by BAE Systems last year and have already begun operations in Brazil. Araguari will make diplomatic visits in Europe and Africa before crossing the South Atlantic headed to Rio de Janeiro. After a brief stay, she will then proceed to her home port in the north eastern city of Natal.

The 90-m Amazonas Class ships are based on the design of the Royal Navy's River Class Offshore Patrol Vessels and will provide maritime security in Brazil's territorial waters, including the protection of the country's oil and gas platforms.

Chevalier Floatels Vessel Christened at Holland Shipyards

A fast-track delivery to Chevalier Floatels has enabled the company to deliver its third vessel for service support operations in the 2013 season. With the DP Galyna, another high spec Service Support Vessel has entered operations for offshore contractors. With the integrated Ampelmann transferring system, the operational window is increased up to 90% during the season. This, in combination with DP capabilities, a heave compensated crane and ample deck space for stores, is designed to allow for much mobility in the field. The vessel also provides facilities for multi-beam operations and other support activities. Accommodating 60 persons in total with a crew of 16, the chartering party has availability of 44 single cabins. Alternatively 90 persons can be accommodated, in which case some cabins will be double cabins. The interior offers the passengers a wide range of amenities, including a fitness area, hospital, restaurant, laundry, lounge and smoking lounge, ensuring maximum comfort during offshore operations.

holland-shipyards.nl

Enclosed DryDock With a Unique History Opens on West Coast

Bay Ship & Yacht Co. expanded its capacity and capabilities by unveiling a new covered dry dock that accommodates vessels displacing up to 6,300-long tons with a maximum beam of 76 ft. Currently the only dry dock on the West Coast to be fully enclosed by a retractable roof, this new high-tech facility on San Francisco Bay is a conversion of the submersible Hughes Mining Barge (HMB-1), which played a role in a covert Cold War operation. According to CIA documents declassified in 2012, the HMB-1 was built in the 1970s by the U.S. Navy as part of Project Azorian, a top-secret plan to salvage the Soviet submarine K-129, which sank while reportedly carrying three nuclear-armed ballistic missiles, from the floor of the Pacific Ocean. The ruggedly built HMB-1 was designed to submerge to 160 ft. and sit on the seabed during the transfer of heavy equipment required to retrieve the sub. After Project Azorian's successful conclusion, the HMB-1 was transferred to Lockheed Martin, where it became a floating dry dock for the Navy's experimental 164-ft. SWATH vessel Sea Shadow, a test bed for stealth technology.

bay-ship.com

(Photo Drydocks World)

World's First Modular Capture Vessel Sets Sail

Drydocks World reported last month that the world's first Modular Capture Vessel (MCV), Eagle Texas, sailed away from its yard. The conversion of the Aframax tanker was carried out by Drydocks World – Dubai and was completed for Singapore based AET, the first of two similar projects.

AET is under a 20-year agreement with Marine Well Containment Company (MWCC) – a consortium of 10 companies comprised of Anadarko, Apache, BHP Billiton, BP, Chevron, ConocoPhillips, ExxonMobil, Hess, Shell and Statoil – a consortium formed in the wake of the Macondo spill and dedicated to safe deepwater drilling in the U.S. Gulf of Mexico. The MCVs will operate as normal tankers in the U.S. Gulf of Mexico and would be deployed for containment services in the event of a deepwater well control incident in the region. The project used 2,530 tons of steel, 19.68 km of pipes and 292 km of electrical cables. The MCV illhave 700,000 barrels of liquid storage capacity, and can process, store and offload the liquids to shuttle tankers. Modular, adaptable process equipment installed on the MCV will connect to the riser assembly that directs the flow from the subsea components. The process equipment will separate the liquids from gas, safely store the liquids and flare the gas. Then the liquids will be offloaded to shuttle tankers which will transport the liquids to shore.

The shipyard's work scope included installing components such as four retractable azimuth thrusters, one tunnel bow thruster, new machinery spaces, diesel generator sets and associated tanks, auxiliaries, switchboards, and electrical distribution equipment.

Vard Signs $1.1B Shipbuilding Order

Vard Holdings Limited won contracts with joint ventures of DOF Subsea and Technip for the design and construction of four Pipe Lay Support Vessels (PLSVs). The contract is the largest order in VARD's history, with an aggregate order value of $ 1.1 billion. Two of the vessels, of VARD 3 05 design (151 x 30 m) will be delivered in 2Q 2016 and 3Q 2016 respectively. The hulls of these vessels will be built at Vard Tulcea in Romania and outfitted at Vard Søviknes in Norway. The other two vessels, of VARD 3 16 (139.9 x 28 m) design, will be delivered from Vard Promar in Brazil, in 4Q 2016 and 2Q 2017 respectively. The new designs have been developed in cooperation with DOF and Technip. The Norwegian built vessels will carry pipe lay towers rated at 650 tons, among the largest ever in the industry. At 340 tons, the Brazilian built vessels will be among the most complex vessels ever constructed in Brazil. Topside equipment for all four ships will be delivered by Huisman of the Netherlands.

Incat Crowther Designs DSV Trio

Incat Crowther was contracted to design a trio of 42.5m Monohull Dive Support Vessels. The design is a new concept borne of the latest ideas from designer, builder and operator. It was developed from stem to stern to be a dedicated DP-2 capable Dive Support Vessel, featuring fully integrated ROV launch and recovery, dive compressors and decompression chamber. The vessels, currently under construction at SeaSafe Barcos Manufaturados, in Angra do Reis, Brazil, will be delivered to Sistac. The first of the three vessels, to be named Sistac Vitória, is due to be delivered in the first quarter of 2014. The aft deck will feature a large working deck, which will house the ROV crane and reel, a pair of dive platforms and two deck cranes. Inside the main deck house are functional areas such as toilets and showers, dive shop (housing compressors and decompression chamber) and ROV shop.

Four Scania D13 main engines, each producing 410kW, will power the vessels. The vessels will have a service speed of 13 knots and a top speed of 15 knots. The DP-2 capability ensures the vessel can hold station in the event of a failure in any single component of the system, enhancing both safety and reliability.

42.5m Monohull DSV Main Particulars

Length, o.a.	42.5m
Length, w.l.	38.5m
Beam, o.a.	9.3m
Draft (hull)	85m
Draft (prop or max)	1.85m
Depth	4.25m
Construction	Marine grade aluminum
Fuel Oil	112,000 liters
Fresh Water	20,000 liters
Sullage	3,000 liters
Personnel	36
Speed (Service)	13 knots
Speed (Max)	15 knots
Main Engines	4 x Scania D13
Power	4 x 410kW @ 1800rpm
Propulsion	4 x Hamilton Water Jets
Generators	4 x Scania Dl13
Flag	Brazil
Class	RINA

Recent Vessel Sales

Below is a list of recent vessel sales prepared by Shipping Intelligence, Inc. as of August 1, 2013. Sale prices are listed in millions USD.

Date	Vessel name	DWT	BLT/Age	Price
Bulk Carriers				
7/18/13	OCEAN STAR	18,367	00/13	$4.8
7/18/13	SEA BELL	24,997	00/13	$6.1
7/29/13	GREAT CREATION	27,383	98/15	$6.2
7/10/13	ALBANY SOUND	28,379	02/11	$12.3
7/10/13	CAPE FLATTERY	28,433	04/9	$11.5
7/29/13	PRINCESS ALIEL	28,463	00/13	$10.8
7/10/13	MOUNT TRAVERS	28,484	02/11	$10.6
7/10/13	OCEAN EXPORTER	28,561	02/11	$12.3
7/10/13	CAPE NELSON	29,461	01/12	12.1
7/10/13	TIMARU STAR	31,893	04/9	$12.9
7/10/13	COOK STRAIT	31,894	04/9	$11.5
7/10/13	BLACK FOREST	32,751	03/10	$11.2
7/10/13	SUN RUBY	32,754	04/9	$11.5
7/10/13	PORT PEGASUS	32,773	04/9	$12.9
7/29/13	GREAT SUMMIT	33,700	05/8	$16.
7/29/13	HANZE GOTEBORG	35,000	13/0	$18.5
7/29/13	HANZE GDANSK	35,000	13/0	$18.5
7/29/13	SEA MIRROR	42,025	90/23	$4.3
7/29/13	MINBEI	42,609	86/27	$3.5
7/18/13	DARULKAR	42,609	86/27	$3.5
7/29/13	YANTIAN SEA	44,821	95/18	$6.8
7/10/13	LEGEND PHOENIX	50,209	02/11	$14.2
7/18/13	ATHOS	52,248	04/9	$15.5
7/18/13	OCEAN MORNING	52,404	01/12	$13
7/01/13	OCEAN ADVENTURE	52,409	05/8	$17.8
7/18/13	DARYA BRAHMA	56,056	06/7	$19.4
7/29/13	DIMITRIOS S	66,088	90/23	$5
7/29/13	LEGATO	72,083	99/14	$9.3
7/18/13	PRUVA	74,137	95/18	$7.5
7/01/13	POWER STEEL	74,443	99/14	$11.0
7/01/13	EURO TRADER	76,595	09/4	$21.1
7/29/13	FORTUNE ISLAND	81,900	08/5	$22.5
7/29/13	CITY	82,000	13/0	$28.7
7/29/13	SPRING OCEAN	82,962	05/8	$18.3
7/10/13	GLORY POWER	87,144	06/7	$19
7/18/13	THIRA SEA	92,500	10/3	$20
7/01/13	NONI M	185,777	95/18	$10.5
Car Carriers				
7/29/13	LA SURPRISE	4,659	00/13	$9.8
Chemical Carriers				
7/10/13	ATAGUN	2,147	08/5	$5
7/18/13	DIAMOND STAR	5,897	10/3	$12
7/18/13	LAGUNA SWAN	5,897	10/3	$12
7/10/13	GOLDEN ATLAS	6,498	99/14	$6
7/01/13	GUILDO	7,087	04/9	$8
7/10/13	MCT ALTAIR	19,990	99/14	$9.4
7/10/13	CIELO DI PARIGI	36,032	01/12	$12.7
7/10/13	TVER	40,000	94/19	$4.5
7/10/13	TOMSK	40,703	97/16	$4.5
7/18/13	UACC MUHARRAQ	45,500	13/0	33.6
7/18/13	UACC MARWAN	45,500	13/0	$33.6
7/10/13	NCC BADER	45,544	13/0	$33.5
7/10/13	ENJOY	74,158	11/2	$36
Container Ships				
7/29/13	CLONLEE	5,207	96/17	$1
7/29/13	FLEVODIJK	11,863	10/3	$9
7/29/13	MONDENA	12,048	99/14	$2.5
7/29/13	FRIESEDIJK	12,306	10/3	$9
7/29/13	VIYA	13,623	97/16	$6.5
7/29/13	PETALIDI	14,100 – 93/20		$3
7/29/13	LIBRA J	14,174	98/15	$2.8
7/18/13	TRANSEAGLE	16,621	02/11	$7.5
7/18/13	STX HONG KONG	23,200	13/0	$17
7/29/13	AUSTRIA	34,015	97/16	$3
7/01/13	RIO ANGELINA	34,200	13/0	$24.8
7/01/13	JACOB SCHULTE	34,200	13/0	$24.8
7/01/13	JULIUS SCHULTE	34,200	13/0	$24.8
7/18/13	SIMA SINGAPORE	35,551	95/18	$4.5
7/29/13	ER FREEMANTLE	35,848	98/15	$5.5
7/29/13	ER DARWIN	35,966	98/15	$5.5
Gas Carriers				
7/29/13	ELEONORA LEMBO	4,100	07/6	$12
7/29/13	MARGHERITA IULIANO	4,100	07/6	$12
7/10/13	WINCANTON	9,203	00/13	$16
7/10/13	NORGAS SONOMA	9,260	03/10	$16
Tankers				
7/29/13	PACIFIC POLARIS	47,999	04/9	$17
7/29/13	MORNING GLORY V	74,025	98/15	$8.5
7/10/13	MARKA	74,127	12/1	$36
7/18/13	KORNATI	103,368	99/14	$9.8
7/01/13	ATLAS NAVIGATOR	107,181	98/15	$7.4
7/18/13	ELISEWIN	149,991	02/11	$24.5
7/18/13	BW LUCK	298,717	03/10	$35
Tweendeckers				
7/10/13	BLACK SEA	3,710	92/21	$1.1
7/18/13	ALSERBACH	4,490	97/16	$1.8
7/29/13	ZITA	4,490	97/16	1.8
7/29/13	HERA	4,901	84/29	$.8
7/10/13	WILSON MAR	9,655	85/28	$1
7/18/13	YUUKI	10,304	04/9	$5.5
7/29/13	HERM KIEPE	13,059	97/16	$4.9

Fire Protection for LNG-fueled Ships

There are roughly 30 liquified natural gas (LNG)-powered marine vessels currently active in today's global seas, with some estimates showing approximately 30 new builds expected by 2014. With new commitments and orders for LNG-powered ships taking place every month, the potential that LNG-powered vessels will play an important part in shaping the future of the maritime industry is no longer speculation – it is now a fact. Helping to drive the switch from diesel, steam and even coal-powered ships to LNG is the need for shipowners to be compliant with new standards that require vessels to limit harmful emissions. To meet the International Convention for the Prevention of Pollution From Ships' (MARPOL) Tier 2 and Tier 3 requirements set forth by the amendment to the air pollution annex – Annex VI – ships must gradually reduce nitrogen oxide (NOx) and sulfur oxide (SOx) emissions. The goal is for these ships to achieve an 80 percent reduction of NOx and .05 percent SOx emissions by 2020. The United States Coast Guard (USCG), and Environmental Protection Agency adopted the standards of MARPOL Annex VI in 2011.

