The World's Largest Circulation Marine Industry Publication • The Information Authority for the Global Marine Industry since 1939

MARITIME REPORTER AND ENGINEERING NEWS

MARINELINK.COM

AUGUST 2011

Surviving Today • Training the Next Generation

Shipyard Edition

Plus: Maritime Tools • Legal Beat

Bourbon's New IMR Series Debuts

PORTLAND SEATTLE BREMERTON EVERETT TACOMA PORT ANGELES

VIGOR

VIGORINDUSTRIAL.COM

WE ARE VIGOR INDUSTRIAL

Strengthened by the addition of Todd Pacific Shipyards, we are now the largest and most capable marine services company in the Pacific Northwest. We deliver expert new construction and modernization for ships, barges and energy platforms. We offer conversion, industrial coating and fabrication. On-budget and on-time.

INDUSTRIAL EVOLUTION

VIGOR COMPANIES

VIGOR INDUSTRIAL

VIGOR MACHINE

VIGOR MARINE

VIGOR SHIPYARDS
(formerly Todd Pacific Shipyards)

SHIPYARD COMMERCE CENTER

SPECIALTY FINISHES

US FAB

CONTRIBUTORS


Moller

Jeffrey S. Moller, Blank Rome LLP, serves as chairman of the Committee on Regulation of Vessel Operation of the Maritime Law Association of the U.S.
See story page 16


Bryant

***Dennis L. Bryant**, Maritime Regulatory Consulting, Gainesville, FL,*
See story page 18


Daw

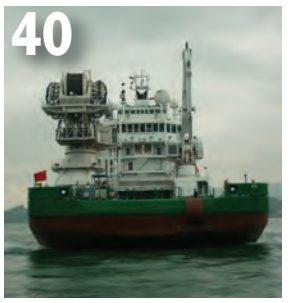
Chris Daw developed the Procal in-situ stack gas analyser, plus a complete range of photometric analysis products, systems and signal processing equipment.
See story page 20


Carpenter

Jennifer A. Carpenter is Senior Vice President – National Advocacy, The American Waterways Operators. Carpenter joined AWO in August 1990.
See story page 22


Lundquist

Captain Edward Lundquist, USN (Ret.), is a naval analyst and principal science writer for MCR Federal. .
See story page 42



COLUMNS & PROFILES

"The most valuable thing in our business is your word – and ESG is all about business."

"When we placed our first order with Eastern Shipbuilding Group for six offshore supply vessels, they were truly people of their word. They delivered the vessels on time, some earlier, and they stayed in budget. Their craftsmanship was outstanding. Our experience dealing with Eastern Shipbuilding Group has been very professional and we've just placed another order for six new vessels. If you have ESG build a vessel for you, you can count on their word and expect to get great value for your investment."

Shane Guidry, *Chairman & CEO*
Harvey Gulf International Marine, LLC

Since 1976, the Eastern Shipbuilding Group family has proudly built over 300 vessels at our two Panama City facilities, producing the most diverse product line on the U.S. Gulf Coast.

Contact us at: **Tel: 850-763-1900** **Fax: 850-763-7904** **Email: sales@easternshipbuilding.com**

EASTERN SHIPBUILDING GROUP, INC.

2200 Nelson Street, Panama City, FL 32401
13300 Allanton Road, Panama City, FL 32404

www.easternshipbuilding.com

MARITIME REPORTER AND ENGINEERING NEWS

NEW YORK
118 E. 25th St., New York, NY 10010
Tel: (212) 477-6700; Fax: (212) 254-6271
e-mail: mren@marinelink.com • Internet: www.marinelink.com

FLORIDA • 215 NW 3rd St., Boynton Beach, FL 33435
Tel: (561) 732-4368; Fax: (561) 732-6984

SUBSCRIPTION INFORMATION
One full year (12 issues)
• in U.S.: $69.00; two years (24 issues) $98.00 • in Canada: $73.00; two years (24 issues) $105.00
• Rest of the World: $98.00; two years $152.00 including postage and handling. For subscription information:
Email: mrcirc@marinelink.com • www.marinelink.com
Tel: (212) 477-6700 • Fax: (212) 254-6271

POSTMASTER: Send address changes to: **Maritime Reporter** 118 East 25th Street, New York, N.Y. 10160-1062.
Maritime Reporter is published monthly by Maritime Activity Reports Inc. Periodicals Postage paid at New York, NY and additional mailing offices.

"...and you thought we just made rope..."

Yale Loups

Yale manufactures LOUPS of Ultra High Molecular Weight Polyethylene. These become remarkably strong yet remain quite light and flexible. The LOUP pictured is rated at 200,000 lbs vertical and 1 million pounds breaking. Since it's not one big rope, but a series of smaller ropes inside, it's able to bend over small pins without damage. Depending on their service LOUPS may be protected with various chafe materials or can be made to float if an advantage. For a LOUP designed for your specific application contact Yale.

Four-Leg RIB Boat Slings

These slings were developed in conjunction with NSWC Carderock Division to handle RIB Boats. The goal was to eliminate wire rope from existing slings,

YaleGrips

Holding on to what's important. YaleGrips® set the standard for marine stopping-grips worldwide.

YaleGrips are simple to apply, safe to use, and easy on all mating surfaces.

Working with umbilicals, steel-wire rope, or synthetic cable? There is a YaleGrip for every application.

Yale's Uniline

Uniline is Yale's tried and true Polyester Parallel Core Rope. This rope is the precursor of Unitrex, and reducing electronic interference, corrosion, wire fish hooks to engineer a much safer system.

The individual legs are spliced to very tight tolerances, tagged fore and aft to maintain balance, and every sling is proof loaded.

has been used extensively in many wet applications for the last 42 years. It retains the highest percentage of breaking strength, for the longest period of time of any rope we offer. It's not unusual to see residual break strengths in excess of 75% of new after 20 years of service at sea.

Yale's Unitrex™ XS

Unitrex is the tension member for the 21st Century...

Based on high tech Honeywell Spectra™ fibers Yale makes a rope three times the strength of polyester with elongation more like wire than any other synthetic. Cores are bonded and blocked with Neoprene and then wound with a vulcanized neoprene rubber layer.

Yale Synthetic Cable Technology

77 Industrial Park Road
Saco, Maine 04072
Tel: (207) 282-3396
Fax: (207) 282-4620
www.yalecordage.com
Go to our web site and use our search box for detailed product information.

MARITIME REPORTER AND ENGINEERING•NEWS

www.marinelink.com

ISSN-0025-3448
USPS-016-750

No. 8 Vol. 73

118 East 25th Street, New York, NY 10010
tel: (212) 477-6700; fax: (212) 254-6271

Founder: *John J. O'Malley 1905 - 1980*
Charles P. O'Malley 1928 - 2000

Maritime Reporter/Engineering News is published monthly by Maritime Activity Reports, Inc. Mailed at Periodicals Postage Rates at New York, NY 10199 and additional mailing offices.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter/Engineering News, 118 East 25th Street, New York, NY 10010.

Member
BPA WORLDWIDE BUSINESS
Business Publications Audit of Circulation, Inc.

Anyone in the business of building ships and boats need not hear from me, or probably from anyone else ever again, that business has been tough for the past 36 months. Time and again, in conversations with construction companies next door and around the globe I have heard and we have reported in print and online regarding prevailing market conditions. With a ubiquitous lingering sluggish global economy and financial problems in major trading countries, I'm afraid time in the trough will be longer than many envisioned when the world economy crashed nearly three years ago. But all is not bleak.

In mid-July the International Maritime Organization (IMO) mandated some stringent new rules regarding the environmental impact of the shipping industry, specifically the new Energy Efficiency Design Index (EEDI). While the system is far from perfect and we count equal numbers of supporters and detractors, the takeaway is this: the world is increasingly focused on the amount of pollutants commercial marine vessels — from towboats to tankers and everything in between — are pumping into the water and air. [Never mind the fact that time and again it has been proven that waterborne transportation is hands-down the most economical and energy efficient (and in many cases, the only) means to move large quantities of cargo from 'point A to point B']. Populations in coastal cities worldwide, and particularly in the great state of California, increasingly target pollution from ships, and the groundswell of political mandates and new regulations continues to build.

While this is hardly welcome news for vessel owners, it is surely an opportunity for vessel builders and equipment suppliers which are progressive in providing to the industry solutions to make their vessels more environmentally benign. Last month was our "Environmental" edition, but in fact each edition could carry the same tagline, as the issue has woven itself tightly into the fabric of all that you do.

Offshore wind power is a growing specialty in the maritime niche, and on page 10 in our "By the Numbers" section we break down the growth of this industry in Europe, which is the clear market leader. While many industries contract, offshore wind power in Europe is growing, with installations up 34% in the first half of 2011. More offshore wind installations mean more specialty vessels purpose designed to install, maintain, and decommission these unique structures.

Jeffrey S. Moller of Blank Rome LLP tackles the complexity of legal issues surrounding emissions from ships in his article, "*Stretching the Bounds of State Sovereignty,*" starting on page 16. The matter of states enacting their own rules; rules generally much more stringent than those mandated by IMO, is certainly not a new topic, but each passing day the legal quagmire thickens, and expert advice from firms such as Blank Rome LLP becomes that much more valuable.

This being our "Shipbuilding" edition, you will find many references within that explores how leading builders are developing novel solutions to meet vessel owner needs. For example, last month Mitsubishi Heavy Industries introduced its new Hybrid Car Carrier design, a ship that aims for zero emissions while at berth, equipped with a hybrid electric power supply that combines solar power panels with lithium-ion batteries. So it appears that while the world economy heals, as always, the truly innovative companies are the ones that will emerge strengthened.

Gregory R. Trauthwein, Editor & Associate Publisher | **trauthwein@marinelink.com**

ON THE COVER

Pictured on this month's cover

While designing and building ships has taken a decided turn towards higher technology in the 125 that ships have been built at Newport News Shipbuilding, the company to this day relies on its tried and true Apprenticeship Program to build and maintain a talented pipeline of shipbuilders for the future. **Pictured is Newport News Shipbuilding Apprentice Jessica Henderson working on pipe.** For insights on some leading shipyard apprenticeship programs, please turn to page 42.

(Image: Huntington Ingalls Industries)

STANDARD OF EXCELLENCE

- GLOBAL SALES AND SUPPORT
- EXTENSIVE RANGE OF PRODUCTS AND SERVICES
- ONGOING PRODUCT DEVELOPMENT

CLOCKWISE FROM TOP LEFT

DAMEN STAN PATROL 4708 - BUILT UNDER LICENSE BY BOLLINGER SHIPYARDS

DAMEN PLATFORM SUPPLY VESSEL 7216

DAMEN STAN TUG 2909

DAMEN STAN PATROL 2600 - BUILT UNDER LICENSE BY BOLLINGER SHIPYARDS

DAMEN OFFSHORE PATROL VESSEL 950

DAMEN FAST CREW SUPPLIER 5009

DAMEN

DAMEN SHIPYARDS GORINCHEM

Member of the DAMEN SHIPYARDS GROUP

Industrieterrein Avelingen West 20
4202 MS Gorinchem

P.O. Box 1
4200 AA Gorinchem
The Netherlands

phone +31 (0)183 63 91 74
fax +31 (0)183 63 77 62

americas@damen.nl
www.damen.nl

OSX On the Pole Position

The business of building ships has largely been tumultuous since the economic collapse of 2008 and lingering global malaise. When the talk turns to shipbuilding of late, the topic is more than likely cancelled orders, employee cutbacks or outright closure … unless:

- Your shipyard is in Brazil;
- Your shipyard (OSX) has a global behemoth (EBX) behind it;
- Your shipyard taps the minds and talent of one of the world's preeminent shipbuilders (Hyundai);
- Your shipyard has a $4.8B orderbook and plans for its first delivery (an FPSO) in 3Q2011 … *BEFORE* the shipyard is complete.

Meet OSX Brasil S.A., an EBX Group company, designed to supply the industry's demand for integrated service solutions to the Oil & Gas market, which is rapidly expanding in Brazil. In January of this year *Maritime Reporter* presented a one-on-one with Roberto Monteiro, CFO of OSX Shipbuilding, Chartering and Offshore Services, in the wake of OSX Brasil S.A raising $1.4B in its IPO. This month, we check in with Mr. Monteiro again to discover details on the yard's journey to built its own Naval Technology Institute to feed demand for new recruits and staff for its rapidly growing operation.

Why, exactly, is OSX planning to open its own Naval Technology Institute?

Monteiro Aiming to educate and to train manpower dedicated to its Shipbuilding Unit, OSX, an EBX Group Company is detailing the concept of the Naval Technology Institute (ITN). OSX shipyard will create approximately 10,000 direct jobs during its operational phase, so this staff will be professionally trained by the Naval Technology Institute.

When will the institute open for business?

Monteiro OSX expects to train, until the end of 2013, a total of 7,800 technical specialists in production, inspection and supervision. In the beginning of July 2011, OSX signed the first partnership in Rio de Janeiro to structure the first technical courses to be offered. In the first phase 3,100 workers will be trained in more than 20 different courses provided by OSX. The classes is about to begin by October 2011.

How much was invested in this project?

Monteiro We are investing $8.3m on this first phase.

On a yearly basis, how many students is the institute designed to accommodate?

Monteiro OSX expects to train, untill the end of 2013, a total of 7,800 technical specialists.

Can you give real examples of the classes or curriculm?

Monteiro We will have 185 classes that will be divided into 23 professional activities, including welders, structure assemblers, pipe fitters, mechanics, electricians and instrumentalists.

What are the major challenges of opening this type of institute in Brazil at this time?