The adoption of this regulation by the U.S. demonstrates the need for the maritime industry to develop new, cleaner ways of transporting fuel and goods. One way some companies are meeting these requirements is by building or retrofitting LNG-fueled vessels to realize efficiencies.

Due to the rapid expansion and growth of this market, it is imperative for the industry to ensure that fire protection safety and training for LNG-powered vessels is taking place. Navigating the breadth of studies, standards and organizations governing LNG safety offerings and requirements can be tricky, but with a basic understanding of marine fire protection and safety, ship owners and builders can maintain a safe and compliant environment for people and cargo.

History of Marine Fire Protection

The first fire protection requirements for international shipping were included in the International Convention for the Safety of Life at Sea (SOLAS) treaty in 1914, which was enacted in response to the sinking of the Titanic in 1912. Not long after the treaty went into effect, the efforts to implement the agreed upon standards were hampered by World War I; however, the basic guidelines were adopted into the second version, which rolled out in 1929.

Tyco – Marine became a partner in upholding and maintaining fire protection standards for marine vessels in 1933. Since that time, the company has continued to implement those fire protection regulations, and the various iterations that have evolved over the past eight decades.

Fire protection and safety guidelines for marine vessels has come a long way since 1933, and with the current movement to LNG power, those guidelines will continue to change and progress as the technology is further tested and developed.

The LNG Difference

LNG-powered ships offer a number of advantages over hydrocarbon-fueled ships but the safety concerns they pose are unique and, currently, largely unregulated. U.S.-based vessels follow the fire safety direction of the USCG, which has adopted the International Maritime Organization (IMO) Resolution MSC 285(86) – a set of interim guidelines for ship design and arrangement. This Resolution offers basic guidelines for fire safety and detection, but owners can benefit from working with a marine fire protection specialist to help design a fire suppression system exclusive to a particular ship.

Advantages of LNG-fueled ships include:

- LNG is more economical.
- LNG burns cleaner, reducing harmful emissions substantially.
- Self-ignition temperature is high: 595˚C, compared to diesel: ~210˚C.

The challenges that exist with LNG-powered vessels include:

- Limited LNG infrastructure.
- High cost to retrofit or build.
- The temperature required to maintain LNG in a liquid state (-163˚C) can make ship steel brittle over time.

There is also the unknown element. As the industry reacts to this growing trend and settles into this new normal, there are many variables that cannot be predicted, such as the fluctuating cost of fuel, or ever changing build designs and standards.

LNG: Fire Protection Game Changer

While LNG has historically been safer to manage than hydrocarbon fuels, it is important to recognize that the rapid growth of the industry requires a shared commitment to maintain that track record with proper fire safety planning and training.

The layout of an LNG-powered ship can vary considerably and identifying the right fire suppression system depends on whether a ship is a new build or a retrofit job. The engine, machinery and mechanisms involved in powering an LNG ship use more valuable floor space than hydrocarbon-fueled ships. With square footage at a premium, it is critical that deck and floor space be used well.

Working with a distributor early in the build or retrofit process to help customize a fire suppression system that is best for your individual ship will save time and money, while maximizing space allocation.

Vessels fueled by LNG require engineered fire protection systems that are flexible and customizable to fit the differentiated spaces inherent to these ships, including the engine room, machinery spaces and bunkering system areas. Each area requires a fire suppression system that dispenses the correct agent for the potential hazards of each. Typically, the fire protection systems required in these scenarios cover more vessel floor space because LNG holding tanks have a much larger footprint than holding tanks of traditional fuels.

When choosing fire suppression solutions for engine rooms and machinery spaces, it is important to consider clean agents that provide total flooding capabilities, while still offering total suppression for valuable equipment. The following agents are waterless gases with limited ozone depletion potential. Each requires very little cleanup post-discharge, providing minimum downtime for operators.

- **High pressure carbon dioxide** – This agent displaces combustion supporting oxygen by flooding the protected area. Stored in individual cylinders, the system can be discharged automatically or manually.
- **FM-200** – Recommended as a Halon alternative, this agent is safe for areas where people may be present and works by removing heat from fire hazards.
- **Novec 1230** – Offering similar advantages as FM-200, Novec 1230 has the added benefits of a high life safety factor, zero ozone depletion and an atmospheric lifetime of five days.
- **Inert Gases** – Made of naturally occurring gases, this non-synthetic agent is safe for people and does not produce a fog, ensuring escape routes to remain visible.

Bunkering stations require the benefits of dry chemical powder agents to suppress fire incidents. The following two agents should never be used together, as it will result in efficiencies of the chemical compounds.

- ABC multipurpose agent – Comprised of a mix of monoammonium phosphate and ammonium sulfate, this agent interferes with the chain reaction of Class A, B and C fires.
- Purple K (PKP) – Developed to suppress Class B fires from two fronts, PKP smothers fires in addition to breaking the chemical reaction of the source.

Implementing change

The increasing demand for LNG as a fuel source for ships brings with it countless regulations that ship owners and operators must stay ahead of. It is vital that shipbuilders, owners and converters understand the governing organizations and standards that apply to fire safety systems for LNG-powered ships in order to stay compliant and protect their investments.

Much of what has been learned and adopted in regards to these standards and regulations has come from Norway, which has been utilizing LNG-fueled ships since 2001. Based on their experience, the country helped develop Resolution MSC 285(86). But as the market for these vessels grows, so does the need for national and international agencies worldwide to weigh in on appropriate guidelines, enabling fleet development and inspections to meet all safety and environmental requirements.

Currently, the IMO subcommittee on Bulk and Liquid Gases (BLG) is working on an International Code of Safety for Gas Fueled Ships (IGF Code). This policy will help fill gaps in the current interim guidelines and define outstanding questions in regards to procedures and process definitions.

Safety for theLong Haul

While there is still some ambiguity on regulations for LNG-fueled ships, the market continues moving forward with new builds and retrofits. As these fleets continue to grow globally, ship owners must be proactive in ensuring fire suppression systems address their specific needs. Identifying and investing in the right system with the right agents in a customized way, will ensure a more complete level of protection in this rapidly changing industry.

Steve Pelletier, business development manager, Tyco Marine Services, is a former member of the United States Coast Guard, Steve holds associate degrees in science and electronics engineering. He has worked in the ifre protection industry since 1996.

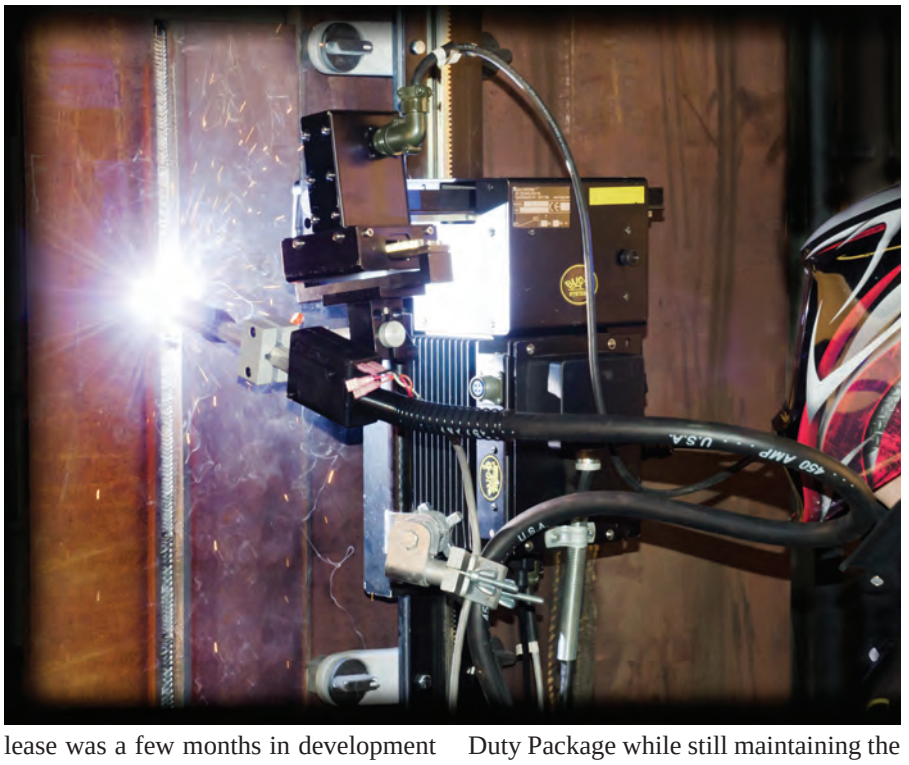
A Shipyard First

Bug-O System's Heavy-Duty MDS and Hardcoat Anodized Rail

With popular television shows such as "Modern Marvels" and "How It's Made" showcasing larger structures and assemblies being designed, built and often welded, it's important that manufactures and builders be equipped to handle such construction landmarks. In the last twenty-five years, huge construction projects have gone underway and some have since been completed with more and new projects to start every day. Such projects as the Oakland-San Francisco Bay Bridge, Burj Khalifa in Dubai and Virginia Class Submarines were and are some projects driving the welding industry.

In all the cases stated above, the end result of these projects were often times setting a worlds record, such as a reliable route of travel or one of the world's foremost wartime vessels. It's important that the equipment joining segments together be able to handle all aspects of the construction and environment. Typically larger structures require more durable equipment that must be relied upon 24/7 to hit deadlines. Without these advancing pieces of equipment and technology to match the advancing world and what it has to produce, nothing would get accomplished without running over budget and missing project delivery deadlines.

Recently, in an effort to keep pace with the growing demands of technology and the industry, BUG-O Systems has developed and released the new Heavy-Duty Modular Drive System for those who demand greater Mechanized Welding and need more carrying capacity and longer lasting rail sections for more harsh environments. In 2012, V.P. of Operations, Mark Binder and his Engineering R&D Staff released the H.D. MDS along with an industry first rail section which features a black hardcoat anodized surface and electroplated gear rack. At the request of many customers, this recent release was a few months in development as it was critical to offer the new Heavy Duty Package while still maintaining the modular design of the machine as well



as the current size and user friendliness. Presently in use at Electric Boat, for use on welding hulls of the Virginia Class Submarines, the system has been in Field Beta Testing since the end of 2012, reflecting usage results that have surpassed that of originally calculated data in R&D labs. Spring 2013 was the first available release date for sale in the United States as well as all markets around the world.

New improvements in the machine including a larger, heavy duty drive motor as well as a H. D. fail-safe brake are behind the success of the new Master Drive unit. With these new additions, the drive has more than doubled its pulling power as well as doubled its braking power when turned off or in fail-safe mode due to loss of power. Traditionally, a Modular Drive comes rated with a vertical load capacity of 60 lbs. including the weight of the machine and carriage. With recent developments, the available vertical load capacity of an H.D. MDS has been tested and rated at 125 lbs. including tractor and carriage weight. With increasing the available vertical payload by 108%, engineering also increased the braking power by 100%, thus allowing the end-user or welder to carry more along with their tractor and essentially create an all-in-one welding unit that carries a wire feeder and wire spool.

The new H.D. Hard Coat Anodized Rail Concept was something to also consider along with the more robust unit as well. Since we'd be carrying more weight on the carriage, which rides directly on the rail, it would cause the standard Aluminum Rigid Rail to wear out at a faster than normal rate, causing the end user to potentially have to purchase higher than normal amounts of rail. Additionally harsh environments such as ship yards would realize even fast wear rates. Since the Rigid Rail is essentially the backbone of a welding operation with an MDS, every precaution had to be taken to ensure the rail would endure the constant use of two to three shifts a day while also operating at the heavier load. By hard coating the surface of the rail, an anodizing layer was added .001 below the surface into the material, as well as .001 over the aluminum, thus taking the material hardness from approximately 30 RC and increasing it to approximately 62 RC, or making it twice as wear resistant as before being introduced into the electro-chemical process. In addition to the hardcoat rail, adding an electro-plated zinc gear rack increases the longevity of the steel gear teeth which is in constant contact of the 4340 Chrome Molly pinion. In adding the additional coatings to the rail, aluminum hardcoating and electro-plated racking, the workable or useable life of a piece of rail can now be extended to two and a half times its normal expected life span before having to be replaced with another section. All this, coupled with the fact that Bug-O Systems offers the ONLY 3-year warranty in the industry, truly offers the customer piece of mind and greater overall reliability.

Generally, in the shipbuilding industry, it can be said that ships are in fact not getting smaller anytime soon and often require a great deal more attention when it comes to design and construction. Recently, in efforts to reduce the cost of a vessel they are being constructed of thinner material, which involves higher levels of engineering to address the once unimportant issues as relieving stresses, buckling and distortion caused by large amounts of heat input from welding. Using new machines, such as the H.D. MDS allows a user to control his heat input and almost eliminate distortion due to over-welding, not to mention reduce costs as the necessary sized welds can be met and repeated time after time. Having the ability to also carry higher payloads with your tractor, while extending its workable life, only compounds on the dollars and cents saved over the entire build time of a Virginia Class Submarine for one of many successful examples.

Brad Mutschler – Mechanical Engineer and Product / Industry Manager-Shipyards. BUG-O Systems, Canonsburg, PA
Email: bmutschler@weld.com


Bollinger


Bordelon


Sutton


Clarke


Alias


Sallador

Bollinger Names New President, COO

Bollinger Shipyards' Chairman and CEO Donald "Boysie" Bollinger announced the appointments of Chris Bollinger as President and Ben Bordelon as Chief Operating Officer of Bollinger Shipyards, effective August 29, 2013. Chris has been employed at Bollinger since 1993 and has held numerous managerial and leadership positions, including most recently serving as the company's Executive Vice President of New Construction. He will continue to serve on the company's Board of Directors.

Ben has been employed with Bollinger since 1999, and has most recently served as the company's Executive Vice President of the Repair operations. In his new role, Ben will be responsible for all of the company's Repair and New Construction operations. Ben will also continue to serve on the company's Board.

Sutton Sworn in as Saint Lawrence Seaway Administrator

U.S. Transportation Secretary Anthony Foxx administered the oath of office to former U.S. Congresswoman Betty Sutton who becomes the tenth Administrator of the U.S. Department of Transportation's Saint Lawrence Seaway Development Corporation (SLSDC).

Administrator Sutton represented Ohio's 13th Congressional District in the U.S. House of Representatives from 2007–2012 and was a member of the Energy and Commerce Committee and was co-chair of the Congressional Jobs Task Force. SLSDC Deputy Administrator Craig Middlebrook has served as Acting Administrator since May 2012. The Great Lakes Seaway System annually sustains 227,000 U.S. and Canadian jobs, $35 billion in transportation-related business revenue, $14 billion in personal income, and $5 billion in federal, state, provincial and local taxes each year.

Concordia Maritime Change of Management

Concordia Maritime´s president Hans Norén will leave the company at the end of the year. Norén said, "After 10 years as president and 18 years in total with the company, the board and I have agreed that year end 2013 will be a good time for a change on this position."

Imtech Marine USA Appoints Clarke

Capt. Eric Clarke has been appointed as Managing Director of lmtech Marine USA headquartered in Houston. Capt. Clarke pursued a career at sea and sailed both as Captain and Chief Engineer. After about 10 years at sea, Eric started a long career ashore. Prior to joining Imtech, Eric held the position of Vice President Americas at RightShip (a specialized company offering the commercial shipping industry a Ship Vetting Information System), building the company to be a world leader in its field, performing over 34,000 vets and over 3,000 ship inspections. Capt. Clarke also headed the Seafarer's Documentation and Certification Dept. of the Liberian flag and was an adviser at the International Maritime organization, IMO. He has consulted for the U.S. Coast Guard and the U.S. Navy on various projects and holds both a Captain and Chief Engineer's unlimited license. He has undertaken an MIT/Sloan executive education program and studied Maritime Law at Southampton University.

Dan-Bunkering Adds Staff in Dubai

The newly opened Dubai office of worldwide bunker trading company, A/S Dan-Bunkering Ltd., has been open for a few months and the company recently hired two. Rijo Alias has been employed as Finance Manager as per July 2, 2013, and Azeneth B. Sallador has been employed as Accountant/Sales Supporter as per July 9, 2013.

Art Anderson Strengthens Team

Anderson Associates hired two new team members: Stephen E. Gatz and Marc A. Derenburger. Gatz, PE is a naval architect working in the firm's marine group, while Marc A. Derenburger has joined the facilities group as an entry-level mechanical engineer.

Stephen Gatz brings a background in naval architecture and marine engineering design, marine research and development and marine operations. He will primarily be engaged in the development of what is intended to be the first hybrid ferry on Puget Sound, for Kitsap Transit. Derenburger, a recent summa cum laude graduate of Washington State University's mechanical engineering program at Olympic College is also joining the firm. He will work closely in a mentor-protégé relationship with the Chief Design Engineer of the firm's Facilities Group, Sean Hoynes.


Gatz


Derenburger


Glover


Bryson


Søholm


Tay

Mark Guthrie Joins KVH as VP

Mark Guthrie joined KVH Industries, Inc. as Vice President, Global Mobile Broadband Sales to manage the continuing development of the mini-VSAT Broadband network and related products and services.

Guthrie started his telecom career at telecommunications and satellite communications company British Telecom (BT) in the U.K. before joining Europe Star where he was responsible for European sales and marketing strategies, led the VSAT managed services group for the EMEA region at Verestar and served in a variety of roles managing VSAT services, sales and operations for various markets.

Willard Marine Hires New East Coast Director

David "Smokey" Glover will join Willard Marine's east coast Virginia Beach facility as Director of Operations. Glover's expertise ranges from conceiving and prototyping new designs and arrangements of craft components and configurations to providing Technical Point of Contact (TPOC) service to contractors performing repair or modifications to U.S. Navy Craft.

Willard Appoints Bryson Director of Engineering

Richard Bryson brings to Willard Marine over 20 years' maritime experience from positions at Derecktor Shipyards, Christensen Shipyards and Heisley Marine Corp. Bryson also served as Director of Engineering at Brunswick Corporation, overseeing approximately 50 engineers and launching eight new products annually over a five-year period. Bryson also spent time with Clipper Windpower where he served as Program Manager.

New Bunker Trader with Dan-Bunkering

Global bunker trading company A/S Dan-Bunkering Ltd. added Mikkel Søholm Vestergaard as Bunker Trader as per August 5, 2013. Mikkel returns to Dan-Bunnkering after starting his career with the company as a trader in 2006.

Faststream Recruitment Announces Director Promotion

Recruitment company Faststream has announced the appointment of a new director. Jason Tay has been promoted to director level in the group's Singapore base in recognition of his progression and contribution to the business, the company said. Joining the company in 2008 as a recruitment consultant, Tay has led Faststream's marine and oil and gas teams and has penetrated business into new regions including Korea, Malaysia, China, Indonesia and Hong Kong. Tay studied at the Singapore Institute of Management University, graduating with a BA Hons degree in Mass Communications, before holding a position with the Singapore Navy.

Ardmore Contracted for Chemical Tanker Newbuilds

Ardmore Shipping Corporation ordered four 25,000 Dwt IMO 2 eco-design product and chemical tankers from Fukuoka Shipbuilding Co. Ltd., Japan (Fukuoka) for a total price of approximately $118 million. Ardmore has also negotiated fixed price options for additional vessels. Ardmore expects to take delivery of the contracted vessels between fourth quarter 2014 and fourth quarter 2015.

Including these four newbuildings, Ardmore has exercised options or signed newbuilding contracts for a total of eight vessels since pricing its IPO on July 31, 2013, increasing the Company's fleet to 20 vessels consisting of eight vessels in operation and 12 newbuildings on order.

W&O Supply Merges European Facilities

Wholly owned subsidiary of W&O Supply, W&O Europe, said it plans to combine its Antwerp and Rotterdam facilities into one central location in Bergen op Zoom. The new facility will be led by Kristof Adam, Managing Director of W&O Europe.

Riedel Joins Global Diving & Salvage

Global Diving & Salvage, Inc. announces the hiring of Jim Riedel, joining the Pacific Northwest Environmental Division. Based out of the Seattle corporate office, Mr. Riedel will assist in the management of existing preventative booming operations as well as the pursuit of additional opportunities in the Puget Sound and surrounding areas.


Riedel


Harrap


Legal


Ludwig

Jim Riedel brings with him over 17 years in the Environmental Services industry at National Response Corporation (NRC). From 1995-2003, he was the General Manager of the West Coast Region where he was responsible for the regulatory interface and the establishment and maintenance of a subcontractor network that extended throughout the West Coast. In 2003, with the addition of Foss Environmental to NRC, Mr. Riedel became the PNW Region General Manager charged with business development and client maintenance and responsible for more of the day-to-day operations of preventative booming operations.

Harrap Joins Ashtead Technology

Ashtead Technology appointment Neil Harrap as Non-Destructive Testing (NDT) Market Manager. Neil is an experienced NDT specialist having spent 31 years in aerospace engineering with the Ministry of Defense, much of which was spent with the RAF. During this time, Neil's roles included NDT Equipment Subject Matter Specialist, NDT Field Team Manager, Military Tri-Service NDT School Instructor and Aerospace Engineering Technician. More recently, he has been a lecturer at TWI and provided technical support for one of the world's leading manufacturers of advanced NDT instruments.

TOTE's Carlile Names New VP

Carlile Transportation Systems, Inc., a TOTE Logistics company, has named Henri Legal Vice President, LTL & Facilities. Henri will be responsible for setting the strategy and business plan for Carlile's LTL and Facility locations. He joins Carlile most recently from Western Canada Express, Inc. where he was the Vice President, Western Canada Operations and Vice President, Portside Warehousing and Distribution.

Coast Guard Foundation Hires Northeast Director

The Coast Guard Foundation added Susan Ludwig to its staff as Regional Director of Philanthropy. Based in Fairfield County, Ludwig will work in the northeastern U.S., concentrating on New York, Connecticut and New Jersey to engage individual, corporation and foundation donors and prospects to broaden the reach of the Foundation in the region.

Ms. Ludwig Joins the Coast Guard Foundation after six years in development positions for the Norwalk Hospital Foundation. Prior to her philanthropy work, she held sales positions at IBM and Apple.

NSRP Contracts Energy Focus to Develop Navy LED Lighting

Energy Focus is under contract to develop the All Platform Affordable LED (APALED) Lighting project for the National Shipbuilding Research Program (NSRP) targeted specifically at new Navy ships, representing a sales opportunity worth more than $50m addition to the retrofit opportunities for existing ships, over the next 10 years. The program aims to develop, build and test an APALED lighting system, with the goal of creating a "New Best" solution for replacement of the Navy's 1, 2 and 3 bulb fluorescent fixtures. The fixtures, using Energy Focus M1 IntelliTube LED lamps are expected to be used for general lighting in the 142 new vessels the Navy plans to build over the next 10 years.

Navios Group Forms Navios Europe

The Navios Group, composed of Navios Maritime Holdings Inc. (NM), Navios Maritime Acquisition Corp.(NNA) and Navios Maritime Partners L.P. (NMM), announced the formation of Navios Europe Inc. as the next step in concluding the letter of intent signed with HSH Nordbank AG in April of 2013. Navios Europe, which will initially acquire five product tankers and five container vessels from debtors of HSH, will be owned 47.5% by Navios Holdings, 47.5% by Navios Acquisition and 5% by Navios Partners. It is anticipated that funding requirements will be satisfied in the same percentages.

Calnetix Drive Passes Navy Tests

Calnetix Technologies, a manufacturer of high-speed permanent magnet motor generators, power electronics and magnetic bearings, passed the first shock and vibration test requirements for its motor and magnetic bearing technology, an integral part of new generation shipboard chillers for the U.S. Navy. Shock and vibration testing of the variable speed,

Fourth Damen Stan Patrol for Mexican Navy

The Mexican Navy and Damen Shipyards Group signed a contract for a fourth Damen Stan Patrol 4207. The Dutch ship design and shipbuilding company will supply the Mexican Navy with the design and material package with which ASTIMAR 1 (the Mexican Navy yard in Tampico) will build the patrol vessel. In addition, Damen will assist ASTIMAR 1 with technical support in order to optimize the delivery time and quality of the vessel. This Mexican patrol vessel is the fourth of this class to be built in Mexico. The Damen Stan Patrol 4207 is designed to perform patrol duties in coastal areas and the economic exclusive zone. Other clients who operate similar vessels in the region include navies and coast guards of Jamaica, Barbados, the Dutch Caribbean, Honduras, the Canadian Coast Guard and the U.S. Coast Guard. The USCG recently received five Fast Response Cutters for the Sentinel Class, out of a series of 58, which are based on the same Damen Stan Patrol design.

Two previous patrol vessels, ARM Tenochtitlan (PC-331) and ARM Teotihuacan (PC-332) are already deployed by the Mexican Navy.

www.damen.com

two-stage, direct drive compressor was completed as part of the chiller prototype development program led by YORK Navy Systems, a Johnson Controls Company.

Odfjell Seeks Purchase of Chem-Marine

Odfjell Terminals has entered into a Letter of Intent to purchase Chem-Marine Corporation of South Carolina. Chem-Marine controls a 25.3 acre/10.2 hectare site on the Cooper River through a long term land lease, and is located adjacent to Odfjell's tank terminal in North Charleston, South Carolina.

Delta Rigging & Tools Acquires Holloway Wire Rope

Delta Rigging & Tools acquired Holloway Wire Rope, supplier of wire rope, below-the-hook lifting devices and rigging supplies headquartered in Tulsa, Oklahoma, with a second location in Wichita, Kansas.

The acquisition of Holloway Wire Rope expands Delta Rigging & Tools footprint into the Oklahoma oil and gas fields, along with broadening its reach into the Midwest markets.

Dometic Expands Network to GOM

Dometic Marine supplied its modular chillers for Signet Maritime Tugboats, built at the Trinity Yachts shipyard in Gulfport, Mississippi and established a new base in the Gulf of Mexico as part of its strategy to target further business in the commercial sector.