Monteiro We expect to train this large amount of technical specialists and we know it´s a challenge. But, ITN will act in partnership with educational institutions recognized inside and outside Brazil, aiming to become a reference for the shipbuilding industry in Brazil. In addition to generating qualified manpower for the sector, ITN also aims to promote research and projects focused on improving and automating operational processes of the area. We will also count on an important partnership with Hyundai Heavy Industries to develop this project.

The Acu Site: OSX' shipbuilding facility at the Acu Site represents a $1.7B investment, and when finished will have a steel processing capacity of 180,000 tons/year and an assembly capacity of 220,000 tons/year. The conceptual design was approved by Hyundai Heavy Industries, and includes more than 3,500m (2,400m in the first phase) of water front. Strategically, it is located only 150 km from the Campos Basin.

This is how I work
to make critical repairs
to support my crew
to support my ship.
This is how I work to
build my future
and take command of my career
with Military Sealift Command.



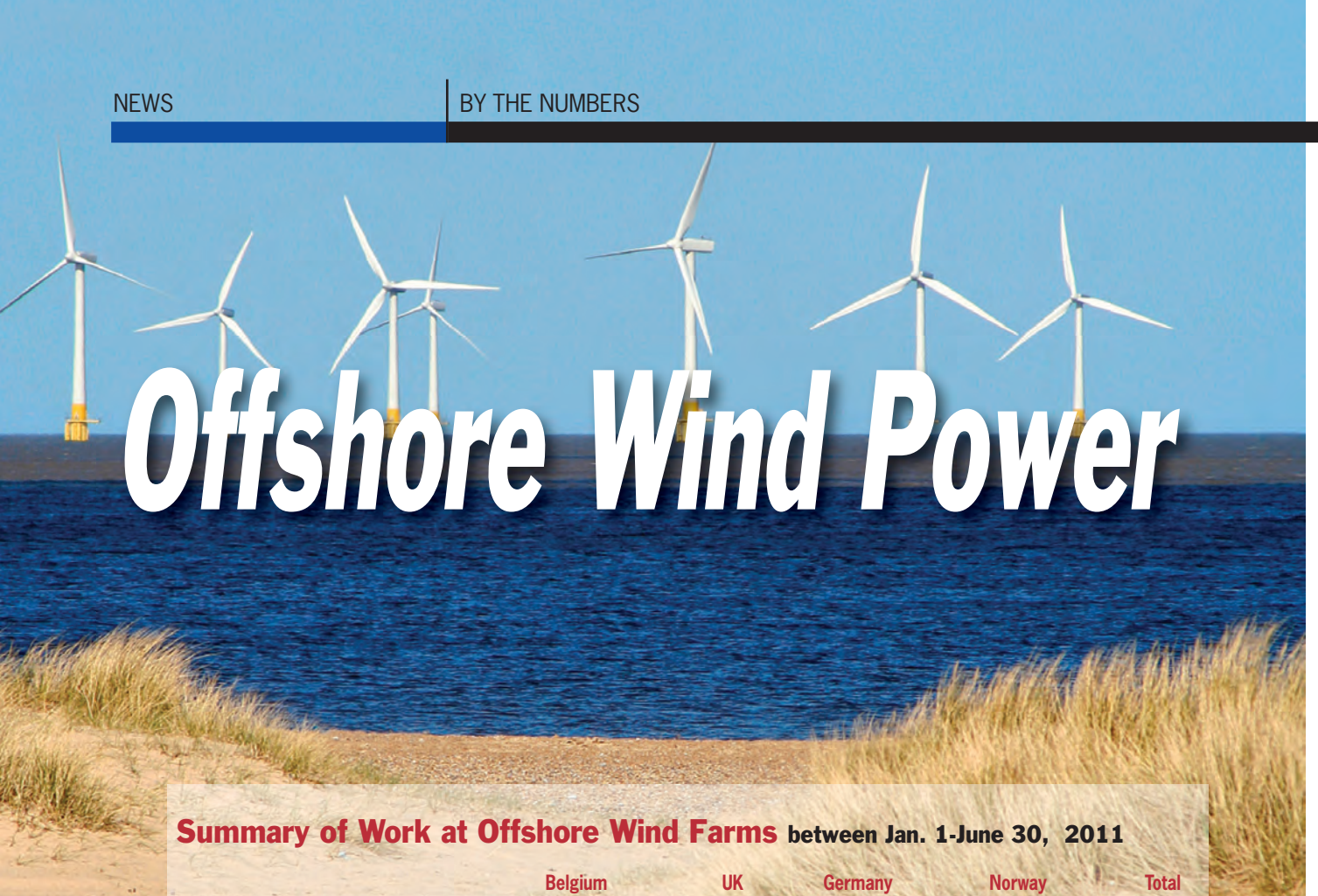


It's your turn to get the career you deserve. No contracts or long-term commitments – just secure, stable employment with the federal government. Opportunity awaits at

sealiftcommand.com

MILITARY SEALIFT COMMAND

Take Command of Your Career®



Offshore Wind Power

Summary of Work at Offshore Wind Farms between Jan. 1-June 30, 2011

	Belgium	UK	Germany	Norway	Total
Number of farms	1	7	2	1	11
Number of foundations installed	4	108	16	1	129
Number of turbines installed	0	101	6	1	108
Number of turbines connected	0	68	32	1	101
MW fully connected to the grid	0	244.8	103.3	0.015	348.1
Total MW of projects (once completed)	**148**	**2238**	**448.3**	**10**	**2844.3**

Pictured in the Background: Scroby Sands Windfarm, Norfolk U.K. The Easytrak Nexus has been deployed by the Geosurvey Department of Emu Ltd on several high resolution Windfarm Engineering and UXO (Unexploded ordnance) surveys. The North Sea survey work currently being undertaken by Emu represents the early stages of significant windfarm expansion plans formulated by the UK Government that is committed to raising the proportion of energy derived from renewable sources from 2.4% to 15% by 2020.

EU Shows Solid Growth in 1H 2011

European companies have established a strong leadership in the development and deployment of offshore wind power, a trend expected to continue as countries such as Germany shutter its nuclear power industry in the wake of the Japan meltdown earlier this year, and search for efficient, clean energy alternatives.

"While I see several positive trends for the European offshore wind power industry, we are not home and dry yet. The sector is coming out of the financial crisis but is still facing a potential worsening of the general economic crisis. The number of banks providing capital for offshore wind farm investments is steadily growing, although there is a continued need for attracting an increasing number of large institutional investors to offshore wind farms - presently the largest construction projects going on in Europe," said Christian Kjaer, chief executive officer of EWEA.

The leadership of European countries in this regard is confirmed by the European Wind Energy Association (EWEA) recently published offshore wind energy statistics for the first half year of 2011. The statistics show:

34 Percentage increase in installations of offshore capacity compared to the first half of 2010.

101 New offshore wind turbines, with a total capacity of 348 MW, were connected to the power grids in the UK, Germany and Norway during the first six months of 2011.

3B Billions of Euros, that is. This is the amount that financial institutions will provide to the sector in 2011, a record amount.

8.5B In Europe, 11 offshore wind farms worth some 8.5 billion Euros and with a total capacity of 2,844 MW are currently under construction in European waters.

3.4 The size of wind turbines offshore Europe are growing, as the size of the installed offshore wind turbines averaged 3.4 MW - up from an average of 2.9 MW during the first half of 2010.

DDG 1000: Milestone at U.S. Navy Test SIte

Converteam in partnership with the U.S. Navy have successfully tested the DDG 1000's high voltage Integrated Power System (IPS)(1) to full power at the Land Based Test Site located in Philadelphia, Pa. DDG 1000 is the first U.S. Navy surface combatant to leverage this technology—an all-electric architecture providing electric power for both propulsion and ship services. As the integrated power systems provider, Converteam is responsible for the entire program's high voltage system design, commissioning and testing at the land based test site.

The test demonstrated full power operations of the IPS, which is a major milestone prior to delivery of equipment to the ship. The technology tested involved one of two shipboard shaft lines; one main and one auxiliary gas turbine generator set, all four high voltage switchboards, harmonic filters, two of four shipboard electrical zones of the Integrated Fight Through Power (IFTP) conversion equipment, and one of the two propulsion tandem advanced induction motors with their associated variable speed drives. Of this scope, Converteam supplied systems integration knowhow and hardware which includes the propulsion motors, variable speed drives, high voltage switchboards and harmonic filters for the main and auxiliary turbine-generators. DDG 1000 will be a multi-mission surface combatant designed to fulfill long-range land attack requirements. Armed with an array of weapons, DDG 1000 will provide offensive, distributed and precision fires in support of forces ashore.

MOL Adopts Low-Friction Hull Paint

Mitsui O.S.K. Lines adopted a new low-friction "Seaflo Neo" developed by Chugoku Marine Paint, Ltd. After analyzing the results of an onboard test with of a newbuilding vessel, the company confirmed that the new paint offers improvements in fuel efficiency, and will contribute to the reduction of CO2 emissions from its vessels.

Friction between the hull and the water accounts for the majority of resistance as a vessel moves through the water. Reducing friction drag is a very effective way to reduce CO2 emissions during vessel operation.

- **Car carrier Eternal Ace** (capacity: 6,400 units of standard passenger cars) built by Minaminippon Shipbuilding Co., Ltd., and completed on July 25, 2011.
- **Car carrier Brilliant Ace** (capacity: 6,400 units of standard passenger cars) built by Minaminippon Shipbuilding Co., Ltd., and completed on March 30, 2011.

The main characteristic of the new paint, developed by Chugoku Marine Paint is the high smoothness of its paint film surface, the result of a newly developed low-viscosity hydrolyzed polymer. The ultra-smooth finish is designed to minimize friction drag between the hull and the water, improving fuel efficiency by 3-5% compared to an identical vessel with a conventional hull coating. Called Seaflo Neo, the paint is also low in VOCs, a source of air pollution.

Drydocks World

DDW Delivers Crest Olympus

Drydocks World delivered the Anchor Handling Offshore Support Vessel Crest Olympus. The vessel was built at the company's shipbuilding yard in Naningdah, Indonesia. The vessel is being built for Singapore based Pacific Crest Pte Ltd at a contract value of $20.4 million, excluding owner furnished equipments. Crest Olympus measures 76 x 18.5 m with a draft 6.8 m. The 150TBP vessel has DP2 capability and is of fire fighting class 1. The vessel is equipped with deck machinery from Rolls Royce Marine, main engine 9M32 from CAT, Kawasaki side thruster and Berg propulsion. It is designed by Wärtsilä Ship Design and classified by ABS. The owners are part of Pacific Radiance Group, which is a Singapore based Company providing Integrated marine solutions for oil & gas, mining, subsea engineering contracts and related services support industries.

Fincantieri shipyard in Marghera

Cruise Ship Costa Fascinosa Launched

The 114,500-gt, 3,800-passenger Costa Fascinosa, the latest ship to join the fleet of Costa Cruises, last month touched the water for the first time during its technical launch ceremony at the Fincantieri shipyard in Marghera. The ship is scheduled to depart on her its cruise in May 2012.

A few days after the launch, Costa Crociere placed a new order with Fincantieri S.p.A. for the construction of a new cruise ship, a 132,500-gt, 4,928-passenger cruise ship; the 10th ship ordered from Fincantieri by Costa Cruises in the past 10 years. Delivery is planned for October 2014.

Mitsui Engineering & Shipbuilding

MES Tapped to Build "Neo Supramax 66BC" Ships

Mitsui Engineering & Shipbuilding was contracted to build two "Neo Supramax 66BC" ships, which are next-generation 66,000-dwt bulk carriers developed as low fuel consumption, eco-friendly ships. Keeping the usability of MES' best selling 56,000 dwt type handymax bulk carrier, Mitsui 56 (which achieved more than 170 contracts) this new and larger bulk carrier is expected to establish a new segment in bulk carrier market. Development of the ship's design was preceded by hearings from various owners and operators and investigations on more than 600 ports worldwide. This ship is designed to have over-Panamax beam (36m) and shallow draft in consideration of prevailing trade patterns and the expansion of Panama Canal in 2014.

Despite its larger deadweight and cargo capacity than Mitsui 56, neo Supramax 66BC achieves even less fuel consumption by adopting a newly developed hull form and other energy saving equipment.

At IMO MEPC62 held from 11th to July 15, 2011 in London, implementation of new energy efficiency design index (EEDI) and actual restrictions on fuel consumption have been adopted. Ocean-going ships to be built now on will be required to satisfy a certain level of fuel consumption standard and the requirement will gradually become more severe, therefore, existing ships will be replaced with ships with superior fuel consumption step by step. Neo Supramax 66BC's fuel consumption is far lower than the restriction level based on EEDI and is expected to benefit its users in long term under the future marine environment protection restrictions. The MES' achievement is a result of high valuation of neo Supramax 66BC's concept, superior energy efficiency and operational flexibility from wide beam, shallow draft design. The two ships are to be chartered by European major operator.

Special features of the new design include:

- Fuel consumption of the ship is less than the existing types of handymax bulkers.
- The ship is designed to have wide beam, shallow draft and deadweight of 66,000 metric tons, while keeping sufficient capacity for loading various bulk cargoes including coal, iron ore, wheat, barley, soya beans, etc.
- The ship can also accommodate lengthy/heavy cargoes such as steel pipe and hot coil.
- Hatch opening of the ship is optimized to meet the existing cargo handling facilities at various ports.

Main Particulars of the Ship	
Length, o.a.	200m
Beam (molded)	36m
Depth (molded)	18.5m
Deadweight abt.	66,000mt
Service Speed	14.5kts (NSR)

Radar -vs- Mobile Phone

By Capt. Ian Bowles, MNI, Regional Sales Manager, Japan Radio Co., Ltd.