Liberia Offers MLC Complaints Resolution Form

The Liberian Registry launched an online Maritime Labor Complaint Resolution Form for seafarers, ahead of the entry into force of the Maritime Labor Convention 2006 on August 20, 2013. Seafarers can utilize the online form to lodge a general complaint affecting specific working or living conditions on board the ship, or a complaint relating to a single seafarer. The Liberian Administration will take all necessary steps to investigate complaints and ensure that appropriate measures are taken to rectify any deficiencies. All information provided to the Administration will be treated as strictly confidential. The Liberian Registry's Maritime Labor Complaint Resolution Form can be accessed from the homepage of its website,

Naviera Contracts Damen for Two Fast Crew Suppliers

Juan Pablo Vega, president of Mexican offshore operator Naviera Integral,

signed a contract for two Damen Fast Crew Suppliersvto serve Naviera Integral's client PEMEX, delivering personnel and cargo from and to platforms in the Gulf of Mexico. Both vessels will be operating out of Ciudad del Carmen.

The 50-meter crew boats, designed with the Damen patented Sea Axe bow, are currently under construction at Damen yards in Vietnam. Delivery for the first vessel is expected late November 2013, whereas the second vessel will be handed over to Naviera Integral mid-January 2014. The crew suppliers are the ninth and tenth of this type Damen has delivered to Naviera Integral.

Odfjell SE Reports Progress in Chemical Tanker Market

Odfjell released its second quarter 2013 results and reported a EBITDA of $6 million in the second quarter is reflecting a better utilization of our chemical tanker fleet and a somewhat better market. The company said time charter results are up 8% compared with last quarter.

Odfjell said the second quarter of 2013 turned out better than expected due to better fleet utilization and a somewhat better chemical tanker market. We experienced steady nomination of contract cargos and improved spot rates. Earnings on a time-charter basis ended up 8% compared to the previous quarter, and the average freight rate per metric ton shipped increased by 2%. In second quarter our 51% shareholding in tank terminals business contributed an EBITDA of $7 million, compared to $9 million in the previous quarter.

In June Odfjell concluded the transaction with Lindsay Goldberg to expand its existing partnership to include substantially all tank terminal assets. Several new tank terminal projects are being developed in China, U.S. and Europe. In June, the company signed an agreement to enter into a joint venture with the Founder Group to become 50/50 partners for the development of a petrochemical tank terminal in Quanzhou, Fujian Province, China; and in August it signed a Letter of Intent to purchase Chem-Marine Corporation in South Carolina, U.S. Chem-Marine controls a 10.2 hectare site and is located adjacent to our tank terminal currently under construction in Charleston, South Carolina.

Maritime Safety Awards Announced

Left to Right: Mike Lapeyrouse (AEU), Otto Candies, Jr. (Candies Shipbuilding), Perry Triche (US United Bulk Terminals), Coach Gene Stallings, Bill Hardy (Beacon Maritime), John Bullock (Willis of AL representing Signal International), Jimmy Burgin (AEU)

On July 29, 2013, The American Equity Underwriters, Inc. (AEU) presented the 2012 Safety Awards at the annual American Longshore Mutual Association (ALMA) Conference in Punta Cana, Dominican Republic. The awards are given each year to the best performing ALMA members nationwide and are based on the number of accidents and the severity of accidents for the calendar year.

Marine Cargo Handling: Linea Peninsular, Inc. (Panama City, Fla.); US United Bulk Terminals, LLC (Davant, La.) and DPH Holdco, LLC (Jacksonville, FL and Mobile, Ala.)

Shipyards: Beacon Maritime, Inc. (Orange, Tex.); Candies Shipbuilders, LLC (Houma, La.); Signal International, LLC (Pascagoula, MS and Mobile, Ala.) and Austal USA LLC (Mobile, Ala.)

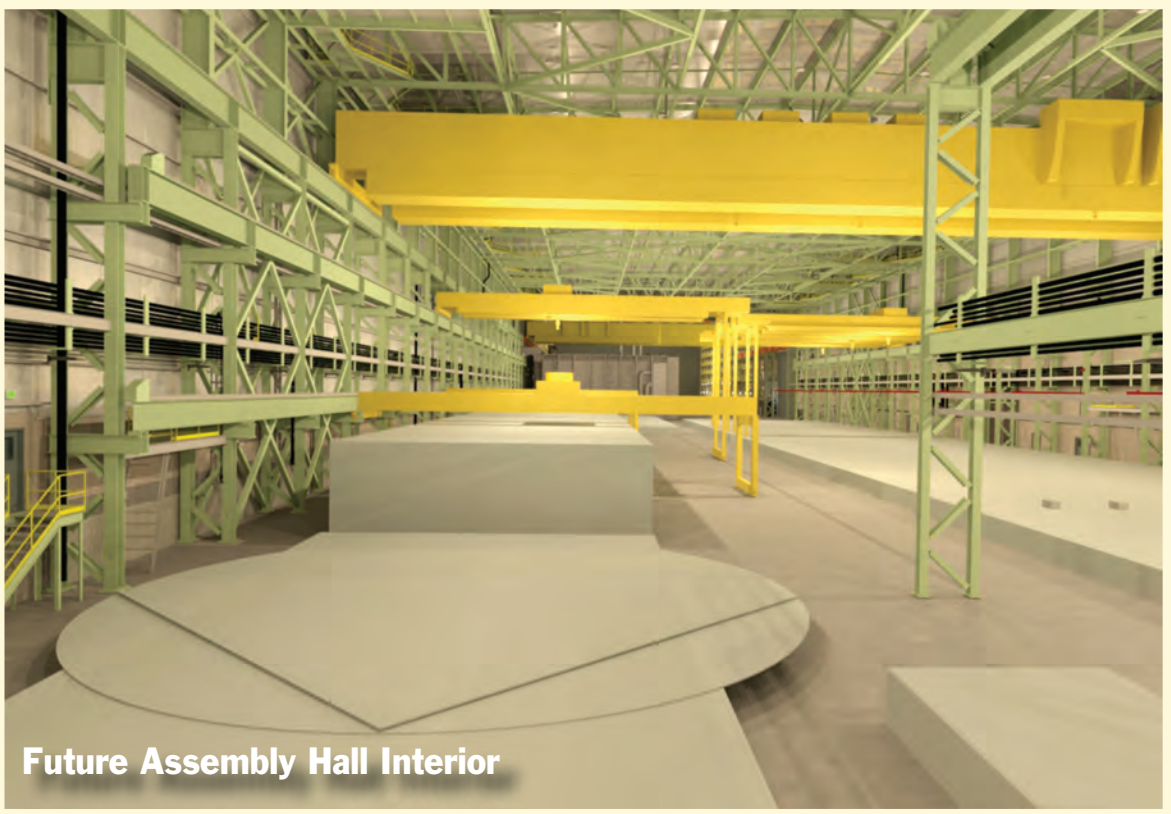
Special Marine Industry Safety Award: W & T Offshore, Inc. (Houston, Tex.)

Irving Pumps $300m into Halifax Shipyard for Naval Builds

Irving Shipbuilding invested $300 million to ready Halifax Shipyard for construction of Canada's combatant fleet modernization at Halifax Shipyard. Irving Shipbuilding announced several contract awards today for Nova Scotia and Canadian suppliers as part of part of the Halifax Shipyard Modernization Program, a two-year engineering and construction investment to prepare the company's facilities to build Canada's future combatant ships. Site preparation and preliminary construction is well underway, with major demolition and construction to begin soon. To date a total value of $127.7 million in contracts have been awarded.

"Irving Shipbuilding will invest approximately $300 million in the Halifax Shipyard Modernization Program, which is designed to ensure our facilities are ready to undertake production of the AOPS vessels scheduled to start in 2015, as well as the larger combatant ship contract currently scheduled to begin production between 2020 and 2022." said Jim Irving, Co-CEO, J.D. Irving, Ltd.

www.irvingshipbuilding.com



Future Assembly Hall Interior

Hyundai Heavy Wins $1.4B Order

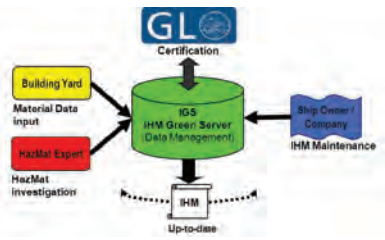
Hyundai Heavy Industries (HHI), the world's biggest shipbuilder, won a $1.4 B order to build five 18,000 TEU class and five 14,000 TEU class containerships from the United Arab Shipping Company (UASC) on August 29. The 18,000 TEU class boxships and 14,000 TEU class boxships are scheduled to be delivered from late 2014 and the first half of 2015 respectively. The contract also includes options exercisable by UASC to order an additional 18,000 TEU class containership and six additional 14,000 TEU class boxships. The ships Hyundai Heavy will deliver to UASC will use an electronically-controlled main engine to maximize fuel efficiency, and reduce noise, vibrations, and carbon emissions by automatically controlling fuel consumption to suit sailing speed and sea conditions.

Signing Ceremony (Dr. Abdul Aziz Al-Ohaly, UASC Board Director (third from left) and Mr. Kim Oi-hyun, President and COO of Hyundai Heavy Industries (third from right))

GL Software Smoothes Ship Recycling Compliance

The IHM Green Server (IGS) Interaction Model, a new software solution developed by Germanischer Lloyd (GL), shows how project users can perform tasks and interact throughout the lifecycle of a ship and streamlines compliance with the newly adopted European Union (EU) regulation on ship recycling. Web-based IGS aids in preparation and the maintenance of a vessel's Inventory of Hazardous Materials (IHM) and supports with IHM-related aspects of both the EU regulation and the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships.

www.gl-group.com/en



Challenger Marine Condensing Unit

Engineered and manufactured by LeBlanc & Associates, Inc. from the ground up, Challenger marine condensing units are designed to withstand the harshest conditions at sea while keeping work environments comfortable. Challenger units are built to prevent unit corrosion from salt water spray and sea air unlike conventional units. The "Challenger Difference" includes: complete 16 gauge 304 grade stainless steel construction, dipped coil coating to prevent fin and tube corrosion, watertight electrical enclosure, compact footprint for easy installation and service, raised horizontal base and units can be custom built for any application including replacement of older units.

www.leblancandassociates.com

Heinen & Hopman Complete HVAC project

Heinen & Hopman (H&H) installed a HVAC system for the Dolwin Alpha offshore converter platform. Designed by IV-Oil and Gas, commissioned by Tennet/ABB and built by Heerema Fabrication group, the 9,300-ton platform will convert energy generated by offshore wind turbines in the German North Sea into high-voltage direct current. H&H was hired as the HVAC subcontractor for the project in July 2011 for the design and engineering of its heating, ventilation, air conditioning and chilled water systems, as well as the supply of all pumps, appendages, control equipment and piping on the offshore converter platform. H&H is also responsible for maintenance and failure handling of the platform for the first five years of operation.

www.heinenhopman.com/en

New Range of LED Lights from Britmar

Britmar Marine in North Vancouver, Canada developed a new range of LED light fixtures for the commercial marine industry. Its key component is an extremely efficient 130lm/W LED board that does not require any additional thermal management for operation in tightly enclosed enclosures. A few models of luminaries featuring these boards can be connected directly to 12 or 24V DC, universal AC input via driver or to any combination of these three. Three-hour battery backup option is currently in development, along with a retrofit option.

www.britmar.com

STAUFF Mini Water Vac Oil Purifier

The STAUFF Mini Water Vac purifies hydraulic system oil, eliminating water, gas and particulate matter in attempts to reduce consumption and disposal. The system dehydrates and cleans most types of oils such as lubricating, hydraulic, transformer and switch oils without removing or altering oil additives. The water removal process is based on pure vacuum evaporation inside a vacuum chamber at a maximum temperature of +65 °C / +149 °F. Solid particle removal is achieved through a field-proven STAUFF Systems Micro Filter. Oil temperature can be set using the integrated heater thermostat. The dehydration and filtering process is automatically controlled via the PLC.

www.staufusa.com

ACD Nets Two LNG Pump Orders

DSME commissioned ACD to engineer and supply two high pressure LNG fuel gas pump systems for new 173,400 cbm ME-GI LNG carriers for Teekay Shipping Ltd., with options to order up to three additional systems. The first LNG system includes two ACD model MSP-SL high pressure pumps with gearbox assemblies and electric 132kW motors, and the second with 150kW inverter duty motors. Both systems include external oil lubrication integrated on a common skid with piping, control valves and monitoring equipment, while the second has a Cryogenic VWP-190-10 water/glycol vaporizer. System delivery is expected February 2014 and February 2015 respectively.

www.acdlngpumps.com

New Propulsion Control System from Kongsberg

The next generation of AutoChief propulsion control systems from Kongsberg Maritime is now available. The sixth AutoChief since the series started in 1967, the new AutoChief 600 (AC 600) is suitable for all two and four stroke engines, for both fixed and controllable pitch propeller and features touch screen operation based on the Kongsberg's Human Machine Interface (HMI).

The touch screen interface for AC 600 improves usability by introducing more logical, intuitive menu navigation. Users have access to all system functions via the touch screen, so information can be displayed quickly when needed. The main variables available include RPM, pitch, start air and scavenging air pressure, engine state etc. Several levels of control are available to distinguish between user groups.

While simplifying the presentation of information to operators the AC 600 touch screen interface also meets the NAUT OS/OSV requirements for handling Command Control when adapted as a multi plant engine and Thruster control system. This means control can be handed to other systems in the network at the touch of a button. The AC 600 supports integration with Kongsberg Maritime's K-Thrust 600, Azimuth control and Rudder Control system making the system suitable for a wide range of vessels including OSVs, PSVs, oil tankers and container vessels.

The main components of AC 600 are its touch screen control panel, engine telegraph unit, engine safety system, digital governor system, maneuvering recorder and distributed processing units. All interfaces are on CAN-bus; instrumentation, levers, displays etc. There is no internal wiring between the units, and all hardware components in the AC 600 system have a built-in-self-test feature (BIST).

www.km.kongsberg.com

ABB to Power Offshore Accommodation Vessels

ABB, a power and automation technology group, has won an order to provide integrated solutions that include the electrical propulsion system, Azipod CZ and automation system onboard two offshore accommodation vessels. The 1+1 accommodation vessels will be built by COSCO (Nantong) Shipyard Co., Ltd for Singapore-registered owner Logitel Offshore, which is a subsidiary of Norwegian company Sevan Marine. The cylinder-shaped vessels will each have a displacement of about 40,000 metric tons and capacity to accommodate 490 persons.

This ABB order provides an integrated solution that combines not only electrical propulsion system and Azipod, but also the automation system. This integrated package will be delivered to the shipyard by October 2014. ABB will provide power distribution systems for the two Logitel vessels, including generators, switchboards and main transformers, as well as propulsion transformers and frequency converters. The order also calls for the installation of six Azipod CZ units, conferring superior vessel energy efficiency and maneuverability. In addition, based on the System 800xA Extended Automation platform, the ABB automation package provided will be based on its System 800xA Extended Automation platform. This is a version of the group's world-renowned industrial automation platform that has been adapted for marine applications; include vessel and power monitoring, emergency shutdown, fire and gas, as well as the automation of Helideck Monitoring Systems and Loading Computers.

www.abb.com

PG-MACS Chosen by Shell and Siem for Newbuild PSV

Siem Offshore and Norske Shell signed a contract for a new dual fuel LNG/Diesel large-size platform supply vessel (PSV), with an option for a sister vessel to be constructed by Remontowa Shipyard /Poland. Expected to begin operations in Q1/'15 to support offshore activities in the North Sea, the vessel features under deck tank configuration with systems for handling of drill cuttings, liquid and dry bulk. Consequently the vessel will have six PG-MACS tanks, providing approximately 400m3 capacity. Also included are conventional cargo systems, tank cleaning solutions, engine room and utility pumps and ballast water treatment systems.

www.pg-marinegroup.com

Syncro Marine Panel NKK Approved

The marine variant of Kentec's Syncro AS (Syncro ASM) single- or two-loop, networkable analogue addressable fire control panel received type approval from Nippon Kaiji Kyokai (NKK). This type approval for the Syncro ASM fire panel is additional to type approvals from Det Norske Veritas, Germanischer Lloyd, Lloyds Register, Korean register, China Classification society and American Bureau of Shipping. Kentec's Syncro ASM fire control panels are compatible with Hochiki and Apollo protocols and provide compact, networkable fire alarm control panel solution for small to medium sized vessels.

www.kentec.co.uk

Omega Introduces Temperature/ Process Meters

Omega's new Dpi-AL series is a configure meter with alarms that features universal inputs, two relay alarm outputs, programmable color displays and digital filter, built-in excitation, AC or DC powered units, and front removable plug connectors. Suited for use in food, automotive, plastics, manufacturing and chemical industries, Dpi-AL can be used to monitor the temperature of a clean room, and with the programmable alarm setpoints, the meter can provide a visual display color change and alarm relay outputs if alarm condition exists.

www.omega.com

Baron Releases New Weather Software

Baron Services, Inc. released the Velocity Weather API for use by marine industry manufacturers and software developers who want to integrate a weather stream into their final product, including smart phone and tablet apps, websites, MFDs and chart plotters. Velocity Weather API, which delivers location-based and meteorological via the Internet, is powered by customizable, high-resolution, auto-updating content and has been designed for quick integration into most applications and platforms by using common data formats including JSON and TMS. Data packages are customizable to include wave direction and period, surface winds, high resolution sea surface temperature, hurricane tracks and more.

www.velocityweather.com

Bestobell Valves Used on High-speed LNG Ferry

Bestobell Valves supplied valves to what has become the fastest LNG (liquefied natural gas) fuelled ferry ever built. The cryogenic valve manufacturer produced 70 globe, check and thermal relief valves, which were supplied to Czech Republic's Chart Ferox, which manufactured the fuel system for the ferry. The lightweight catamaran vessel supplied, known as Francisco, has reached a record-breaking speed for a ferry of 66 miles per hour, making it the fastest ship with the ability to carry 1,000 passengers and 150 cars.

www.bestobellvalves.com

Volvo Penta D13/16 Marine Diesel Engines

Volvo Penta brings heavy-duty power with state-of-the-art Tier 3, in-line six-cylinder diesels with electronically controlled unit injectors, twin-entry turbo and intercooler. The engines produce high torque at low RPM and low emissions levels – important qualities in a workboat. The D16 is a rugged workhorse for larger vessels, with power ratings ranging from 501 to 751 hp. The D13 engines, with power ratings of 400 to 700 hp are available as a propulsion system (D13 MH) or as a marine genset (D13 MG). The D13 can run Volvo Penta IPS steerable pods, straight-shaft drives or water jets.

www.volvopenta.com

Clean Hybrid Technology Gets EPA Verification

Clean hybrid technology, already proving its value today, has received verification from the U.S. Environmental Protection Agency (EPA). The EPA verified the XeroPoint Hybrid Tug Retrofit System (XeroPoint) pioneered by Foss Maritime and Aspin Kemp and Associates (AKA). The rigorous EPA verification process ensures the XeroPoint hybrid system is an effective choice on any U.S. harbor tug seeking to meet the nation's highest environmental standards. The ports of Long Beach and Los Angeles and the California Air Resources Board also have partnered with Foss and AKA on the XeroPoint hybrid retrofit system.

www.foss.com

Scania's Marine Engines Ready for EPA Tier 3

Scania has retained all performance benefits found in the Tier 2 Scania engine, and improved them to comply with legislation for Tier 3. The Scania Marine engine range for EPA Tier 3 includes enhanced environmental performance, increased power, and unchanged fuel consumption. The engine range consists of a 13-liter Inline six and a powerful 16 liter V8 for both marine propulsion and marine auxiliary applications. EPA Tier 3 emission standards come into effect on January 1, 2014 for 75 kW to 3000 kW engines, and 1.2 to 2.5 liters of displacement per cylinder.

www.scaniausa.com

John Deere Power Systems

John Deere Power Systems manufactures and markets diesel engines to meet marine customer needs in commercial and recreational applications worldwide. John Deere PowerTech marine engines are built for power, reliable performance, long life, fuel efficiency, quiet operation, ease of maintenance and simplified integration. The John Deere lineup of propulsion engines offers power ratings from 56 kW to 559 kW (75 hp to 750 hp). John Deere also supplies generator-drive and auxiliary engines to the market. Engine models are available in every required emissions level.

www.JohnDeere.com/marine

MAN 32/44CR Units to Power Offshore Construction Ship

MAN Diesel & Turbo has won an order to supply the main gensets for a multi-layer vessel newbuilding, recently commenced by Lloyd Werft Bremerhaven AG. The Ceona Amazon will be equipped with 2 × 9L32/44CR + four × 8L32/44CR main gensets, providing a total output of 28MW. The 32/44CR has gained a strong foothold in the offshore market due to its second-to-none power and SFOC. MAN Diesel & Turbo reports the new order as being the third significant 32/44CR order the company has secured in the offshore market this year alone.

www.mandieselturbo.com

High Speed Ferry Powered by Wärtsilä Waterjets

Wärtsilä has provided waterjets for the world's fastest ferry. In addition to two of its LJX1720SR axial waterjets, Wärtsilä has also supplied an advanced propulsion control system for the Francisco. Wärtsilä's waterjets incorporate a high level of efficiency, with compact dimensions enabled the waterjets to be installed within the ferry's transom, thus saving valuable space. Wärtsilä's Lipstronic 7000 propulsion control system for maneuvering the vessel gives effective, reliable control of all the waterjets and is very easy to use. Designed in accordance with IMO regulations, it fulfills requirements of leading classification societies.

www.wartsila.com

Torqeedo Electric Engines Power Tour Boat

No visit to the Oklahoma City Zoo feels complete without a cruise aboard the popular Safari Voyage, a guided boat tour on tranquil Zoo Lake. Thanks to a recent conversion to Torqeedo Cruise 4.0 engines, the zoo's fleet now delivers dependable, uninterrupted service for the nearly one million guests annually. The zoo cruise relies on two 40' x 12' pollution-free electric boats, each with a 50-passenger capacity. The demands of heavy commercial usage resulted in significant engine overheating and dependability problems. The recently installed Torqeedo Cruise 4.0 models solved the zoo boats' issues.

www.torqeedo.com

Positorq Oil Shear Tension Control Brakes

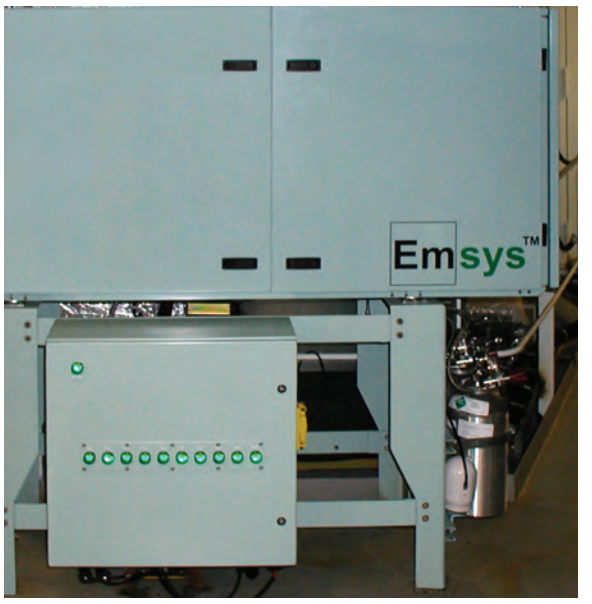
Positorq's line of oil shear tension control brakes from Force Control Industries provides torque control over the entire speed range, even down to 0 rpm. Operational speeds are controlled without chatter, stick slip or torque variation. Torque is controlled by pneumatic or hydraulic actuation pressure and is independent of speed. Sizes range from 53 Lb. Ft. up to 300,000 Lb. Ft., with continuous heat absorption capability up to 3,000 thermal horsepower. Positorq Oil Shear brakes are suitable for tension control applications such as anchor systems, mooring winches and other onboard and in-port applications, as well as drawworks, capstans, conveyors, hoists and more.

Oil Shear technology aims to eliminate maintenance and adjustment, allows smooth operation and lasts up to 10-times longer than standard dry friction brakes, the manufacturer claims. Oil shear technology utilizes a film of transmission fluid between the brake disc and the drive plate. As the fluid is compressed, the fluid molecules in shear transmit torque to the other side. Since most of the work is done through the fluid molecules in shear, wear is virtually eliminated, which eliminates the need for adjustments, common in dry braking systems.

In addition to transmitting torque, a patented fluid recirculation system assures the fluid is continually flowing through the friction area to carry heat to the housing for dissipation, eliminating heat buildup in the friction area. The fluid also serves to continually lubricate all components of the oil shear brake, including bearings and splines.

www.forcecontrol.com

Emsys Chosen for Scrubber Monitoring



Emsys, the laser-based emissions monitoring system from U.S. technology firm WR Systems, Ltd. (WR), have been selected as the compliance monitor system on five differing scrubber types.

There are various scrubber designs currently being installed for owners keen to become both compliant and efficient. Depending on the vessel type and intended application, these include seawater, freshwater, hybrid, dry, open loop and closed loop amongst other novel designs.

WR designed Emsys system using laser sensor technology, meaning exhaust gas is measured in the same form as in the stack and not conditioned, cooled or dried. Lasers allow the system to measure the emissions at low gas temperatures with high humidity present in the exhaust stream.

Although scrubbers only require monitoring of the SO2/CO2 ratio for compliance, the Emsys has capacity to measure multiple gases including NOx, SOx, CO2, CO, CH4 and PM. Applications using a combination of an SCR and scrubber, combined with possible operation of engines using LNG, require a wide range of data necessary to optimize performance and provide compliance.