Two percent (or $1.3 trillion)* of World GDP is accounted for by the mobile telecommunications industry. By comparison, the minute fraction of this that the marine radar industry accounts for has probably not been discovered yet. So what chance does radar have against such overwhelming authority, or should we say, financial might?

Marine radar operates in two main frequency bandwidths, 3GHz and 9GHz. The mobile phone and wi-fi industries also like the 3GHz arena, and have their frequency allocations virtually adjacent to our very own S-Band radar, and therein lies the problem.

Magnetron based technology uses huge amounts of bandwidth, (regularly straying outside of its borders), and to a certain extent needs cleaning up. The International Telecommunications Union (ITU) has recognized this and has therefore allowed "new technology" to be used in the S-Band frequency spectrum allocation for marine radar. This new technology is solid-state based and uses much less frequency spectrum for the transmission. Examples of this are JRC's JMA-9172-SA and Kelvin Hughes Sharp-Eye.

In addition it has to be recognized that a "marine frequency" is used in a marine environment - not a land use, therefore the mobile phone industry has made application to the ITU for the use of mobile phones to use part of the S-Band frequency marine allocation frequency as there are lots of areas of the World that are not considered marine that have populations wanting more and more mobile phone technology with ever increasing frequency usage, for example, large areas in USA, Asia and Europe.

In Europe, the UK for example, has from 2010 indicated that they will introduce "Spectrum pricing" where users of frequency spectrum will pay for the use of the Spectrum. One of the frequencies they are looking at is mobile phones and the S-Band frequency. Estimates are that mobile phone industry will be willing to pay about $450m per year for licenses to use the frequency and that will be the thin end of the wedge as governments around the world need more income from taxes and this is the invisible tax of frequency. No upkeep by government and the money rolls in. So it is probably not a case of "if" but "when" - providing the UK government scheme goes according to expectations.

Of course this does come with advantages for the maritime industry, most notably a remarkably improved performance and a significant reduction in service requirements. With no magnetron to replace every one or two years, a solid state radar can almost be considered maintenance free.

The JRC solid state radar for example, without a magnetron has a transmit power of just 250W compared to the traditional magnetron based 30kW equivalent. Advanced pulse compression with the 250 W solid state transceiver not only improves short range performance, but dramatically improves long range target detection while using only 1/100 of the power of a conventional radar.

With a new Doppler filter at its heart, moving targets are not only detected in clutter, but also clearly displayed on the screen. In addition to the significant reduction in routine maintenance, another advantage is instantaneous operation from start up, with no pre-heating or tuning required.

Naturally costs of the new solid state radars are higher, but realistically, probably not by more than one or two replacement magnetrons

X-Band solid state technology on the other hand, while available, is seen as commercially restrictive. Firstly there is not the commercial driving need in the

9GHz spectrum as there is at 3GHz. Then there is the significant cost differential between X and S-Band, (for some reason there are X-Band solid state components that are a lot more expensive than for the S-Band), as well as the GMDSS and navigation requirements where a magnetron firing radar is needed for performance monitors, RACONS and SARTS. The IMO carriage requirement is for at least one X-band radar to be on SOLAS vessels whereas an S-band radar installation is an option, albeit and extremely valuable one in adverse conditions.

JRC's first solid state S-band radar (JMA-9172-SA) was type approved at the end of 2008 and after intensive field testing, JRC made it commercially available at the beginning of 2011.

• Source: The Internet (industry analyst Chetan Sharma as reported by Daily Finance)

Joined up thinking

A ship is made up of a million decisions, big and small. It's a complex flow of people, logistics, designs and schedules. Success requires collaboration, and a complete understanding of strategic activities and events.

With AVEVA's integrated shipbuilding strategy, all project data can be exploited and shared at every stage of the build process, joining up the details to show the big picture. The result is an accurate and efficient project that delivers the right information, material and resources to reduce risk, time and cost.

With a global sales and service network in more than 40 countries, AVEVA is a leader in engineering design and information management solutions for the shipbuilding and offshore industries.

Choosing AVEVA will be one of the best decisions you ever make.

www.aveva.com/joinedupthinking

Visit us at OE 2011 Offshore Europe Oil and Gas Conference and Exhibition **on stand 1E38**

AVEVA

CONTINUAL PROGRESSION

Stretching the Bounds of State Sovereignty

About the Author
Mr. Moller serves as chairman of the Committee on Regulation of Vessel Operation of the Maritime Law Association of the United States, which has submitted an amicus curiae brief in the case of Pacific Merchant Shipping Association vs. Goldstene urging the U.S. Supreme Court to hear the case.

By Jeffrey S. Moller,
Blank Rome LLP

The operation of vessels in international commerce has never been more complicated than it is today, particularly from the standpoint of regulatory compliance. A vessel operator must be cognizant of international, national, state and local regulatory requirements. In an ideal world, the regulations of subjects such as navigation safety, crew licensure or pollution would be uniform so that an operator could understand the law and more easily comply. In cases where the requirements of one jurisdiction differ from those of another, it would certainly be helpful to know where the line of demarcation between one jurisdiction and another could be firmly drawn.

The regulation of air pollution emitted from large oceangoing vessels has been the subject of an international treaty for many years. The International Convention for the Prevention of Pollution from Ships, 1973 (known as "MARPOL") at Annex VI contains a standard on permissible levels of nitrogen oxide ("NOx") emissions and a general limitation on the sulfur content of vessel fuels. In 2006, the U.S. Senate consented to participation by the United States as a signatory to Annex VI. Two years later, Congress instructed the U.S. Environmental Protection Agency ("EPA") to administer and enforce the specific MARPOL Annex VI regulations for U.S. waters. And in April 2009, the United States and Canada jointly proposed so-called Emissions Control Areas ("ECA") along both the Atlantic and Pacific coasts as a prelude to the eventual imposition in those ECAs of the MARPOL Annex VI regulations. The agreed-upon ECAs will go into effect on August 1, 2012. From that date until January 1, 2015, ships travelling within 200 nautical miles of the coast of either the United States or Canada will, as a matter of U.S. and Canadian law, be required to use fuel with the maximum sulfur content of 1.0%. After January 1, 2015, the sulfur content limit will fall to 0.1%.

In the midst of all this international and national regulatory activity, the State of California nevertheless decided to wade in. Although EPA regulations and the ECA for the Pacific coast would cover all waters of California subject to navigability in interstate commerce, i.e., all of the waters where large oceangoing vessels could operate within or adjacent to the state, the California Air Resources Board ("CARB") adopted rules which impose NOx emission and sulfur fuel restrictions on all vessels operating not only within the territorial waters of California but extending out 24 additional nautical miles beyond the California baseline into the high seas. The CARB regulations imposed a 0.1% sulfur restriction on marine fuels effective July 1, 2009. Therefore, even at the point when the U.S. law takes effect in August 2012, the CARB rules will be stricter and will apply outside of California's territorial waters until at least January 1, 2015. Even after January 1, 2015, the CARB rules could remain in effect until the Executive Officer of CARB decides that the federal requirements will "achieve equivalent emissions reductions" and are in fact being effectively enforced within the waters governed by the CARB rules.

In April 2009, the Pacific Merchant Shipping Association (PMSA), whose members include foreign and domestic vessel owners and operators that are commercial cargo and passenger carriers in both foreign and coastwise trade, filed a lawsuit in federal court seeking to prevent the enforcement of the CARB rules. Unfortunately, the federal district court denied PMSA its requested relief, which denial was upheld on appeal earlier this year by the U.S. Court of Appeals for the Ninth Circuit. PMSA is determined to remedy the situation, however, and has recently submitted a petition to the U.S. Supreme Court. The Supreme Court is not obligated to accept the case, however. As things now stand, the State of California has received permission from the federal judiciary to regulate the conduct and operation of vessels bound for ports of California while those vessels are up to 24 miles outside of the State's traditional territorial jurisdiction.

The U.S. Constitution contains an important provision with respect to the superiority of federal and international law known as the "Supremacy Clause." That clause, found at Article I, Section 8, reads as follows:

"This Constitution, and the Laws of the United States which shall be made in pursuance thereof; and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land; and the judges in every State shall be bound thereby, anything in the Constitution or laws of any State to the contrary notwithstanding."

The MARPOL Annex VI treaty, as adopted by the United States and put into place by various federal statutes and international agreements, would certainly seem to qualify as "the supreme law of the land" with respect to pollution from ships, and therefore superior to those of any state. The U.S. Submerged Lands Act states that the seaward boundary of a state's jurisdiction is at the three mile limit. Nevertheless, it will take a reversal by the U.S. Supreme Court to prevent the CARB rules, which conflict with the program, timetable and substance of the MARPOL Annex VI regulations, subsequent agreements and statutes, and arguably the Submerged Lands Act, from being enforced.

The CARB rules are not the first foray by a state into the regulation of vessels engaged in foreign commerce. In fact, the regulation of and licensure of pilots for service upon foreign vessels has been largely left to the province of the states since the earliest days of the republic. An unsuccessful challenge to state pilot regulations gave rise to one of the seminal U.S. Supreme Court cases with respect to the interpretation of the Supremacy Clause, known as Cooley v. Board of Wardens of the Port of Philadelphia, decided in 1851. Of course, regulation of pilots on U.S. flag vessels involved in coastwise trade has been retained by the federal government. The Supreme Court has looked with favor upon state regulation of the shipping industry in other circumstances where there were gaps in the federal law or the subject of the regulation was, like pilotage, seen to be uniquely local in character. But the U.S. Supreme Court has never approved the enforcement of a state regulation beyond the limit of the territorial sea. The authority to regulate interstate commerce was specifically given in the U.S. Constitution to the federal government because the Founding Fathers recognized that uniformity of law in matters of commerce was absolutely essential in order to avoid conflicts among bordering states and difficulties with foreign countries. The operation of oceangoing vessels is, of course, the essence of commerce. Uniform regulations with respect to environmental protection are also essential because full protection of the global environment can only be achieved through international cooperation, which cooperation is less likely to be attained if each coastal state imposes unique requirements. California rightly takes pride in its leading role with respect to protection of the environment, and its air pollution problems, particularly in the South Coast area, have been extraordinary. But the importance of uniformity of law with respect to international shipping, recognized as a founding principle of our Constitution in order to avoid both internal difficulties and conflicts in foreign relations, must be given overarching precedence. It is to be hoped that the U.S. Supreme Court will take on PMSA's appeal and decide to restrict the enforcement of the CARB rules so that the principle of uniformity will be respected and strengthened.

The MARPOL Annex VI treaty, as adopted by the United States and put into place by various federal statutes and international agreements, would certainly seem to qualify as "the supreme law of the land" with respect to pollution from ships, and therefore superior to those of any state.

Airtime Plans starting at **50 MB** for **$49!**

KVH® INDUSTRIES
MINI-VSAT BROADBAND℠

Game changer.

game changer /gáym•cháynjer/ *n.* **1.** something that completely re-defines the sector in which it competes.

Fast.

Download speeds as fast as 2 Mbps

Affordable.

Low-cost hardware with airtime you can afford to use! Data: $0.99/MB
Voice: $0.49/minute

Global.

Worldwide mini-VSAT Broadband network with seamless roaming

Simple.

An end-to-end SATCOM solution, all from KVH

Small.

Easy to install system with ultra-compact 15.5" (39 cm) diameter dome

Until today, SATCOM services at sea cost a small fortune. Either the hardware was too big, too complicated or too expensive, or the airtime would bust your budget. Not anymore. The remarkable KVH TracPhone® V3 is changing all the rules.

Visit www.kvh.com/writingonthewall
Inmarsat Users:
Get 3 months
FREE airtime!

www.kvh.com/v3

The Next Generation in Marine SATCOM, Here Today!

KVH®

KVH Industries, Inc.
World Headquarters
Middletown, RI U.S.A.
Tel: +1 401 847 3327 Fax: +1 401 849 0045
E-mail: info@kvh.com

KVH Europe A/S
EMEA Headquarters
Kokkedal, Denmark
Tel: +45 45 160 180 Fax: +45 45 160 181
E-mail: info@emea.kvh.com

KVH Singapore
Asian Headquarters
Singapore
Tel: +65 6513 0290 Fax: +65 6472 3469
E-mail: info@asia.kvh.com

KVH Norway AS
Horten, Norway
Tel: +47 33 03 05 30 Fax: +47 33 03 05 31
E-mail: info@no.kvh.com

11_TPV3_GameChange_Leisure_MaritimeReporter

GPS Squared

About the Author
Dennis L. Bryant, Maritime Regulatory Consulting, Gainesville, FL, Tel: 352-692-5493
Email: dennis.l.bryant@gmail.com

MOBILE DATA EXPLOSION **By 2015 it is estimated Mobile Data traffic will be 20x its 2010 level.** *(Source: Fortune, July 25, 2011, p. 15)*

By Dennis L. Bryant

The Global Positioning System (GPS) has a dominate role in navigation and positioning worldwide. Cars, trucks, and airplanes rely on receipt of GPS signals to confirm where they are and, in many cases, how to get to their destinations. Farmers use GPS to precisely plow their fields, sow their seeds, and fertilize their crops. Hikers and hunters use GPS to avoid getting lost in the wilderness. Perhaps as important, the modern financial system relies on the precise timing signal of GPS to regulate commerce. Credit card purchases and bank transactions utilize the timing signal to keep everything in relative order.

Unfortunately, as many are aware, the signal transmitted by the GPS constellation of satellites is extremely low power. As a result, it is subject to interference, whether accidental or intentional. Instances of temporary, localized interference with the GPS signal are legion. In 2009, the UK General Lighthouse Authorities conducted a test off Flamborough Head in the North Sea. A GPS jammer (illegal, but readily available) was activated. It disabled the ship's installed GPS receiver, which, among other things, caused erroneous AIS signals to be transmitted. It also disabled two handheld GPS receivers that were being tested. It should be noted that the ship's Loran equipment was unaffected.

One of the best documented instances of unintentional GPS jamming occurred in Moss Landing, California during April and May 2001. In early April, mariners in the harbor noted that they were unable to receive GPS signals. Some assumed that their receivers were defective and promptly purchased new ones – but they did not work either. In fact, no one was receiving GPS signals in the vicinity of Moss Landing and up to one mile offshore. It not only affected maritime GPS receivers, but also other electronics that relied on the GPS signal for precise timing. **Extensive investigation revealed that the source of the jamming emission was a defective pre-amplifier on a VHF-UHF television antenna that had been installed on a yacht berthed in the harbor.** Once that source had been identified and resolved, two more similar situations were discovered. The US Coast Guard issued a Safety Alert strongly recommending that vessels with television antennas installed check to ensure that they were not transmitting errant radio signals.

In January 2007, two US Navy ships in San Diego Bay were conducting a training exercise. To test procedures for when regular radio communications were lost, technicians jammed the standard radio frequencies used by the ships. Unknowingly, the jamming also blocked receipt of the GPS signal throughout the local area. Air traffic controllers had difficulty monitoring aircraft. The Coast Guard VTS became inoperative. Emergency pagers used by hospital personnel also quit working. Some mobile phones lost their signals. Local automated teller machines (ATMs) became inoperative. The problems continued for two hours while the Navy ships completed their training exercise. It was only several days later that the full story was discovered. Needless to say, similar exercises are no longer conducted in San Diego Bay.

In 2001, the Department of Transportation's Volpe National Transportation Systems Center in Cambridge, Massachusetts published a report entitled "Vulnerability Assessment of the Transportation Infrastructure relying on the Global Positioning System". It found that reliance on the GPS signal is increasing apace, not only for navigation and positioning, but also for precision timing in critical infrastructure such as the power grid, telecommunications, banking, commerce, and the internet. Due to the low power used in the GPS signal transmission, degradation or jamming of the signal may result from such things as solar flares, electrical storms, or accidental or intentional manmade radio interference. It recommended, among other things, improvements in the signal transmission process, improvements in GPS receivers, and maintenance of an alternative system (such as Loran) for use when GPS is unavailable.

The Volpe report is now ten years old. What has changed? As a cost-saving measure, the federal government recently shut down the Loran system, eliminating the sole electronic backup to GPS (but we still have our sextants). The cost of illegal GPS jammers and spoofers has decreased, while their availability has increased. Finally, the radio spectrum has become more crowded, making accidental radio frequency interference with the GPS signal more probable.

Internet service is widespread. Originally, users relied on wires (telephone landlines, television coaxial cables, etc.) for such service. Then, wireless internet via routers and local hotspots became the avenue of choice. Everyone now demands high-speed (broadband) internet access. The latest development in this regard in national wireless internet access.

A company named LightSquared has proposed the combined operation of a mobile satellite service (MSS) and a ground-based wireless communications network to provide a nationwide wireless high-speed internet system. The ground-based system would consist of approximately 40,000 base stations using the same "L-Band" radio spectrum as the satellites. It promises to bring high-speed internet service to all parts of the country, particularly rural and remote areas that are now off the wireless internet grid. There is a downside though. The frequency spectrum that LightSquared intends to use is directly adjacent to that currently used by GPS. The Federal Communications Commission (FCC) has authorized LightSquared as a MSS to utilize the 1525-1559 MHz band for downlink purposes and the 1626.6-1660.5 MHz band for uplink purposes. The spectrum allocation for GPS is 1560-1610 MHz.

The L-Band frequency spectrum (basically 1000-2000 MHz) has been historically reserved for low power communications between satellites and mobile earth stations. In addition to GPS, the spectrum is utilized by Galileo, GLONASS, COSPAS-SARSAT, GSM mobile phones, Iridium, and Inmarsat, among others. In recent years, the FCC has authorized terrestrial transmissions in the L-Band as Ancillary Terrestrial Component (ATC) transmissions, intended to fill in gaps in the coverage of satellite signals and for terrestrial communications between satellite equipment. That was the basis on which the FCC originally approved use of a portion of the L-Band spectrum by LightSquared (previously named SkyTerra). Gradually, though, the LightSquared business plan moved more toward the ground-based portion of the project and placed less reliance on the MSS use. Up until now, the FCC has largely acquiesced in this evolution.

One of the problems highlighted by this controversy is the conflicting interests of the FCC. On the one hand, the agency is tasked with protecting the integrity of the radio frequency spectrum. On the other hand, it is tasked with maximizing revenues accruing to the federal government through auctioning portions of the radio frequency spectrum to commercial users. LightSquared and other commercial entities are willing to pay (and have paid) significant monies for licenses allowing use of a portion of the spectrum now lying fallow, just across the fence from that portion reserved (gratis) for GPS and similar services. The FCC is also charged with increasing the availability of broadband internet access. This situation reminds one of the schizophrenia within the old Minerals Management Service (MMS), at that time charged with both regulating the oil and gas industry and collecting revenues therefrom.

The Space-Based Positioning, Navigation & Timing National Executive Committee, a federal interagency organization, and the Department of Defense (DOD) coordinated two tests to assess the impacts of LightSquared terrestrial transmissions on GPS signals. The first test was conducted at White Sands Missile Range on April 4-7, 2011. The second test was conducted at Holloman Air Force Base on April 14-17, 2011. The tests were open to all federal agencies and various private sector stakeholders. The Federal Aviation Administration (FAA) found that all of its tested receivers lost GPS solution. The US Coast Guard found that its coastal dGPS service was impacted. NASA reported that all high-precision receivers for science were impacted. The National Geodetic Survey reported that its receivers lost GPS solution. John Deere Company reported that its receivers, used for precision farming, were also impaired.

Apparently anticipating difficulty in

obtaining final approval from the FCC for its use of that portion of the L-Band spectrum adjacent to the GPA portion, LightSquared announced recently that it will utilize another part of the spectrum that it asserts will virtually eliminate interference with GPS signals. It also proposes to reduce the maximum authorized power of its base-station transmitters by more than 50%. LightSquared, though, is not surrendering its claim to later utilize its previously-proposed L-band transmissions. In its communications with the FCC, LightSquared also stressed the need for precision GPS receiver manufacturers to cooperate with LightSquared to produce solutions that would enable the coexistence of LightSquared's proposed LTE broadband network and precision GPS receivers that are designed to "listen" across the MSS L-band. The matter is now in the hands of the FCC to rule on the modified LightSquared license application. As of the date of this writing, 370 comments have been submitted to the FCC docket for LightSquared's application (number 11-109) and it is difficult to find any comment that is not in opposition.The positioning, navigation, and timing functions of GPS have become highly ingrained into the economy of the United States and the world. It is difficult to justify the business plan of LightSquared if that plan would adversely impact the Global Positioning System. In accordance with current FCC regulations, LightSquared should be required to limit its use of terrestrial transmissions to those that are ancillary to its satellite transmissions and to clearly demonstrate that its proposal would not have an adverse effect on established uses of GPS before the FCC moves forward on consideration of its license application.

Maritime Struggles for Consensus on Environmental Measures

By Chris Daw, Managing Director, Kittiwake Procal

In discussions around recent green shipping events, debate oscillates over the applicability of the various efficiency indexes emerging in the shipping sector. The most widely debated index, the International Maritime Organization's (IMO) Energy Efficiency Design Index (EEDI), which was mandated for newbuild vessels at July's IMO MEPC meeting has its detractors and supporters in almost equal measure. But a plethora of other indices suggest that operations as well as design need to have a means of measuring CO2.

With that, perhaps it is little wonder that in the last 18 months we have seen the emergence of shippingefficiency.org from the Carbon War Room, the Environmental Ship Index (ESI) from the World Ports Climate Initiative (WPCI), the Swedish-led Clean Shipping Index and the 'container focused' Clean Cargo Working Group index.

The likes of Caterpillar, Volvo and Wal-Mart are now asking for emissions data and Maersk Line has become the first shipping line to publish independently verified CO2 emissions data, vessel by vessel.

However, this needs to be accurately assessed, and the days of measuring CO2 through a 'back of the envelope' calculation based on the amount of bunker fuel purchased will not meet international standards for CO2 data collection in the medium to long-term. It would be considered wholly inadequate, for example, to have a power station's CO2 measurements based on the amount of fossil energy that was processed in the plant.

The argument for indexing and benchmarking is over. The sheer number of regulatory and commercial indices emerging suggests that the shipping industry now understands the importance of collecting and comparing emissions data.

The next challenge is to ensure that, when "future proofing" a vessel that it meets accurate data standards both now and in years to come.

Take a newbuild vessel built in 2013; it is probable that this vessel will have a minimum 25-year working life, so an asset that will still be in service in 2038. The likelihood is that this vessel's owners will, by 2013, have to report its Ship Energy Efficiency Management Plan (SEEMP) and EEDI to IMO. Under the likely subsequent implementation of a bunker levy or emissions trading scheme, the need for accurate CO2 data will be just as critical.

Shipping's approach to calculating CO2 through unreliable bunker delivery

About the Author
Chris Daw developed the Procal in-situ stack gas analyser, plus a complete range of photometric analysis products, systems and signal processing equipment over a 14 year period.

notes will undoubtedly have to become more sophisticated. Not least when many owner / operators complain of inaccurate bunker deliveries (and so, by default, inaccurate emissions data) and when, looking ahead, the measurement of CO2 will determine how much levy or carbon traded is afforded to a company.

Of course, emissions monitoring is already a fact of life for shipping and IMO MARPOL Annex VI's regulations have made emissions monitoring an essential function.

Sulphur content limits in the North Sea, English Channel and Baltic Emission Control Areas (ECAs) will be reduced from 1.0% to just 0.1% in 2015, requiring more sophisticated monitoring systems, and most vessels in EU ports already need to comply with EC Regulation 2005/33/EC, which limits sulphur content to 0.1%.

More ECAs are also on the way. The vast US-Canadian ECA will take effect from July 2012, a US-Caribbean ECA has been approved and Japan is reported to be preparing an ECA application. Vessels in these areas will need to monitor their emissions in order to demonstrate compliance.

The most effective method for measuring emissions is through in-situ monitoring using a Continuous Emissions Monitoring (CEM) system. This is accepted land based practice in many critical emissions monitoring applications. In contrast to extractive sampling where an exhaust gas sample needs to be physically extracted from the system and then analyzed, 'in-situ' emissions monitoring provides a continuous, real time measurement of the content of your exhaust gases. In-situ is reliable and cheap to operate. Marinised to answer the demands of the developing industry for sea water scrubbing, these systems are accurate to a few ppm (parts per million) with gas species-specific ranges from 100->1000ppm depending on what requires measuring. Data is available instantly and continuously, in the engine room or on the bridge.

So while indexing and benchmarking have a significant role to play, ultimately complex formulas will — as a natural course of things — become redundant, with real time data taken from that stack through CEMS becoming the norm.

The technology is there to provide accurate CO2 measurement. Can owners and operators continue to rely upon often disputable data methodology and accuracy to assess their emissions, and, in so doing, leave to chance the amount of fuel burnt to meet regulations, or the amount paid for an emissions levy or carbon credits in years to come?

A Common Sense Approach to Ballast Water Regulation

About the Author
Jennifer A. Carpenter is Senior Vice President – National Advocacy, The American Waterways Operators. Carpenter joined AWO in August 1990.

For the past several years, The American Waterways Operators (AWO), the national trade association for the tugboat, towboat, and barge industry, has been advocating for a common sense approach to the regulation of ballast water and other vessel discharges. Discharges incidental to normal vessel operations are currently governed by a confusing and contradictory patchwork of federal and state regulations that have wreaked havoc with interstate waterborne commerce, putting the economy and the environment at risk. AWO and its allies have been pursuing action in the courts, with federal agencies, and with Capitol Hill policymakers to establish a practical, uniform federal framework for the regulation of vessel discharges including ballast water.

In 1973, the Environmental Protection Agency (EPA) exempted discharges incidental to vessel operations, including ballast water, from the Clean Water Act's National Pollutant Discharge Elimination System (NPDES) permitting program, a program developed to regulate discharges from land-based stationary sources of pollution. But in 2003, environmental groups challenged the exemption in court and in 2006, a federal district court ruled that the longstanding exemption for vessels was unlawful. The Shipping Industry Coalition, which includes AWO, joined with EPA in appealing the decision to the Ninth Circuit Court of Appeals, but in July 2008, the Ninth Circuit upheld the district court's decision.

In December 2008, EPA published the Vessel General Permit (VGP), containing baseline requirements for vessel discharges. As part of the "section 401 certification" process, some 26 states added overlapping and sometimes conflicting conditions to the permit applicable in those states' waters. Taken together, these byzantine requirements represent an untenable situation for our industry's vessels, which regularly transit the waters of multiple states in a single voyage. This patchwork of rules that differ from one side of an invisible line in the water to another puts hard-working mariners and law-abiding companies at risk of unwittingly committing a crime.

LITIGATION OUTCOME POINTS TO CONGRESS

In April 2009, AWO joined with the Lake Carriers' Association and the Canadian Shipowners Association to file a legal challenge to the VGP, arguing that EPA had violated the Administrative Procedure Act and the Regulatory Flexibility Act when it issued the final VGP without providing the regulated community an opportunity to comment on the 100+ state conditions that had been added to its draft permit, nor considering the economic impact of those state conditions on small businesses.