WR is bound by confidentiality on most of their scrubber projects, but they disclosed that in addition to the installations of Emsys on Royal Caribbean International announced last year, the Emsys system is to be installed on multiple cruise ships and cargo vessels. The company has also reported an influx of recent contracts for Emsys including awards from Far East shipyards for both scrubber and traditional monitoring applications.

www.emsysmarine.com

Build Your Own ATL FueLocker

Aero Tec Laboratories (ATL) is offering their world-renowned custom fuel bladder services to the yachting community. ATL's series of FueLocker fuel bladders provide a vital auxiliary fuel source that allows yachts to reach exotic destinations without the burden of their vessel's limited fuel capacity. ATL realizes that deck space is extremely valuable. In most instances, standard deck mounted rigid tanks are cumbersome and simply consume too much space. When not in use, all ATL bladders are completely collapsible which makes for effortless transport and compact storage.

www.boatbladders.com

Krill Systems Bunkering System Software

The advanced, Krill Bunkering System software (KBS-100) can be ordered as a separate stand-alone system, incorporated into an existing Krill system, or ordered as part of a larger Krill VFMMS system. Krill Bunkering System uses OIML/MID approved mass-measuring meters to minimize inaccuracies found in two and three phase HFO transfers. Flow Rate, Temperature and Density are displayed in real time and a display area shows the total volume of bunkers delivered, ticket number, start and stop times. Back-flow oil is measured as a negative and reflected as bunkers not having been delivered.

www.krillsystems.com

S3 Smart Sulphur Switch

The S3 system is able to always blend and adjust two fuels to desired sulphur content as well as documenting sulphur content, enabling monitoring and control of sulphur emissions. The primary market for the S3 Smart Sulphur Switch is for vessels that occasionally need to enter an ECA. The secondary market is for vessels, for example ferry operators in the Baltic who choose to install scrubbers that cannot handle more than 2% sulphur content due to space considerations. These operators can freely purchase the cheapest available HFO and blend down.

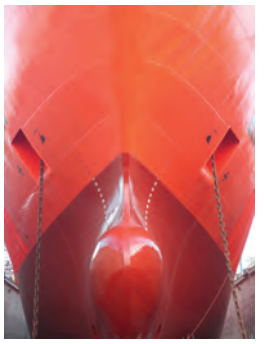
www.insamarine.com

Pettit Launches Hydrocoat Eco

Pettit has launched the latest product in the Hydrocoat line up, Hydrocoat Eco. Incorporating Pettit's self-polishing, water-based, ablative technology with an organic biocide, Hydrocoat Eco combines a slime fighting inhibitor with multi-season protection. Pettit's innovative technology replaces the harsh solvents found in most bottom paints with water. With no copper to cause galvanic corrosion issues, Hydrocoat Eco is the perfect choice for bronze IPS and jet drives, outdrives and outboard motors. Hydrocoat Eco will not lose effectiveness when removed from the water. Hydrocoat Eco is available in five colors.

www.pettitpaint.com

Jotun Introduces Resilient Anti-fouling Coating



Jotun has launched SeaLion Resilient, a high performance marine coating based on epoxy-polysiloxane technology. Jotun's anti-fouling coating includes a compound of resins and hardeners that provides highly resilient hull protection. When combined with Jotun's proven Fouling Release Coatings (FRC) technology, the epoxy-polysiloxane in SeaLion Resilient prevents settling of organisms on the hull and produces a glossy, smooth surface optimized for owners seeking to reduce costs related to dry-docking and maintenance. Resilient is a biocide-free coating and has low VOC emissions, making it a sustainable coating solution.

www.jotun.com

Nyalic Coatings

Nyalic is a clear, ultra-thin resin coating. Widely used on workboats to protect metal, fiberglass, painted surfaces, plastics, and electrical and mechanical connections from salt, chemicals and UV damage, a properly applied coating gives a minimum of 3 to 5 years of protection, generating cost savings in maintenance. Nyalic is an ideal surface protectant for highly moist and corrosive environments. Designed to withstand extreme temperatures, it is also a non-conductive polymer coating, effective in preventing corrosion failure of electrical components. Nyalic performs at film thicknesses as low as five microns and does not cause heat build-up.

www.nyalic.com/marine

Thermal Coating Company Penetrates Marine Market

Tri-State Coating And Machine Co., Inc., began operation in March 1987 servicing the marine industry. TSC has become one of the world's largest producers of hard-coated liner sleeves. TSC knows the abuse that workboats, push boats, and tug boats endure from dirty, brackish, and corrosive salt water calls for liners that are a cut above the rest. Let TSC handle all your tail shaft liner needs. If you have a need that requires qualified personnel and you wish to discover savings while achieving optimal running time, TSC can be your solution.

www.tscminc.com

Fathom's FREE Guide to Vessel Lubricants

Fathom have launched a brand new, free publication series for the maritime industry. The inaugural edition, entitled Fathom FOCUS: Choosing the Optimum Lubricant Solutions for Your Operation is a practical guide that gives operators and managers crucial support in understanding how they can reduce vessel operating costs and improve lubrication performance. At over one hundred pages in length, this comprehensive publication critically and comprehensively examines lubrication solutions, from the formulation and chemistry of the products to optimization methods to the current status of the market and regulatory pressures.

www.fathomshipping.com/the-guides

Sea-Fire's Triton 8 Alarm Panel

With commercial vessels, being able to efficiently pinpoint the source of fires enables quicker response. The new Triton 8 Fire Alarm Panel from Sea-Fire is an addressable system enabling up to 256 detectors or manual call points. Reporting not only smoke or fire, but potential hazards such as short circuits, the Triton 8 bears DNV Type and ABS Design approvals. The system's 8 loops have 32 configurable zones. This system is superior to traditional two-wire, zone-based alarm panels, reducing the amount of installation wiring.

www.sea-fire.com

Nv Charts 'Virtual Chart Shop' Web Site

Nv Charts announces the launch of www.nvcharts.com, a new interactive web site and e-commerce site for all of the company's charting and navigation products, customer service, and all things Nv. The new website features an improved homepage design, cleaner layout of page content, and an intuitive and consistent site-wide navigation system. It is also accessible through a wider range of web browsers and devices, including mobiles and tablets. The new Nv Charts App, a simple-to-use free app for iOS and Android mobile devices can be downloaded directly from the new web site, with digital chart regions for the App available at only $10 per region.

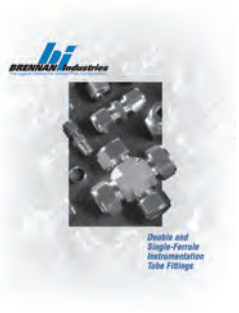
www.nvcharts.com

JonRie's ATS (Auto Tow System)

The new ATS (Auto Tow System) offers a Constant Scope Tension Limiting device which relieves tension on the tow line and then reclaims back to its original set scope point. The ATS provides for centenary (line sag) displays, real distance between the tug and tow, alarm points if the tow is too close, too far away or about to disconnect with the package providing GPS set on the tug and tow. If the Tow is lost the GPS will give its location to the tug in enough time to reconnect. JonRie uses no open gearing and no clutches as all operations are independently driven.

www.marinewinch.com

Brennan Industries Introduces Instrumentation Catalog



Brennan Industries, Inc., an international supplier of hydraulic fittings and adapters, introduced a new instrumentation catalog for its complete line of instrumentation fittings. The new catalog has all Brennan instrumentation tube fittings and their specifications in one place and includes tubing selection guides, tube-working pressure tables, sizing charts and other information for selecting the right fittings for each application. Brennan instrumentation tube fittings provide leak-proof, torque-free seals at all tubing connections and eliminate leaks in instrumentation, process, pneumatic, hydraulic, gas and other tubing systems.

www.brennaninc.com

Australian Reef Pilots Adopt Smartcap

With newfound applications in the maritime industry, Australian Reef Pilots (ARP) is using brainwave technology in the SmartCap system, a unique piece of headwear which monitors brain activity, to indicate fatigue levels as part of a pursuit of best practice for maritime safety standards.

Sensors in the headwear monitor brainwaves (electroencephalographic or EEG) activity to calculate the wearer's level of drowsiness. Data is then transmitted in real-time to a portable monitor or similar bluetooth enabled device such as a mobile or cell phone.

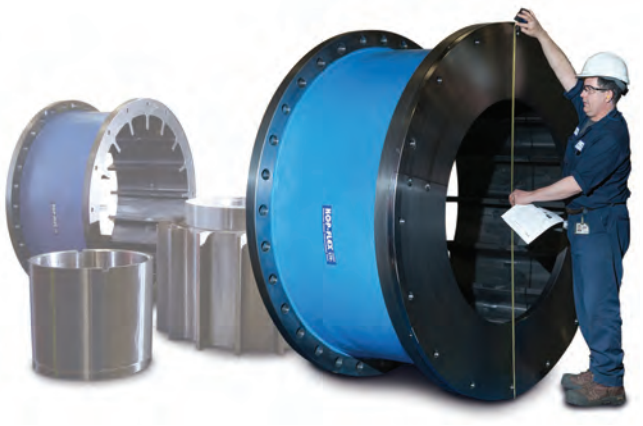
The wearer's alertness is assessed on a scale from two-four with an audible fatigue warning activated if the level reaches three or higher. This notifies the wearer that a micro sleep episode may occur.

The SmartCap was originally developed for mining and allied industries; however ARP identified an opportunity to expand its use into a maritime environment. Now, ARP and university fatigue experts are developing a scientific study program which will utilize SmartCaps and Readibands (a watch that monitors wrist movements to determine quality of sleep) to undertake a comprehensive maritime fatigue study in Australia. The research will use SmartCap and Readibands in parallel to provide data effectively measuring the ability to perform in waking hours (SmartCap), as well as the quality of sleep achieved (Readiband).

www.reefpilots.com.au
www.smartcap.com.au

AUSTRALIAN REEF PILOTS
GUARDIANS OF THE REEF

Managing Torsional Vibration



The Kop-Flex MAX-C WB hybrid coupling is a new solution for managing torsional vibration in high-performance drivetrains powered by synchronous motors, variable-frequency drives and diesel engines, or those driving reciprocating machinery or handling shock loads. Developed by the Kop-Flex unit of Emerson's Power Transmission Solutions business, the design combines a maintenance-free, non-lubricated MAX-C resilient coupling half with a lightweight diaphragm, disc or high-performance gear coupling half, depending on the application. The hybrid design combines low-cost, lightweight flexible coupling half for the driven shaft, with the vibration-damping of a MAX-C coupling half on the motor end. MAX-C dampens high drivetrain torque loads, while the overall hybrid design reduces weight, cost and inertia, eliminating the need for oversized and costlier drivetrain components. Various designs of the engineered hybrid coupling are capable of transmitting up to 56,000,000 lb-in (6383 kN-m) torque. The MAX-C WB is suited for use in drivetrains for ID/FD fans, torque converters, marine gears, drill rigs, crushers, kiln drives, mill pinions, ship thrusters, centrifugal compressors and feed rolls.

The MAX-C coupling consists of an outer sleeve with a bladed ID, an inner flex hub with bladed OD, and resilient drive blocks that fill cavities formed when the sleeve and hub are mated. The special wedge block cavity design formed by the blades is filled with incompressible elastomer blocks with a Shore "A" hardness of up to 80, allowing tailoring of the block compound for hardness, chemical resistance and temperature resistance.

www.emersonindustrial.com

Mustang Survival Launches New Ocean Commander

Mustang Survival has launched an improved Ocean Commander immersion suit; the first immersion suit to receive Transport Canada, MED and SOLAS approvals. The new Ocean Commander (Model #OC8003 HR) is constructed of a high visibility fluorescent yellow-green shell material, up to four times more detectable in rescue conditions than other common suit colors. The suit is feature-laden an easy full-length zipper, neoprene wrist seals and removable neoprene mitts. The Ocean Commander is also lighter and more durable than conventional neoprene suits, providing unhindered mobility for both work and abandonment procedures.

www.mustangsurvival.com/visibility

NSI's "Scroll & Roll" Trackballs

NSI has introduced a waterproof trackball range with integrated IP68 scroll wheel. Featuring easy scrolling even in the harshest of environments, the "Scroll & Roll" range is available in eight different executions. This series is IP68 waterproof and uses the latest generation of laser trackballs. The laser trackball has a removable top ring for easy cleaning, decontamination and maintenance. The use of stainless steel for the various parts ensures the best resistance in salty or greasy environments. Both panel mount types are available with studs or with holes (for countersunk M4 screw).

www.nsi-be.com/marine-products/

Lankhorst's Synthetic, Steel Wires Ropes

Lankhorst Ropes Offshore Division has expanded its range of high performance mooring and anchoring ropes to include steel wire ropes for the offshore market. Now offering both synthetic and steel wire ropes for mooring and anchor systems, as well as towing, crane lifting, riser tensioners and drilling applications, Lankhorst is initially supplying six-strand, eight-strand and multi strand (non-rotating) steel wire ropes direct from WireCo WorldGroup factories. In addition, the steel wire ropes end terminations can be customized to meet the engineering demands of specific offshore projects.

www.lankhorstropes.com/Maritime

ABS Approval for Fireboy-Xintex System

Fireboy-Xintex Inc. now offers ABS approval on its USCG Type Approved and IMO Solas Approved Elite RSM marine and offshore fire detection systems. The Elite RSM Analog Addressable Fire Alarm Control Panels are available for hosting up to 252 fire detection devices on commercial vessels and yachts. Control panels can be expanded and networked. Elite RSM Control Panels are easy to understand for commissioning personnel, with an auto learn feature for automated system set-up. Features include marine grade Apollo protocol smoke and heat detectors, two full SLC loops and leading edge microprocessor based electronics.

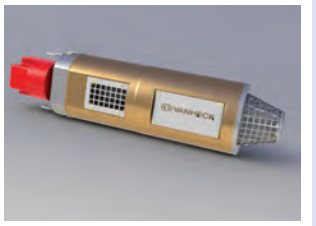
www.fireboy-xintex.com

3M Makes Masking Simple

3M has launched a new lineup of masking tapes engineered to perform in most all industrial jobs. They include Value Masking Tape 101+ for basic jobs such as marking, temporarily holding, wrapping and sealing; General Use Masking Tape 201+ that's tough enough for bundling, labeling and identifying; Performance Yellow Masking Tape 301+ for industrial paint masking, color coding and sealing; High Performance Green Masking Tape 401+/233+ for industrial painting of boats and other specialty vehicles and Specialty High Temperature Masking Tape 501+ for industrial performance in high temperature paint baking applications.

www.3M.com

Van Heck's 'Green and Easy' Oil Recovery System



Van Heck has introduced a pump system that enables fast, contained oil recovery after off-spec fueling and in the event of grounding or calamity. The Sea Trophy pump ensures fast, controlled removal of fuel oil which limits or eliminates economic and environmental damages. This hydraulically driven pump can be used for both light and heavy oil. Compact in design, it is ideal for use in the most demanding situations, even onboard a listing ship. Its size allows entry to tanks through vent- and sounding pipes and the FOR system, with accessories adaptable for use in cargo tanks through small apertures.

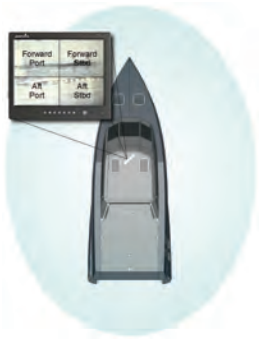
www.vanheckgroup.com

Honeywell's HERMetic Technology for Safer Operations

Inland barge operators are turning to Honeywell's Tanksystem portable level gauging and sampling technology for custody transfer measurements, safety and environmental protection on newbuild barges and retrofit vessels. Honeywell has supplied more than 1,200 vapor control valves for deck installation (each barge typically has 3-6 tanks) in the U.S. over the past year. The use of a ball valve permits tank gauging and sampling under completely closed conditions. HERMetic deck valves are heavy-duty, compact ball valves constructed from 316 stainless steel, and incorporating Teflon gaskets and a deck flange meeting the ANSI 150-pound standard.

www.honeywellmarine.com

GM Engineering's TugCam Helps Eliminate Blind Spots



The TugCam from GM Engineering Services is designed to increase safety and efficiency by virtually eliminating blind pushes and allowing them to see in complete darkness. The latest version is a rapidly deployable wireless camera system featuring infrared illuminators designed specifically for use on the water. Improvements extend all around the platform including easy to adjust zoom, focus and thumb screws to quickly tilt the camera in any direction. This version of TugCam contains a wireless transmitter with rechargeable battery and magnetic base to secure the TugCam to virtually any magnetic surface.

www.tugcam.com

HHI's Mini Shipbuilding Welding Robot

Hyundai Heavy Industries (HHI) has developed mini welding robots for shipbuilding. Its compact design, measuring 50 cm by 30 cm by 15cm, can operate in confined areas inaccessible to human welders. The machine can carry out almost all types of welding work at a similar speed as a welder. A magnet allows the machine to be attached to steel walls or ceilings. Weighing just 15 kg, an operator can control three machines at the same time increasing productivity threefold. Software also allows for steel cutting, blasting and painting, and other shipbuilding roles.

http://english.hhi.co.kr/biz/ship_over

Parat's Spill Response Solution

Spilled oil recovered by OSR-equipped vessels is stored until it can be delivered to recovery stations ashore. Parat Halvorsen's a steam heating solution, the Parat ORO multi nozzle arrangement, heats the whole tank from one insertion point. Approved for marine use by Germanischer Lloyd, BV, DNV and LR, it has patented part of the hot water circulation loop used in normal operations interconnecting heat recovery and heat consumers to ensure continuous operation. If an oil spill occurs, the vessel can bypass the boiler in the hot water loop and re-mobilize the boiler to generate steam for the ORO tank heating system.

www.parat.no

VideoTel Launches Latest Training Catalog

Videotel has released its latest training catalogue, STCW Maritime Training Catalog 2013-2014, comprising more than 800 titles. Videotel's blended training approach for video, computer-based training (CBT) and interactive courses is available in some 29 languages. Videotel also boasts tutor-led distance learning training courses, a selection of training titles and Webinars, and a Videotel Academy for companies with specific requirements for their in-house training. All training is available on board using Videotel On Demand (VOD), as well as online and onshore in video, CBT, interactive CD and accompanying booklet formats.

www.videotel.com

Marine Software Delivers Windfarm Solution

U.K-based Marine Software Ltd. recently delivered Marine Planned Maintenance software to Njord Offshore, to manage planned maintenance activities for 21m crew transfer vessels (CTVs) Njord Avocet and Njord Kittiwake. These two vessels are purpose built for the Offshore Windfarm Industry in a series of vessels managed by Njord Offshore. Under the contract, Marine Software was also commissioned to construct the PM database setups for Njord Avocet and Njord Kittiwake, along with providing system administrator training.

www.marinesoftware.co.uk

Blue Adds Map Overlay Features to SkyRouter

Blue Sky Network, a supplier of satellite tracking and communication solutions for aviation, land and marine, announced several new map overlay enhancements to its cloud-based fleet management solution, New SkyRouter, including third-party weather feeds and localized traffic information from Bing Maps. Blue Sky Network also provides an overlay for oil and gas lease block data in the Gulf of Mexico and customer specific overlays such as pipelines or power lines. These enhancements can be combined with existing asset tracking information to improve a single map view source, allowing operators to manage assets and routing in near real-time based on changing conditions leading to improved fleet efficiency and safety.

New SkyRouter combined with Blue Sky Network's tracking hardware enables fleet managers to stay in constant communication with widely dispersed global assets. Fleet managers can benefit from a combination of data sets pulled from multiple sources into a single platform to display other external factors, which will allow better control overall.

Additionally, the new oil and gas lease block overlay can assist offshore operators with the transportation of personnel and equipment to production platforms and drilling rigs in the Gulf of Mexico. When used in combination with the weather overlay, it helps to ensure the highest level of efficiency and service by providing important location and environmental information affecting the asset within a single map view. With these new upgrades fleet managers are better informed to make quick and efficient decisions.

The new map overlay features are expected to be in production by September 2013.

www.blueskynetwork.com

2014 Editorial Calendar

MARITIME REPORTER AND ENGINEERING NEWS

ISSUE	EDITORIAL		BONUS DISTRIBUTION
JANUARY **Ad Close:** Dec 20	**Ship Repair & Conversion Edition** **Market:** U.S. Navy: Ships of War **Technical:** Marine Drives: Gears, Thrusters, Waterjets & Propellers **Product:** Marine Electronics Equipment & Supplier Guide **Special Report:** Future Marine Fuels & Emission Scrubbing Technology	MaritimePropulsion.com MarineElectronics.com	**Arctic Technology Conference** Feb 10-12, Houston, TX
FEBRUARY **Ad Close:** Jan 24	**Cruise Shipping Edition** **Market:** Marine Accommodation & Interior Outfit **Technical:** Satellite Communication **Product:** Marine Coatings & Corrosion Control **Special Report:** Clean Water Solutions: Ballast Water Treatment, Black, Grey & Potable Water	MarineElectronics.com	**Cruise Shipping Miami** March 10-13, Miami, FL **ASNE DAY** Feb 20-21, Arlington, VA
MARCH **Ad Close:** Feb 21	**U.S. Coast Guard Annual** **Market:** RIB & Patrol Boat Report **Technical:** Marine Salvage & Recovery **Product:** Shipboard Fire Suppression Systems **Special Report:** Software Solutions: Remote Monitoring, Condition-based Maintenance & Control		**CMA Shipping 2014** March 17-19, Stamford, CT **Workboats Exchange** April 13-16, Bonita Springs, FL **Sea-Air-Space** April 7-9, National Harbor, MD
APRIL **Ad Close:** Mar 21	**Offshore Edition** **Market:** Making of the Modern OSV **Technical:** Marine Fuel Selection Guide **Product:** Specialty Cranes: Heavy Lift to Cargo **Special Report:** The World's Biggest: Floating Liquefied Natural Gas (FLNG)		**Offshore Technology Conference (OTC)** May 5-8, Houston, TX **Marine Money Houston** May 7, Houston, TX
MAY **Ad Close:** April 25	**Marine Electronics Edition** **Market:** Training & Education **Technical:** Marine Power Guide **Product:** Deck Machinery, Winches and Ropes **Special Report:** Oil Spill Response & Recovery	MarineElectronics.com MaritimePropulsion.com	**Posidonia** June 2-6, Athens, Greece **HiperCraft** June, Virginia Beach, VA
JUNE **Ad Close:** May 23	**Annual World Yearbook** **Market:** Maritime Simulation & Training Centers **Technical:** Marine Firefighting, Safety & Salvage **Product:** Marine Spare Parts Guide **Special Report:** 4th Annual Global Maritime Photo Contest	MarineElectronics.com	
JULY **Ad Close:** June 25	**Offshore Energy Structures & Systems** **Market:** Classification & Ship Registries **Technical:** ECDIS **Product:** Maritime Tools: Welding & Cutting **Special Report:** Emerging Marine Propulsion Tech	MarineElectronics.com MaritimePropulsion.com	
AUGUST **Ad Close:** July 24	**Shipyard Edition** **Market:** OSV Design & Construction **Technical:** Heavy Lifting Solutions **Product:** Clean Water Technology **Special Report:** Ship Maintenance & Retrofit		**SMM** Sept 9-12, Hamburg, Germany
SEPTEMBER **Ad Close:** Aug 22	**Marine Propulsion Edition** **Market:** Maritime Security Technology **Technical:** Condition Based Monitoring **Product:** Marine Anti-Fouling Coatings **Special Report:** The Arctic: Challenges & Opportunities	MaritimePropulsion.com MarineElectronics.com	
OCTOBER **Ad Close:** Sept 19	**Marine Design Edition** **Market:** Dredging **Technical:** Pumps, Pipes, Valves & HVAC **Product:** CAD/CAM **Special Report:** The Automated Ship: Command & Control	MarineElectronics.com	**SNAME** October 22-24, Houston **SHIPPINGInsight** Stamford, CT
NOVEMBER **Ad Close:** Oct 24	**Workboat Edition** **Market:** Tug, Tow and Pushboats: Brown Water Workboats **Technical:** Deck Machinery, Winches & Ropes **Product:** Vessel & Crew Safety Systems **Special Report:** Gulf of Mexico Builder & Supplier Guide		**International Workboat Show** Dec 3-5, New Orleans, LA
DECEMBER **Ad Close:** Nov 21	**Great Ships of 2014** **Market:** U.S. Navy **Technical:** Shipyard Automation **Product:** Maritime, Port & Harbor Infrastructure & Security **Special Report:** Marine Power Provider's Guide	MaritimePropulsion.com	**Surface Navy Association** January, Crystal City, VA

Maritime Reporter Celebrates "75"

MR turns 75 in 2014. This special standard-size magazine supplement in the June edition traces the history, evolution & future of

- shipbuilding & design
- marine propulsion
- marine electronics & more!

MR DIGITAL

When you leave the page and head to the screen, Maritime Reporter offers the most digital and online news offerings. Here are select stories from last month on MaritimeProfessional.com

Troubled Waters for Coastal Shipping

Posted by Joseph Fonseca, August 22, 2013, on MaritimeProfessional.com

Faced with several impediments and lack of support from the government coastal shipping continues to languish in setbacks.

Enough praises have been sung about the great advantages of coastal shipping especially because water transportation provides tremendous carrying capacity while consuming far less energy compared to other modes of transport such as truck, rail or air. It is just what the countries needs to help shore up their economy. However, compared to other countries India seriously lags behind in exploiting the extensive resources which exist in abundance.

Though India enjoys an extensive coastline of over 7,500 km, with 12 major ports (owned by the federal government) and more than 187 state-owned ports and only 7%of the domestic cargo gets transported through coastal shipping. Compare this to 15% cargo being carried by water transport in the U.S. and 43% in EU countries. 80% of India's coastal cargo comprises of petroleum, oil and lubricants, thermal coal and crude and the remaining being food grains, cement, containerized cargo and finished products. The number of ships involved in this trade is around 700 vessels totally comprising of around 1 million gross registered tonnage (GRT).

It is not all hunky dory for coastal shipping as operators have to put up with several challenges most of them could have been resolved long back but for the lack of political will that has left this sector in shambles. The operators' biggest grouse is that ports do not want to provide dedicate berths and hence vessels carrying coastal cargo are sometime made to wait for days to be allowed to berth. There is need for reduction in procedural delays, custom duties, levies and other taxes. Importantly if coastal cargo is given preferential treatment by ports it will ensure quicker turnaround of vessels. Moreover there is a need for reduction in duties on bunkers, manning scales and enhancement of ship building capacity.

Availing of the 'Maritime India 2013' platform of Global Intelligence, S. K. Shahi, Chairman and Managing Director of SKS Logistics Ltd., points out that not having dedicated berths is just one of the issues. He says that some private ports do not give berths unless the coastal operator is willing to pay twice the scheduled rate. He says that in order to separate domestic cargo from the international one, which attracts customs duty and other charges, major ports should provide a dedicated jetty of say 200 meters in length along with a connecting warehouse. Thus the cargo will then not have to go through the customs.