In its July 22, 2011 ruling, the U.S. Court of Appeals for the D.C. Circuit disagreed with EPA's contention that it was not required to seek comment on state conditions or analyze the costs of complying with state conditions. However, the Court accepted EPA's argument that the agency did not have the authority to alter or reject the state conditions, and that it was therefore unclear that providing notice and an opportunity for comment on the state conditions would have served any purpose. The Court suggested that Congress must amend the Clean Water Act to provide the maritime industry with a permanent solution to this problem. The Court's decision reinforced AWO's long-held position that the NPDES permitting program is poorly suited for the regulation of discharges from mobile sources. To illustrate the current situation, a towboat moving from

AWO President & CEO Thomas Allegretti told lawmakers that the current

patchwork of authorities with respect to vessel discharges regulation

is antithetical to environmental protection and economic growth.

Pittsburgh to New Orleans travels through the waters of 11 states. The court decision implies that even if those 11 states impose conflicting, overlapping, or infeasible conditions applicable while the tow is in their waters – and even if EPA knows that those conditions are unworkable – the agency has no authority under the Clean Water Act to reject or modify the state conditions. AWO believes more strongly than ever that Congress needs to fix this broken system.

THE LEGISLATIVE FRONT

Invited to testify on July 13, 2011 before the House Coast Guard and Maritime Transportation and the Water Resources and Environment Subcommittees on behalf of the Shipping Industry Coalition, AWO President & CEO Thomas Allegretti told lawmakers that the current patchwork of authorities with respect to vessel discharges regulation is antithetical to environmental protection and economic growth. "Without Congressional action," Mr. Allegretti said, "the flow of essential maritime commerce will be constrained, American jobs will be jeopardized, regulatory burdens on businesses and workers will multiply, and American taxpayers will continue to foot the bill for duplicative and contradictory programs."

AWO and the Shipping Industry Coalition support the establishment of a consistent, practical, science-based federal framework for the regulation of vessel discharges outside of the NPDES permitting program. Such a framework, Mr. Allegretti told Members of Congress, would be good for U.S. business and American mariners, good for the U.S. environment, and good for the American economy and jobs. Coast Guard and Maritime Transportation Subcommittee Chairman Frank LoBiondo (R-NJ) and Water Resources and Environment Subcommittee Chairman Bob Gibbs (R-OK) both recognized the need for the comprehensive regulation of vessel discharges. "The time has finally come to enact a clear, effective, and uniform national standard that utilizes available and cost-effective technology," Chairman LoBiondo said. Chairman Gibbs added, "We need a common sense approach that can be enacted quickly, protects the environment, reduces red tape, grows maritime jobs and opens the flow of interstate commerce."

Other Committee members also called for Congressional action to solve the problem of vessel discharges regulation. Rep. Rick Larsen (D-WA), Ranking Member of the Coast Guard and Maritime Subcommittee, urged his fellow Members of Congress to resolve the uncertainty surrounding vessel discharges, adding, "The Coast Guard Subcommittee and the Water Resources Subcommittee can work together in a bipartisan way to develop legislation that effectively addresses discharges from ships and boats."

AWO is hopeful that the support for a uniform regulatory regime expressed at the hearing will spur the development of legislation to replace the broken regulatory system that currently exists with an effective and practical one.

The recent Circuit Court ruling highlights the urgent need for Congress to act. We hope that Congress will seize the opportunity to right this regulatory, environmental, and economic wrong on behalf of the American companies that operate tugboats, towboats, and barges that carry the cargo to fuel our economy, that provide high-quality jobs for men and women throughout this country, and that seek to protect the marine environment while keeping our businesses viable.

South East Asia Shipyard

Make Over for Landing Craft

The iconic 4-wheel-drive World War II Jeep has undergone decades of upgrades to become the modern SUV. Now the craft that landed on the beaches of Normandy and the islands of the Pacific has been similarly upgraded at the South East Asia Shipyard in Vietnam. The most important factor in the design, by France's Piriou Ingénierie, is the provision for the landing craft to carry up to nine TEU of containers on trailers as well as regular cargos. Side rails will secure the trailers and their containers. Electric connections will be provided for reefer containers. The trailers and other cargo will be loaded and off loaded through the hydraulic controlled forward cargo ramp. The advent of containerized shipping has put many small island and coastal communities at a disadvantage in shipping products such as locally caught fish. There has also been difficulties in the importation of containerized consumer goods. The 39.8 x 9.8-m landing craft will be put in service between St Martin and St Barthelemy Islands in the West Indies. The vessel, owned by RMP Caraïbes, is surveyed by BV and will be French flagged. To be named Hirundo, Latin for swallow, the vessel is powered by a pair of six-cylinder Cummins KTA19 engines each rated for 425 HP at 1800 rpm. These engines will turn fixed pitch four-blade propellers through ZF360 gears with 2.917:1 rations. Two Cummins-powered Leroy Somer generators with outputs of 106 KVA and 65 KVA will provide electrical power. Both generators are 50Hz and 230-400 V triphase systems. Fuel and water capacities are 34 cu. m. and 7.5 cu. m. respectively. To be operated by a crew of four, the boat will be delivered to her owners via a heavy lift ship from Ho Chi Minh City to Pointe a Pitre, Guadeloupe and then on her own keel to St Barthelemy. This revision of the classic landing craft offers potential for many areas worldwide that are too small for a conventional container port.

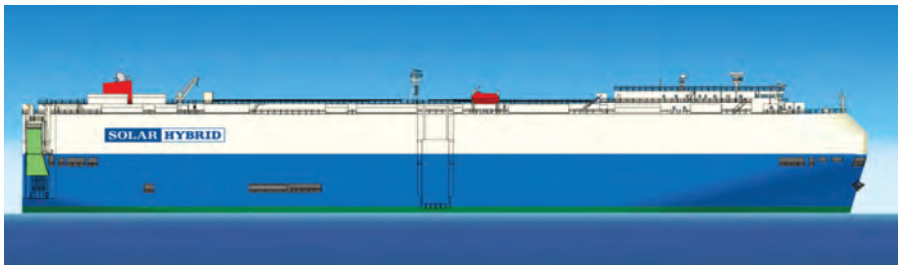
Photo & Illustration courtesy of South East Asia Shipyard

Mitsubishi Heavy Industries, Ltd., Kobe Shipyard

Hybrid Car Carrier Launch in 2012

As the maritime industry is pushed to cut water and air emissions, industry leaders such as Mitsui O.S.K. Lines push the envelope further faster, as evidenced by the company's announcement that the exterior and basic design of the hybrid car carrier aiming at zero emissions while berthed had been determined. As a "project that develops systems to reduce CO2 emissions from ocean-going vessels," the vessel earned MOL a subsidy from Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT) in 2009. The vessel is scheduled to be launched at the Mitsubishi Heavy Industries, Ltd., Kobe shipyard in June 2012.

It will be equipped with a hybrid electric power supply system that combines solar power panels for generation with lithium-ion batteries for power storage, a system which the company reports is the result of a cooperative study group of experts from Mitsubishi Heavy Industries, Sanyo Electric Group, and MOL.



With solar panels on every bit of flat, exposed upper deck space, this system generates some 160kW, more than ten times as much as current systems on other ships, making it the most powerful system of its type in the world, according to MOL. The lithium-ion batteries can store some 2.2MWh of electricity, and the power generated by the panels while the ship is under way is stored in the batteries and used to power the ship's systems while it is berthed. It is designed to eliminate the need for diesel-powered generators, enabling the ship to achieve zero emissions at the pier. In addition, the lithium-ion batteries are placed in the bottom of the vessel, taking the place of fixed ballast, so they have no effect on the number of vehicles the vessel can carry.

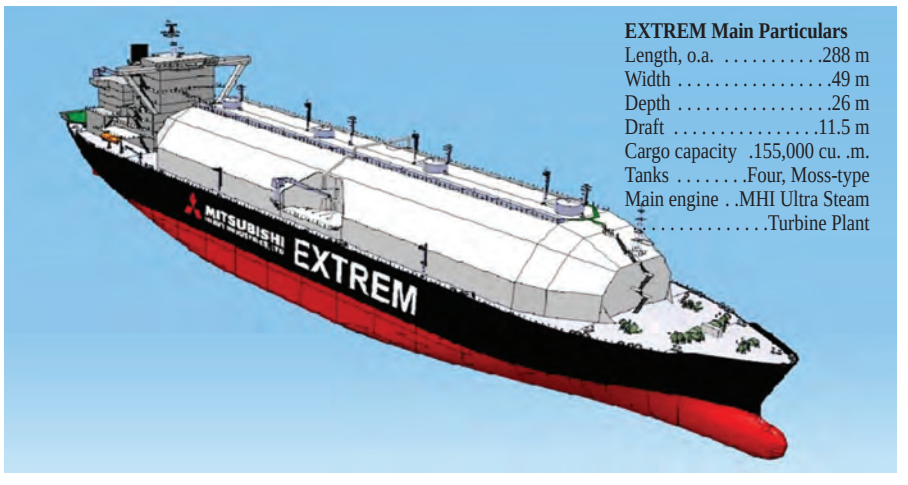
Main Particulars
Length, o.a. . . . . .199 m
Beam . . . . . .32.3 m
Draft . . . . . .9.7 m
Capacity . . .6,400 vehicles (standard passenger cars)

The logo SOLAR HYBRID is painted on the sides of the vessel near the stern to identify its hybrid system and its use of natural energy. The development of this vessel was subsidized by the MLIT as a "project that develops systems to reduce CO2 emissions from ocean-going vessels," and it is supported as a "cooperative development project to reduce greenhouse gases produced by ocean shipping" from the NKK.

Mitsubishi Heavy Industries, Ltd.

LNG EXTREM

Mitsubishi Heavy Industries, Ltd. (MHI) completed development of a new-generation LNG carrier marking an advance from Moss-type 1 LNG carriers. Dubbed EXTREM, it is a type of newly developed Sayaendo*2 Series, which features a peapod-shaped continuous cover for the Moss spherical tanks that is integrated with the ship's hull, in lieu of a conventional hemispherical cover. The new configuration is designed to provide greater structural efficiency and size and weight reductions, resulting in improvements in fuel consumption and operating economy, and also enhancements in compatibility with LNG terminals and maintainability. In conventional Moss-type LNG carriers, the upper half of the spherical storage tanks above the ship's deck is covered by a semispherical dome and the lower half under the deck is supported by a cylindrical skirt structure. By contrast, EXTREM employs a continuous cover integrated with the ship's hull to house all storage tanks entirely, enabling the cover to be used as hull reinforced material for overall strength. In the conventional method, pipes, wires and catwalks atop the tanks were supported by complex structures. **By covering the tanks with the integrated cover and making those supporting structures unnecessary, the new design improves maintainability.** The continuous cover over the tanks improves aerodynamics by substantially reducing wind pressure which serves as a drag on ship propulsion. Improved aerodynamics contributes to reduced fuel consumption during navigation. At the same time the continuous cover minimizes exposure of support structures and equipments, and it also facilitates reinforcement of overall strength to be effective in resisting ice impact load, thus making the system also suitable for LNG transportation in frigid or icy-water regions. The LNG carrier measures 288 x 49 x 26 m in depth with a 11.5 m in draft. It has cargo tank total capacity of 155,000 cu. m. using four Moss-type tanks. Compared with conventional Moss-type LNG carriers of the same size, **this ship design has the capacity to transport 8,000 cu. m. more LNG by employing stretched Moss tanks and its steel hull structure is about 5% lighter in weight.** The depth of the ship has also been reduced by 1m, enabling better compatibility with major terminals in Japan and other countries in view of cargo manifold and gangway landing arrangement. For its main power plant, the EXTREM adopts MHI's Ultra Steam Turbine Plant (UST), a new turbine plant which achieves higher thermal efficiency through effective use of thermal energy by reheating steam. Together with downsizing, weight reduction and hull lines improvement, the new ship reportedy achieves a substantial 20% reduction in fuel consumption.



EXTREM Main Particulars
Length, o.a. . . . . .288 m
Width . . . . . .49 m
Depth . . . . . .26 m
Draft . . . . . .11.5 m
Cargo capacity .155,000 cu. .m.
Tanks . . . . . .Four, Moss-type
Main engine . .MHI Ultra Steam
. . . . . .Turbine Plant

BAE Systems

Oman Ship Named at Portsmouth Naval Base

The last of three corvettes under construction by BAE Systems for the Royal Navy of Oman (RNO) was named in a launching ceremony at Portsmouth Naval Base. Employees and guests, including senior representatives from the RNO and UK Royal Navy, gathered at the naval base to watch Lt General Hassan Mohsin Al Sharaiqi, Inspector General of the Police and Customs of the Sultanate of Oman, formally name the RNO's newest vessel, Al Rasikh.

Al Rasikh is part of Project Khareef, signed in 2007, for the design and build of three 99m corvettes for the RNO. With a continued commitment to providing through-life support and services to its customers, BAE Systems is also delivering training for

RNO personnel, as well as an initial logistics support package for the ships. The corvette is an efficient and operationally flexible platform, equipped to defend against both surface and air threats. Al Rasikh and her sister ships will be used to protect Omani territorial waters, conducting coastal patrols in peacetime, with the ability to conduct search and rescue, as well as disaster relief, while providing ocean going capability for use in deterrent operations during times of tension. Following hand over to the RNO next year, the first of class Al Shamikh, and her crew will undergo the UK Royal Navy's Flag Officer Sea Training program before sailing to Oman for hot weather trials. Al Rahmani, the second ship of the class, was officially named in July 2010 and will undertake sea trials later this year.

Topaz Shipbuilding

Innovative Crewboat Launched by Topaz

Incat Crowther announced the launch of Topaz Zenith. Launched by Topaz Shipbuilding, this 27.6m Wave Piercing Catamaran Crew Boat was designed to support offshore energy installations. Part of the development of the vessel focused on the development of an unusual platform for the application. Following the evaluation of a series of criteria, a Wave Piercing Catamaran platform was chosen. The bow of the vessel is configured to interface cleanly with the rig structure, while being well clear in all other areas to avoid risk of collisions and injuries. To eliminate the risk of damage to the forepeaks or having the hull hang up on the rig structure, the vessel's bows have been configured so that they do not extend beyond the outline of the foredeck.

The vessel features a large aft-deck with container mounts and a Sormec M18FB/4S 23.5t/m deck crane. With a load capacity of 3t/sqm, the vessel has over 50 sq. m. of usable deck space, giving the vessel capacity to carry a 20 ft. Oil Spill Recovery container transversely on the aft deck. In addition to the bow transfer system, passenger access is provided via side gates at the forward end of the cargo deck. This transverse passenger thoroughfare is protected from the cargo space by large cargo barriers, allowing passengers and cargo to be loaded concurrently in a safe and efficient manner.

The vessel is powered by a pair of 1193kW Caterpillar C32 Acert engines, driving Hamilton HM651 waterjets. Speed performance on sea trials confirmed the design predictions with the vessel achieving 32 knots sprint speed, and 28 knots service speed at 85% MCR. The propulsion system exploits the WOSR (Wide Operating Speed Range) of the Caterpillar engines, allowing full power from 2000rpm. This allowed a cost and weight saving by minimizing the rotation speed of the FiFi clutch equipment. The port main engine is mated to a hydraulic clutch turning an FFS 250x350HD FiFi pump that feeds a foredeck mounted fire monitor, with a rating of 600m3/hr. Incat Crowther is proud of the development process of this vessel, which has lead to a very unique and capable vessel being created to its client's specific requirements. A similar vessel is also nearing completion at Topaz Shipbuilding that will incorporate a slightly larger cabin and additional fluid capacities, and will provide 24 hour support in the wind farm sector.

Jin Hai Shipyard in China

New Generation of Container Super Feeders

The Graig Group ordered a series of up to 26 new generation MARLIN 2000 Blue design container feeders to be built at the Jin Hai Shipyard complex in China. The first two vessels are scheduled for delivery in August and September 2013 with subsequent vessels to be delivered in pairs every two and half months. "This series responds to the industry's needs," said Hugh Williams, CEO, Graig. "There is a gap in the containership market for quality, fuel efficient, competitively-priced and environmentally-friendly feeder ships to service the ultra large containerships now being brought into service by the major lines. This advanced MARLIN family of designs will fill that gap, and we expect this order to be the first of several series of larger capacity future-proof vessels, backed by the strength of the MARLIN consortia."

The MARLIN series of designs has been developed by Wärtsilä, working closely with Graig and classification major DNV. The designs are the product of extensive research and tank testing and consultation with end users. With a number of design variants, the series delivers approximately 30 percent improved fuel efficiency per TEU carried, improved capacity and slow steaming potential, better loading flexibility for different container types including a high reefer intake and lower emissions when compared to vessels currently in service.

The initial order is for three MARLIN 2000 Blue geared vessels and three options followed by an understanding for the series to be extended up to 20 additional vessels including other MARLIN designs. The first vessels have been ordered by Graig and a number of partners. Finance support is being led by a major European bank and China's EXIM Bank.

Southwest Shipyard

Port Aransas Ferries Begin Service

The first two of a new class of vessels designed by Seattle-based Elliott Bay Design Group LLC (EBDG) and built for the Port Aransas Ferry Service went into operation on July 1. EBDG was selected by the Texas Department of Transportation (TxDOT), Corpus Christi District, to prepare the design for this new 160-ft, double-ended ferry serving as a continuation of Texas State Highway 361 across the Corpus Christi Channel, between Port Aransas and Harbor Island. The new vessels, the Michael W. Behrens and the Charles W. Heald, are named for former directors of the transportation department. They increase the Port Aransas fleet to eight vessels, and each new vessel has a carrying capacity of 28 vehicles, eight more than the port's older ferries.

One of the most significant structural improvements of these vessels is the pilothouse support. "The old vessels have a pilothouse on a pylon that comes up from the center of the vehicle deck," said Brian King, Vice President of Engineering at EBDG. "This ferry has the pilothouse over a bridging structure supported on each edge of the ferry, leaving the vehicle lanes clear of obstructions. This is most significant for trucks that load on the center line of the vessel." The ability of large trucks to roll on and roll off without maneuvering around a pilothouse support significantly reduces loading and unloading times.

In addition to providing a smoother and quieter ride, the new ferries include passenger shelters and accessibility to passengers with disabilities. The vessels are ABS classed and U.S. Coast Guard inspected.

Length overall (molded)	159.6 ft.
Length on design load waterline	153.5 ft.
Length between perpendiculars	145 ft.
Breadth (molded) over guard	52 ft.
Breadth (molded) at DLWL	42.3 ft.
Depth (molded) amidships at side	11. 7 ft.
Draft (molded) at DLWL	8 ft.
Displacement (molded) at DLWL	512.7 LTSW
Maximum DWT Capacity	234 LT
US Gross Tonnage	79 GT
Brake Horsepower (@2100 Engine RPM)	600 BHP
Generators (2) continuous duty service @ 1800 rpm	55 KW @ 0.8 pf, 60 HZ
Fuel Oil Capacity (95%)	4,200 Gallons
Automobile Capacity	28
Passenger Capacity	150

DAMEN 35 Shipyards; 5,000 Vessels Built

Damen Shipyards Group began as a single shipyard in 1927 and has grown to include more than 35 shipyards. The Dutch group has built more than 5,000 vessels to date. Headquartered in Gorinchem, Damen is active in the design, construction, and repair of ships. In addition, the group provides a broad range of associated maritime services. Although Damen is a multinational group, it remains a family-owned company, with a deep respect for its maritime heritage.

Damen builds a wide range of standard vessels, such as tugs, workboats and high-speed craft, including patrol and pilot boats and fast ferries. Damen is also active in the construction of specialized large workboats, naval vessels and superyachts. Maritime services offered worldwide include the delivery of prefabricated shipbuilding kits, after-sales support, spare parts delivery service, training, repairs, conversions and rebuilding projects, chartering, and second-hand trading.

Damen currently has some 150 vessels on order. Of these orders, 30 standard tugboats will be delivered to clients all over the world. Around ten workboats are on order (Multicats and Shoalbusters); and in the coming months, Damen will deliver eleven cargo vessels. The Fast Crew Supplier 2610 for the offshore wind industry has proven to be such a success that Damen is currently building ten of them, three of which have already been sold. Additionally, Damen is building a Stan Patrol 5009 of the Axebow design and a Fast Yacht Support Vessel 6711. A Trailer Suction Hopper Dredger and a Grab Hopper Dredger (each with a hopper capacity of 750 cubic meters), three Cutter Suction Dredgers, and a large Booster Station are also on order. In 2010, Damen delivered 160 vessels. **Damen's recent investments have included building two new shipyards and an extensive, ongoing training program. With some 150 vacancies at the company, Damen is rapidly expanding and has new offices under construction at its HQ in Gorinchem.** In August 2010, a signing ceremony took place for the start of construction of a new shipbuilding facility – Damen Vinashin Shipyard in Haiphong, Vietnam. Completion of the first phase of the project is planned for February 2012. The new yard is expected to handle twelve vessels a year initially. Investments in the first phase have included a Syncrolift with a 2,500 ton capacity, an outfitting hall of 80 m x 40 m and various workshops and offices. In the second phase, the capacity will be increased to a maximum of 30 vessels a year in an outfitting hall of 160 m x 150 m. Damen is also continually making sure its management and employees are kept up-to-date with the latest technological advances by extensive training programs. Additionally, Damen is setting up its own Training Academy.

Kommer Damen (left), has Damen embarked on the path of success for the next generation.

DAMEN

At a glance

Damen

Kommer Damen – Chairman
René Berkvens – Chief Executive Officer
Arnout Damen – Chief Operations Officer

Financial information	
Turnover 2010	$1.8 billion
Employees:	
The Netherlands	2,300
International	3,300
Total in 2010	5,600
Operating companies:	
The Netherlands	17
International	18
Total in 2010	35

Shipbuilding Business 2011 & Beyond

As shipbuilders face tight finance and lean times, Maritime Reporter explores the businesses of some of the more progressive and aggressive companies that continue to innovate to maintain and gain market share.

This summer, Holland's IHC Merwede has delivered a number of specialized ships. Belgium's DEME Group, one of the world's leading dredge contractors, has been the main customer. The new "mega" trailer becomes the new flagship of the DEME fleet. The 168-meter-long ship was designed to be one of the highest performing and most economical dredgers on today's market. With the launch of this "mega" trailing suction hopper dredger, DEME confirms its conviction that the dredging market also holds great prospects in the coming years. IHC also launched the dredger Breughel for DEME. The contract for the design, construction and delivery of the vessel was signed between DEME and IHC Dredgers in June 2010, and the keel was laid on November 15, 2010. The vessel will be delivered by November 2011. The design of the Breughel is based on the successful trailing suction hopper dredgers Brabo and Breydel, delivered by IHC Merwede in 2007 and 2008, respectively. The limited draught, combined with large width, was designed to allow the Breughel to operate in conditions where other ships of its class would be restricted. The vessel's one-man operated bridge is equipped with a console that combines both dredging and sailing functions.

W3G Marine (W3GM) and IHC Merwede have agreed to collaborate on the development of W3GM's patented design for an offshore wind turbine installation ship (OWTIS). The OWTIS concept has major advantages over existing assets, not least in its ability to improve offshore safety by necessitating fewer tasks to be performed offshore. It is environmentally friendly – as it has no contact with the seabed – and able to operate in harsh weather and deploy large loads. The OWTIS concept is not limited by water depth and is readily transferable to the oil and gas heavy-lift market.

The purpose-designed OWTIS will be equipped with a 1,500-ton crane, which when used in conjunction with the patented lift system will enable fully assembled wind turbines to be installed in one lift onto pre-installed foundations. This new vessel was designed to reduce the cost of installing offshore wind turbines (and foundations) by at least one-third compared to current methods.

IHC Merwede has over 3,000 employees based at various locations in The Netherlands, China, Croatia, France, India, the Middle East, Nigeria, Serbia, Singapore, Slovakia, the UK and the USA. Technological innovation will remain the company's underlying strength through its continuous investment in research and development. Moreover, it helps to safeguard a sustainable environment.

At a glance

IHC Merwede B.V.

Molendijk 94, 3361 EP Sliedrecht
P.O. Box 204 - 3360 AE Sliedrecht, The Netherlands
T + 31 (0)184 41 15 55; F + 31 (0)184 41 18 84
www.ihcmerwede.com (pictured is launching of Breughel)

Irving Eyes $35B Government Contract

Irving Shipbuilding is located in Halifax Harbor, an ice free deep water port which is the world's second-largest natural harbor. Irving is Canada's largest East Coast shipyard, situated along the Great North Circle trading route and some 500 nautical miles Northeast of Boston. Its close proximity to the US Eastern seaboard, as well as The Canadian Navy's Atlantic Fleet, makes it strategically located for commercial newbuild/ship repair work, along with Federal Fleet maintenance and repairs. Irving also own three smaller facilities, all located within three hours of its Halifax yard, providing the flexibility to take on large projects and share work amongst the group.

Irving Shipbuilding is part of the J.D. Irving Group of companies and is in the business of building ships and repairing vessels. The company is comprised of four manufacturing sites: Halifax Shipyard (Corporate Head Quarters), Woodside Industries, Shelburne Ship Repair, and East Isle Shipyard on PEI, as well as four engineering offices across Canada under Fleetway, Inc. Irving Shipbuilding is currently competing to be selected by the Federal Government to build and maintain Canada's fleet for the next 30 years. The 1,200 men and women of Irving Shipbuilding specialize in building military and commercial vessels, ship repair, conversion, as well as the repair and fabrication of offshore structures.

Irving Shipbuilding is the only Canadian company currently building major federally-funded ships – a 3-year, $194 million contract to build nine mid-shore patrol vessels for the Canadian Coast Guard is well underway. Measuring 42.95m x 7.31m x 2.65m draft, the first vessel will enter service in 2011, with all 9 vessels to be delivered by 2013. Each of the vessels will accommodate 14 personnel, and are designed primarily for safety patrol, search and rescue, and economical water security.

The company is also working on mid-life refit of the first of the HALIFAX Class vessels under the Canadian Navy's Frigate Life Extension (FELEX) program – an 8-year, $549 million contract for repair and service expected to be complete in 2020. The program is designed to provide essential Mid-Life Refits (MLR), Dock Work Periods (DWP) and engineering changes to seven East Coast frigates, and is expected to be complete by 2017.

Jim Irving, CEO (left) and Steve Durrell, President, Irving Shipbuilding, eagerly await the outcome of a potential $35B Canadian government contract.

The Irving Shipbuilding leadership team has invested more than $90 million between 2006 and 2011 in its employees, as well as infrastructure, technology and facilities upgrades.

Irving Shipbuilding is committed to growing and developing the next generation of shipbuilders today and currently has more than 250 apprentices working alongside experienced shipbuilders, gaining the valuable knowledge of Navy standards, specifications and shipbuilding practices. In fact, it is these investments that are paying high dividends to Irving Shipbuilding: dividends that see an engaged, committed and enthusiastic workforce eager to take on Canada's future needs. Over the past several years, the percentage of Halifax Shipyard employees receiving trade, computer, safety and process improvement education has been consistent and growing, with more than 90 percent of the workforce receiving training in 2010.

Irving is currently involved in the FELEX Project; a mid-life extension program for Canadian Patrol Frigates.

Irving is currently involved in two major Federal procurement projects, which are as follows:

1. **The FELEX Project** – A mid-life extension program for Canadian Patrol Frigates.
2. **Mid Shore Patrol Vessel Project** – Irving will build nine of the aforementioned vessels for the Canadian Coast Guard.