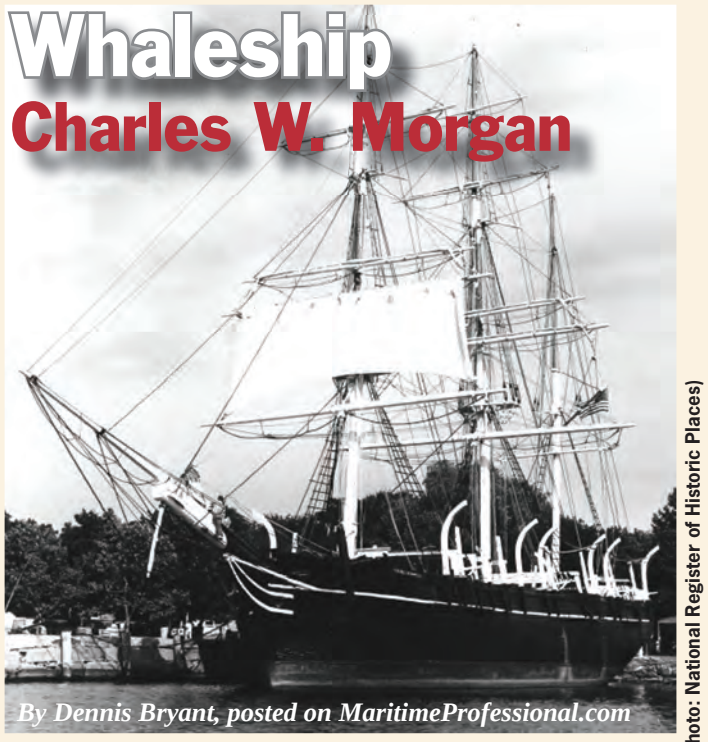
He complained about the exorbitant charges of the Indian Register of Shipping (IRS) which coastal operators could not afford. Surveyors of IRS according to him invariably insist on having several improvements being carried out even though they were out of place. Accordingly the association of the coastal operators had recommended to the Government of India the setting up an Indian Coastal Shipping Registry different from IRS and which would have a separate set of surveyors.

Coastal operators are also victims of double taxation. Mr. Shahi points out that when foreign vessels come into say Jawaharlal Nehru Port they have to pay service tax only once but coastal vessels have to pay twice. So is the case with wharfage charges. As ports have surplus land he desires that some of this land be given for setting up repair workshops especially for coastal vessels.

Capt. S. P. Rao, Chairman of SVS Group contends that coastal shipping could move forward if given an infrastructure status. He advocated the idea of having a regulatory body as this will go a long way in keeping in check the unreasonable charges levied by the ports especially the private ones. Indian coastal vessels calling at ports in Sri Lanka should be included as part of the coastal trade with respect to customs law in India.

Time and again it has been pointed out that coastal trade has been losing out to other modes because it has not been given a level playing field in line with other sectors including road transport and foreign going ships. A long pending demand of the coastal operators has been the need to enhance the draft at the Sethu Samudram Channel to 3.5 meters to enable movement of large volume of cargo from East coast to the West coast and vice versa.

Whaleship Charles W. Morgan



(Photo: National Register of Historic Places)

By Dennis Bryant, posted on MaritimeProfessional.com

The whaleship Charles W. Morgan, on the National Register of Historic Places since 1975, is the only wooden whaleship surviving from the large nineteenth-century fleet of American whalers. It was built in 1841 in New Bedford at a cost of $48,849.85, using live oak in her frame and plank and yellow pine in her upper decks. It was the usual rounded-bow, square-rigged whaler of the period. It had no cannon, but had false gunports painted on her sides, also typical of the era. Launched as a ship with single topsails, it was rerigged in 1867 as a barque, and rerigged again in 1881 to a topsail rig. The Morgan completed her 37th and last whaling voyage in May 1921. It is credited with the killing of more than 2,500 whales, brought into port over 50,000 barrels of whale oil and 150,000 pounds of whale bone, and is estimated to have earned about $2 million profits for its owners. The October 30, 1900 edition of the *New York Times* included a brief article on the ship's return to San Francisco after a voyage to the South Seas and the Japanese coast. It brought in 1,500 barrels of sperm oil and 3,000 pounds of whale bone on that voyage alone. The article continued, "The Morgan is nearly 60 years old, but is still sound and a good sailor. The only accident was when a 90-ft. whale off the Japanese coast rose under a boat and shattered it, throwing the men in all directions, but no one was hurt. They got 38 barrels of oil out of that monster." The ship sailed under 21 different masters with an average crew size of 33. After retirement, the Morgan appeared in three silent motion pictures, including "Down to the Sea in Ships" in 1922. After some years of neglect, the ship was acquired by the Marine Historical Association and moved to Mystic Seaport, its current home. Following a five-year, multi-million dollar restoration, the whaleship was returned to the water on July 21, 2013, the 172nd anniversary of its original launching. The United States Senate recently adopted a Resolution honoring the ship and its place in U.S. and maritime history.

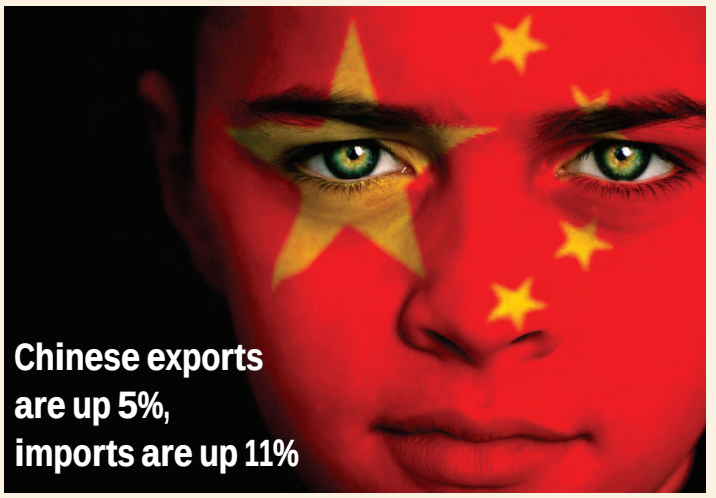
China trade figures moving in right direction

Posted by Greg Knowler, August 9, 2013 on MaritimeProfessional.com

We are so starved of good news in the transport and logistics sector that any sign of improvement in the market is eagerly pounced on.

The latest figures to get the media trumpet treatment are China's imports and exports that in July showed a decent rebound over the same period last year. Exports rose 5% last month and imports were up 11%, according to China Customs.

But when everything else is living in minus-land, even a moderately positive bounce is good news.



Of course, official Chinese figures are often as believable as horoscopes, but continued economic recovery in the U.S. supports the rise in mainland export activity. Add to that a slight increase in China's purchasing managers' index over June and it does look like there may be something in it for shipping companies.

Still, no matter how desperate we are for good news, one improving month does not a recovery make. Orient Overseas (International) Ltd., parent of Orient Overseas Container Line, reported a $15 million loss in the first six months of the year citing weak demand, overcapacity and poor freight rates.

All three reasons are related, each resulting from or causing the others. OOIL chief CC Tung was moved to warn investors that the container shipping industry would grow its capacity by 21% between now and 2015 while global container trade will grow at 5.5% a year until 2017. As far as ratio's go, that one is ugly.

The difference is not as wide at OOCL with the carrier's oversupply expected to be around 7.2% next year and fall to 3.5% in 2015.

Singapore shipping giant NOL sailed in with a first half loss of $35 million, despite selling its building for $200 million and buoying up its balance sheet.

The APL president echoed the sentiments of the OOIL boss, warning that weak demand coupled with oversupply was hitting container line revenues. This was expected to continue.

Losses are never very palatable, but imagine the digestive trouble the execs must be having over at Sinotrans Shipping, the Hong Kong listed time charter and bulk unit of state owned giant Sinotrans Group.

The carrier has been gloomily slogging along since listing in Hong Kong in 2007 at the wildly optimistic price of $1.07. The shares sank like a stone from day one and never came back. After yesterday's reporting of a 92% drop in net profit for the first half, its shares opened this morning on the Hong Kong Exchange at $0.24.

It looks like 2013 is going to be another forgettable year for the shipping business. Those who like to view the world through a glass half full may look at the mainland trade figures and say it heralds a turnaround, but you can be sure they will not be betting the farm on a good second half.

Philippines Time to Clean Up its Maritime Act

Posted by Greg Knowler, August 20, 2013 on MaritimeProfessional.com

Could the latest deadly ship collision in the Philippines involving a Sulpicio vessel finally be the accident that breaks the carrier's back?

Four years ago Sulpicio Lines changed its name to Philippine Span Asia Carrier Corp (PSACC), but that doesn't appear to have altered the carrier's unfortunate penchant for being involved in fatal accidents.

(Last month) 55 people died and 65 are still missing after PSACC cargo ship Sulpicio Express Siete collided with the ferry, St. Thomas of Aquinas, in a busy shipping channel off Cebu. Rescue operations are continuing, although the focus is now on recovery rather than rescue.

The company name change came after one of its ferries capsized in June 2008 with a large loss of life. Princess of the Stars was on the way from Manila to Cebu City during Typhoon Fengshen when it capsized off the coast of San Fernando. More than 800 people died.

A marine inquiry found Sulpicio Lines and the captain liable and recommended suspending the carrier's license. Undeterred, Sulpico changed its name to PSACC and continued to operate.

But the company ascended to the pinnacle of maritime notoriety in what is known as the worst maritime accident outside wartime. The Manila-bound Dona Paz ferry collided with oil tanker Vector in the Tablas Strait, caught fire and sank. The ferry was licensed to carry 1,500 passengers and its manifest recorded about 1,700, but it is estimated the death toll was 4,375 after evidence was collected from relatives, survivors and rescuers. Of the 24 passengers from the Dona Paz that survived, only five were on the manifest.

Incredibly, Dona Paz had no radio and it was eight hours before the Philippine authorities heard of the accident, and another eight hours before rescue vessels could reach the scene.

Official enquiries in the Philippines are slipshod affairs that drag on for years, but even so it revealed a cavalier approach to safety on both vessels. When the accident happened, reportedly only one apprentice on the Dona Paz was on watch while the captain watched a movie and the other officers were below decks drinking beer, survivors told the media.

Vector was found to be operating without a license or a properly qualified master, and with no lookout at the time. Somehow Sulpicio Lines was cleared and Vector was held responsible.

Just a year later in October 1988, the inter-island ferry Dona Marilyn left Manila and was also caught by a typhoon, this one called Typhoon Unsang, going down with 389 people. We should point out that the Philippines is hit by almost every typhoon that develops in Asia every year, so it is not an unusual weather phenomenon in this part of the world.

For Sulpicio, or PSACC, Sulpicio Express Siete on Friday joined the growing list of company ships involved in deadly accidents. Yet with more than 7,000 islands, sea transport is critical to the Philippines, and that would appear to be incentive enough to crack down on safety.

If the government needs a company to stamp on as an example, we can recommend a perfect candidate.

BUYER'S DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR assumes no responsibility for errors. If you are interested in having your company listed in this Buyer's Directory Section, contact Mark O'Malley at momalley@marinelink.com

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26	Pennel & Flipo USA	www.pennelusa.com	(843) 881-9026
51	PG Marine Group - Ing Per Gjerdrum AS	www.pg-marinegroup.com	+47 66 77 56 00
113	Quality Marine of Alaska, Inc.	qualitymarine@alaska.com	(907) 486-1727
111	R. M. Young Company	www.youngusa.com	(231) 946-3980
119	Rapp Hydema AS	www.rappmarine.com	(206) 286-8162
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56	Retlif Testing Laboratories	www.retlif.com	(631) 737-1500
75	Robichaux Automation and Control, Inc	www.raaci.com	(504) 834-1167
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29	Scale Reproductions	www.scalereproductions.com	(850) 466-3788
1	Scania USA Inc.	www.scaniausa.com	(908) 964-0700
122	ShippingInsight 2013	www.shippinginsight.com	(434) 295-6642
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16	Sneed Shipbuilding	www.sneedshipbuilding.com	(281) 862-2266
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23	SVITZER Salvage Americas, Inc	www.svitzer.com	(305) 209-6020
13	Talleres Navales del Golfo	www.tnghph.com.mx	52 229 989 2500
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127	Valad Electric Heating	www.ValadElectric.com	(914) 631-4927
12	Victaulic	www.victaulic.com	(610) 559-3300
53	Walker Magnetics	www.walkermagnet.com	(800) 962-4638
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Karl Senner

Dickie Gonsoulin

M/V DICKIE GONSOULIN

Earl Gonsoulin and his son Dickie bought the very first Reintjes gearbox sold in the U.S. from Karl Senner for the repower of the M/V Mary R in 1967. Karl and Dickie remained good friends over the years until Karl's passing in 2006. Lebeouf Towing still selects Reintjes gears from Karl Senner, LLC. for their fleet today.

This photo was taken at the Reintjes factory in Hamelin, Germany in the early 1970's where Karl (second from left) and Dickie (center) were both the honorary guests of the town. Also with them is Karl's wife Gerda Senner (left), and the former Managing Director of Reintjes, Mr. Muller (second from the right).

"Thank you Lebeouf Towing for naming this vessel in honor of Karl Senner." -Ralph Senner.

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