The duration of these projects is from 2010-2017 at an estimated value of three-quarters of a billion dollars.

Irving will also find out later this year whether its bid to build the Federal Fleet's next generation of vessels has been successful. The value of this contract is $35 billion dollars.

IRVING
Irving Shipbuilding Inc.

At a glance
Irving Shipbuilding Inc.

- Halifax Shipyard
- East Isle Shipyard
- Shelburne Ship Repair
- Woodside Industries

3099 Barrington Street,
Halifax, Nova, Scotia Canada B3K 5M7
Tel: +1 (902) 423-9271
E-Mail: marketing@irvingshipbuilding.com
www.irvingshipbuilding.com

Executive Team
Jim Irving, CEO, Irving Shipbuilding
Steve Durrell, President
Scott Jamieson, Vice President Programs
Jack Berglund, Vice President Sales/Projects
Mike Roberts, Vice President Corporate Development
Bruce Allain, Vice President Finance

At a glance

Malaysia Marine & Heavy Engineering (MMHE)

PLO 3 Jalan Pekeliling
PO Box 77, 81700 Pasir Gudang, Johor, Malaysia
Tel: +607 251 2111
Web: www.mmhe.com.my (Pictured is HMM LNG tanker under repair)

Malaysia Marine and Heavy Engineering (MMHE) is a shipyards in South East Asia involved in the offshore construction industry. However, the yard, located in Pasir Gudang, is also very active in the general repair and conversion industries, not only for offshore clients but also for conventional shipping.

Last October, MMHE was listed on the Malaysian Stock Exchange, with 25.5% of the company's shareholding being taken by the public, 8% taken by offshore contractor Technip, and the remainder of the shares being retained by Malaysia International Shipping Corp (MISC).

During 2006, MMHE formed a joint-venture company with South Korea's Samsung Heavy Industries (SHI) – MSLNG to market the yards facilities in the LNG tanker repair market. SHI has a long track record for the building of large LNG tankers and can provide repair and refurbishment services, especially involving cargo containment systems. SHI has also provided MSLNG with project management, engineering and HSE in the LNG tanker sector.

MISC is one of the world's largest fleet owners of LNG tankers and, as such, commits a great deal of regular repair contracts to the shipyard. Last year, MMHE repaired 10 large LNG tankers for MISC and two for South Korea's Hyundai Merchant Marine (HMM).

This year, the first of the MISC contracts, involving the 152,300 cu. m. Seri Bjaksana, was completed in February. The 145,000 cu. m. Seri Amanah, 131,700 cu. m. Puteri Nilam Satu and the 130,405 cu. m. Puteri Zamrud were then completed in April. Hyundai Merchant Marine's 125,182 cu. m. Hyundai Utopia in May and Oman Ship Management's 147,200 cu. m. LNG tanker Ibri LNG were completed in July. Later this year, Oman Ship Management's 147,000 cu. m. LNG tanker Ibra LNG, and MISC's 130,000 dwt LNG tanker Tenaga Satu are both due in for scheduled repairs.

MSLNG predict some 18 LNG tankers will be repaired during 2011.

At a glance

Havyard Group — Norway

PO Box 215, 6099 Fosnavag, Norway
Tel: +47 70084550
Web: www.havyard.com

Subsea 7, Havila Shipping and Havyard Design & Engineering have delivered DSV Seven Havila. The vessel, one of the most sophisticated of its kind, is 120m long with 1050 sq. m. of deck space and is capable of traveling at 17 knots. It is a DP Class III vessel, equipped with fully-computerized diving systems and a 250-ton, heave-compensated main offshore crane. Accommodating a crew of 120, the vessel will operate with up to 24 divers.

The company delivered three ships in 2010; in addition, Havyard delivered design and equipment for five other ships that were delivered from shipyards in Norway and China. At present, 19 ships of Havyard design have been delivered. Havyard has earned contracts for a further 20 ships to be delivered over the next two years.

Operating income for 2010 was $242.6m, compared to $370.3 million 2009. The decrease in revenue is mainly due to lower activity in the company's business area, Havyard Ship Technology. Capacity utilization at the shipyard was still good, and the significant increase in profit margin indicates that this business area have had efficiency and control and delivered ships with high quality at the right time. Havyard Group currently has a total order backlog of approximately $371.8 million; and based on good capacity utilization, positive results are expected for 2011.

A. Thorpe

Singapore "Super Yard" Coming in 2012

Singapore's Jurong Shipyard Ltd (JSL), a wholly-owned subsidiary of SembCorp Marine, has delivered several jack-ups. One such rig, the West Elara, was built to meet stringent Norwegian NORSOK standards for operations in the North Sea. The rig has secured a five-year contract from energy company Statoil for deployment to the Norwegian Continental Shelf – an area which requires strict compliance to high standards of health, safety and environment.

The rig will be the sixth drilling unit constructed by Jurong Shipyard in Seadrill's fleet, following three Friede & Goldman (F&G) ultra-deepwater semi-submersibles (West Sirius and West Taurus delivered in 2008 as well as West Orion delivered in 2010), a Moss Maritime CS50 MK II semi-submersible (West Pegasus delivered in April 2011), and West Cressida (ex-PetroJack IV), a Pacific Class 375 jack-up rig acquired by Seadrill in 2010.

Representing a major milestone for Jurong Shipyard, West Elara is the yard's first harsh-environment high-specification jack-up newbuild and the largest of its kind to be constructed by the yard. The Gusto MSC CJ70 150A design rig was built to drill to depths of 10,670 meters in water depths of up to 150 meters, with a higher variable deck load and a higher operating efficiency compared to previous jack-up generations. The rig's ultra-large size also allows for additional opportunities within areas like logistics, well testing and early production.

SembCorp Marine has also secured a contract Limited (PTTEPI), Yangon Branch, for engineering, procurement, construction, transportation and installation of an integrated Processing and Living Q be installed at a water depth of 150 meters in Block M9 in the Andaman Sea offshore Myanmar.

The new platform, featuring a 15,000-metric-ton topside – integrated with a 128-man living quarters module, jacket with piles and a 100-meter flare boom – is bridged linked to a Wellhead platform. Construction is expected to commence in October 2011 with offshore completion scheduled for November 2013. The topside will be installed using the float methodology.

JSL has also recently secured a S$20 million (almost $16.6 million) contract from Golar LNG Energy to convert the LNG tanker Khannur, a LNG tanker, to a Floating Storage and Regasification Unit (FSRU) to be renamed West Java FSRU. The 126,360 cu. m. LNG tanker, which arrived in JSL recently, will be converted into a FSRU capable of producing 500 MCFD (million cubic feet/day) of gas, with a regasification capacity of approximately 3.8 MTPA (million metric tons/annum).

The West Java FSRU represents Golar's fourth FSRU project for PT Nusantara Regas, a joint venture between Pertamina and PGN. On conversion completion, the vessel will be installed 15 kms offshore Muara Karang, Jakarta Bay, in Indonesia, where she is contracted to operate until the end of 2022, with provision for further automatic extension options to 2025 subject to certain contract conditions. The West Java FSRU project will be Indonesia's first LNG regasification terminal and represents the first FSRU project in Asia. This is the first contract of its kind for JSL. **The current plans for JSL to build a new "super yard" in Singapore are being carried out well ahead of schedule, with two graving docks of 350 m x 66 m and 410 m x 66 m expected to open in 2012, and two more of 350 m x 66 m and 360 m x 89 m slated to open the following year.** These graving docks, all of which will be able to accommodate ships up to VLCC/ULCC size, will be complemented by quayside, cranes and workshops.

The LNG tanker Khannur to be converted to a FSRU at Jurong Shipyard.

At a glance
Sembcorp Marine Ltd.

Sembcorp Marine Ltd
29 Tanjong Kling Road
Singapore 628054
Tel: (65) 6265 1766
Fax: (65) 6261 0738
Contact: Chua Teck Lian (Jurong Shipyard)
Ho Nee Sin (SOME)
www.sembcorpmarine.com.sg

It is expected that, if the market allows, the Tanjong Kling yard will remain open as a newbuilding/repair facility, and even the Shipyard Road shipyard, for which JSL currently has a seven year lease from the Singaporean Government, will also stay operational. However, it is more likely that this older yard will be returned to the Singapore Government ahead of the end of the seven-year lease for re-development as a container berth.

Meanwhile, JSL is also currently involved in building a new shipyard in Aracruz, in the Brazilian state of Espirito Santo. This shipyard is expected to be operational in the rig-building, FPSO integration, topsides module fabrication and ship repair and conversion industries.

Sembcorp Industries (Sembcorp) posted S$159.9 million (nearly $132.5 million) in net profit attributable to shareholders of the company (net profit) for the first quarter of 2011 (1Q2011), an increase from last year's S$158.8 million (over $131.5 million). Profit from Operations grew 5% to S$275 million (almost $227.8 million) from S$262.7 million (over $217.6 million) while turnover stood at S$2 billion (over $1.6 billion) compared to S$2.4 billion (nearly $2 billion) in 1Q2010.

In 1Q2011, Utilities' net profit increased 4% from S$59.4 million (over $49.2 million) to S$61.5 million (more than $50.9 million) while Marine's contribution to Group net profit was S$91.8 million (more than $76 million) compared to S$91.1 million (almost $75.5 million) in 1Q2010. Return on equity (annualized) for the Group was a healthy 15.5% and earnings per share amounted to 9.0 cents for the quarter. Economic value added was a positive S$121 million (more than $100.2 million), while cash and cash equivalents stood at S$3.3 billion (over $2.7 billion). ***A. Thorpe***

Apart from general repair work, MMHE has also been active in the tanker-to-FPSO conversion market. Its latest contract involved the 100,020 dwt aframax tanker Ozono, which has already arrived in the yard. The contract, coming from MISC, involves the conversion to FPSO for the Cendor Phase 11 (Petrofac) offshore Malaysia. Other conversions currently underway include Malaysia Offshore Mobile Production (Labuan) drilling rig MOPU DUA (DANA 256), and Seadrill Pte's tender drilling barge T8. Current offshore engineering and construction projects include MISC/Shell's Gumusut semi-submersible FPS hull topside, and Petronas Carigali's Kinabalu gas processing Platform B (KNPG-B) topside.

At a glance

Sembawang

Sembawang Shipyard Pte Ltd
Admiralty Road West, Singapore 759956
Tel: +65 67522222, Fax: +65 67581025
www.sembship.comwww.sembship.com

Below: Glas Dowr being refitted.

Singapore's Sembawang Shipyard, also part of SembCorp Marine, recently secured a newbuilding contract from Teekay Shipping (Australia) for the Engineering, Procurement, Construction and Commissioning (EPCC) of a dynamically-positioned blue water research vessel for Australia. The Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia's national science agency and one of the largest and most diverse research agencies in the world, will operate the vessel on behalf of the Australian Government for use by the Australian marine research community.

Upon completion and delivery in the second quarter of 2013, the vessel will be named RV Investigator.

She will be based in Hobart, Tasmania and operated from the tropical north to the Antarctic ice-edge and across the Indian and Pacific oceans.

Currently, Sembawang is converting BW Offshore's 97,172 dwt tanker BW Genie into a Floating Production Unit (FPU). Major conversion works include repairs and life extension for the vessel to operate for another 20 years.

The FPU will be installed in the field through a new 12-point mooring system. The vessel is expected to be re-delivered to the owners in the fourth quarter of 2011, and will be stationed at the Terang Sirasun Batur field in offshore Indonesia.

Sembawang is also currently upgrading the FPSO Glas Dowr from Bluewater Energy Services, Netherlands.

The shipyard's scope of work includes repairs and life extension for the vessel to operate for another 10 years. Major upgrading work includes the upgrade of the existing FPSO internal turret mooring and transfer systems.

The marine, utility, electrical and communication, safety, control, monitoring, and production systems will also be upgraded.

The vessel is expected to be re-delivered to the owners later this year for deployment in the Kitan field in the Timor Sea.

At a glance

Keppel Shipyard – Singapore

Keppel Offshore & Marine Ltd
50 Gul Road
Singapore 629351
Tel: (65) 6863 7200
Fax: (65) 6261 7719
Contact: Nelson Yeo
Website: www.keppelom.com

Keppel Shipyard's latest FPSO contract involves a fast-track project for the upgrade of an FPSO vessel for Petrofac International (UAE) LLC, a subsidiary of Petrofac, with work commencing during the first quarter 2011. The FPSO is designated for an oil and gas field offshore Peninsular Malaysia.

Keppel Shipyard has also recently won a contract from Indonesia's Bumi Armada for the conversion of a tanker into an FSO vessel, work commencing during the first quarter 2011. When completed in the second half of 2011, the converted FSO vessel, with storage capacity of 500,000 bbls of oil, will be deployed on the Sepat oilfield (Block PM 313), located off the eastern coast of Peninsular Malaysia.

Earlier this year, Keppel completed two FPSO projects – the Lewek EMAS conversion, which was delivered to EMAS Production, and is one of Vietnam's largest FPSOs, and the Armada TGT 1, to Indonesia's Bumi Armada Berhad. Armada TGT 1 will be deployed in the Te Giac Trang (TGT or White Rhinoceros) oil field, in Vietnam's Cuu Long Basin, for Hoang Long Joint Operating Company. Six other projects are currently underway at Keppel's Tuas and Benoi yards. These include:

- **The 158,000 dwt FPSO Okha**, a FSO to FPSO project for SBM, for offshore Australia.
- **The 280,491 dwt FPSO P-58**, a tanker to FPSO project for Petrobras for use offshore Brazil
- **The 255,346 dwt FPSO Aseng**, a tanker to FPSO project for SBM; offshore Equatorial Guinea.
- **The 142,639 dwt FPSO Ciudad de Paraty**, a tanker to FPSO project for SBM; offshore Brazil.
- **The 148,192 dwt FPSO OSX-1**, a FPSO modification and upgrading project for OSX 1 Leasing (Netherlands) for use offshore Brazil
- **The 68,536 dwt FSO Sepat**, a tanker to FSO project for Bumi Armada Berhad; offshore Malaysia.

In addition to Tuas and Benoi (the latter of which is a Far East hub for LNG tanker repairs), Keppel operates a third shipyard in Singapore, Keppel FELS, which specializes in offshore construction. Keppel also has two shipyards in Philippines (Subic Shipyard and Keppel Batangas) and a number of newbuilding facilities in Brazil, and also manages the new N-KOM Shipyard in Ras Lafan, Qatar.

Signal: Major Investment in Texas

Signal International, a marine and fabrication company, is headquartered in Mobile, Alabama. The company currently employs over 800 workers in its four production facilities located in Alabama, Mississippi and Texas. It specializes in new construction, ship repair, and rig repair. Signal can handle marine construction and repair needs with three dry docks: a 4500t, one Panamax size, and a heavy lift dry dock that boasts a 400'x 200' footprint.

Signal offers both offshore and technical services, such as leg-up, quarters, mods, platform installations, 3D modeling, and 3D laser scanning. Signal also constructs offshore wind farm substructures. The company is currently involved in providing equipment, engineering, plant, labor, tools, and material to construct, equip, launch, test and deliver one 20,000 DWT Ocean Bulk Barge and one 6,000 BHP AT/B Ocean Tug, with options to provide additional units.

The barge will be 480' x 90' x 36' and will be outfitted with Ocean Tug & Barge Engineering's Articouple Connection. It will transport dry-bulk commodities in United States coastwise trade. The tugboat will be 125' x 38' x 22' with 900 RPM and will be built and classed to ABS Maltese Cross, +A1 Ocean Towing Service Standards.

Over the past two years, Signal-Orange, TX has undergone a major transformation to elevate its marine and heavy manufacturing capability to world-class standards, including new panel line and steel processing facility. The capital investment over the past two years is approaching $40 million. The Pascagoula East Yard has similar investments to improve automation as well as dredging a deep hole 500' x 300' x 60' deep dockside. For the seventh time in Signal's eight-year history, it has received the "Excellence in Safety" award for 2010 from the Shipbuilders Council of America, on April 5, 2011, in Washington, DC. Each year, the Council issues safety awards to companies whose incident rates are below the association's collective average.

For the calendar year of 2010, Signal had a total OSHA recordable incident rate of 0.83, compared to the latest industry average (from OSHA and the Bureau of Labor Statistics) of 7.8. Thus far in 2011, Signal company-wide has an incident rate of 0.41.

Signal International also set a new world construction record by delivering two 300' x 100' x 20' 171 MW floating power plants in 180 days in August 2010.

Dick Marler, CEO & Chairman of the Board, Signal International.

SIGNAL INTERNATIONAL
A Marine & Fabrication Company

At a glance
Signal International

Dick Marler, President, CEO, Chairman of the Board
Chris Cunningham, Chief Financial Officer
Ronal Schnoor, Chief Operating Officer, Sr. Vice President, General Manager – Mississippi Division
Rodney Meisetschlaeger, Sr. Vice President, General Manager – Texas Division
Robert Beckmann, Sr. Vice President, General Manager – Signal Ship Repair
Andy Musselman, Controller
Carl Wegener, Vice President of Strategic Planning
Rob Busby, Vice President of Business Development
Joe Roche, Vice President of Sales & Marketing
Joe Mayhall, Vice President of Sales & Marketing – Signal Ship Repair

Signal's Orange Shipbuilding facility.

Signal's Pascagoula Shipbuilding facility.

At a glance
STX — France

STX – France (pictured)
Avenue Antoine Bourdelle ,BP 90180
FR-44613 Saint-Nazaire Cedex,
France
Tel. + 33 (0)2 51 10 91 00

STX Europe
P.O. Box 453 Skøyen
N-0213 OSLO, Norway
Tel: + 47 21 02 15 00
Web: www.stxeurope.com

The signing of a contract for two Mistral-class helicopter carriers (LHDs) and associated services between DCNS and the Russian defense export agency Rosoboronexport took place in St. Petersburg on June 17, 2011. STX France will undertake the construction of the ships at its Saint-Nazaire shipyard under a sub-contract with DCNS. The Russian shipbuilder OSK will provide part of the hull of both ships. The first ship will be delivered to Russia in 2014 and the second LHD will be delivered in 2015. The vessels will each have a length of 199 meters, a displacement of 22,000 tons and a speed in excess of 18 knots. Previously, STX France and DCNS have built three Mistral-class LHDs for the French Navy. Mistral and Tonnerre were delivered to the French Navy in 2006 and 2007, respectively. The third LHD, Dixmude, is currently being built by DCNS and STX France and is scheduled for delivery in 2011.

STX France SA, a 66.66% owned subsidiary of STX Europe AS, has rescinded the contract with GNMTC (General National Maritime Transport Company) – the state-owned Libyan shipping company – for the construction of a 140,000 GT cruise vessel for delivery end-2012. The reason for the rescission is the default of payment from GNMTC. Due to insurance cover for such an incident, the rescission is expected to have limited impact on the financial results of STX France.

- **Order intake of $317.5m in Q1 2010 (Q1 2010: $522m).**
- **Seven vessels successfully delivered in first quarter 2011.**
- **Order backlog of 57 vessels end 1Q 2011 totaling $5.2b; (Q1 2010: $4.1b)**

The acting President and Chairman of STX Finland, Su-Jou Kim, decided to re-organize STX Finland's management group to improve the efficiency and competitiveness of STX Finland. Jyrki Heinimaa has been appointed Executive Vice President and CFO (Chief Financal Officer) of STX Finland Oy. He will be responsible for accounting and finance, communication, synergies and strategy. In addition, Heinimaa is responsible for new business areas, such as wind power. Heinimaa has been with STX Finland in various management positions for 15 years.

Timo Suistio has been appointed Executive Vice President and COO (Chief Operating Officer) of STX Finland Oy and shipyard director of the STX Rauma Shipyard. Suistio will be responsible for sales, purchasing, design and production. Suistio has been with STX Finland for 30 years, including four years as head of the STX Rauma Shipyard. Earlier this year, STX Finland Oy and Saipem S.p.A signed a contract for the major overhaul and maintenance of the semisubmersible pipelay vessel Castoro Sei. The work on the ship, providing employment for as many as about 1,000 people, will be completed by STX's Turku shipyard.

The Castoro Sei is a 152-meter-by-70.5-meter semisubmersible pipelay vessel, owned by Italian offshore company Saipem S.p.A. She is currently deployed in laying the pipeline for the Nord Stream project on the Baltic Sea. STX's Turku shipyard will carry out extensive overhaul of Castoro Sei's mooring and pipelaying systems. Some other maintenance activities and repairs will also be done during the continuous four-week project. STX Finland Oy has three shipyards in Finland, Turku shipyard, Rauma shipyard and Arctech Helsinki Shipyard Oy, of which STX Finland Oy owns 50%. STX Finland's subsidiaries include Aker Arctic Technology Oy and STX Cabins Oy, among others. The company belongs to the STX Europe Group, an international shipbuilding group with a product range including passenger ships, ferries, offshore services vessels and specialized vessels. STX Europe has approximately 15,000 employees. STX Europe's principal shareholder, the Korean-based international industrial group STX Business Group, has approximately 54,000 employees and specializes in shipping and trade, shipbuilding and machineries, plant and construction, and energy.

A. Thorpe

Ulstein Shipyard

Ulstein Verft of Norway employs the new X-Bow concept, which has been included in the design of a number of OSVs built at the yard.
The sister ships Rem Hrist and Rem Mist, the design of which has included the X-Bow, were both recently delivered. According to Statoil's definition, this is a large PSV (approx. 1,000 m2 cargo deck), and a ship that is packed with equipment.

The ship is very compact with 136,000 meters of cable and 14-15,000 meters of piping installed on board. The cargo system includes multi-cargo tanks for liquids and solid materials, and the tank system generates extra pipes and valves. Both Rem Hrist and Rem Mist will work on eight-year contracts for Statoil in the North Sea.

Ulstein has made several strategic investments within the design and solutions area in recent years, and the area also delivered solid profit results for 2010. Since the beginning in 1999, close to 70 designs have been sold, and over 40 of these have featured the X-BOW hull line design. The company offers design and equipment solutions within offshore supply, as well as within heavy offshore and short sea shipping.

At a glance
Ulstein Group
NO-6067 Ulsteinvik, Norway
Tel. +47 7000 8000
Contact: Gunvor Ulstein
Web: www.ulsteingroup.com

Last year, Ulstein invested NOK 136 million (about $25.3 million) in research, development and innovation. Gunvor Ulstein underlines the company's continued commitment to being a driving force within innovation.

At the end of 2010, Ulstein Group had an order reserve of NOK 2.3 billion (about $427.6 million).

The Rem Mist – built by Ulstein for Rem Offshore

The following are Ulstein Group's preliminary key figures for 2010:

- Operating income: NOK 2.38 billion (over $442.4 million) (2009: NOK 3.59 billion (nearly $667.4 million))
- Operating profit: NOK 354 million (over $65.8 million) (2009: NOK 520.9 million (over $96.8 million))
- Operating result before tax: NOK 367.87 million (almost $68.4 million) (2009: NOK 518.01 million (over $96.3 million))

Drydocks World

"Drydocks World has emerged successfully as a global player ... despite the financial downturn by streamlining its organization and processes."
Khamis Juma Buamim, Chairman of the Board

Drydocks World, an established player in the maritime and offshore industries, announced the delivery of Anchor Handling Offshore Support Vessel Crest Olympus. The vessel was built at the company's shipbuilding yard in Nanindah, Indonesia for Singapore-based Pacific Crest Pte Ltd at a contract value of $20.4 million, excluding owner-furnished equipment.

Crest Olympus has dimensions including length 76m, beam 18.5m and draft 6.8m. The 150TBP vessel has DP2 capability and is of fire fighting class 1. The vessel is equipped with deck machinery from Rolls Royce Marine, main engine 9M32 from CAT, Kawasaki side thruster, and Berg propulsion. It is designed by Wartsila Ship Design and classified by ABS. The owners are part of Pacific Radiance Group: a Singapore-based company providing integrated marine solutions for oil & gas, mining, subsea engineering contracts and related services support industries. Drydocks World has also announced the successful launch of Self Elevating Platform L210 from its rig building facility in Graha, Indonesia. The platform is being built at a contract value of $24.6 million. The MSC SEA-3250 type platform is 75.9 meters long, 40 meters wide and 6 meters deep. The vessel is classed by ABS with Maltese Cross A1 Self Elevating Unit notation. She is being built for Self Elevating Platforms N.V., a repeat customer of Drydocks World. Major construction milestones have been achieved and the remaining ones include the installation of four 87.7-meter tubular legs and a 1000-ton crane.

At a glance
Drydocks World
P.O.Box 8988 - Dubai – UAE
Tel: +971-4-3450626
Fax: +971-4-3450116
Web: www.drydocks.gov.ae
Khamis Juma Buamim, Chairman of the board

Earlier this year, Drydocks World announced a contract with Mumbai-based construction group Afcons Infrastructure to provide detail engineering, procurement, construction and delivery of a Self Elevating Platform AF SEP Samrat. The 45-meter-long, flat bottom pontoon barge, which will be built at the Dubai facility, can be jacked up with four spuds and a jacking system with an elevated weight of approximately 2,928 tons. The vessel will be equipped with a main crane and other equipment including six mooring winches, three gensets, jacking systems, power packs, pumps and other miscellaneous equipment.

The Crest Olympus – delivered from the Nanindah shipyard of Drydocks World

Drydocks World's flagship facility in Dubai is the largest ship repair, conversion and newbuilding facility between Europe and the Far East. Diverse marine activities are focused in 4 shipyards, located in Singapore, Graha, Nanindah and Pertama. Collectively, these encompass 29 building berths, 8 floating docks, and a specialized rig-building yard.

A. Thorpe

Containership Market

Unlucky 2013 Looms

Lay-ups the Only Option?

Container shipping faces an incredible over supply of capacity that will reach record levels in two years.

We have been over this subject so often, but it remains the greatest obstacle between container shipping lines and their profitability, so here goes again. Market intelligence outfit Alphaliner reckons deliveries will reach 1.73 million TEUs in 2013, continuing on from the 1.44 million TEU capacity in 2012 and 1.34 million TEUs this year. **As a startled Zulu would say: "Aibo!"** The impressive profitability in the second half of 2010, coming so soon after the financial meltdown put the brakes on trade, has had the unfortunate effect of magnifying the fall in earnings this year. And there is no peak season to look forward to, either, just more and more capacity floating into service.

Many of the vessels will be giant 13,000 TEU rate-eroding, yield-destroyers, floating around the major trades displacing smaller vessels and struggling to increase utilization. Rates restorations have been postponed – they are hardly likely to be accepted in this market, anyway – and any line planning a peak season surcharge on Asia-Europe or the transpacific is living in Harry Potter land. Alphaliner reckons the problem is that the carriers were too aggressive in re-activating idle capacity. To be fair, trade rebounded so fast that the lines had to make ships available asap, and even then a lot of cargo ended up being rolled at some of the busier hub ports.

But the reactivations came at the same time that carriers reactivated orders that had been put on hold at the shipbuilding yards, much of that comprising vessels of over 10,000 TEUs. Also, a shortage of ships in the 3,000 TEU mark saw extra slow steaming easing off, says Alphaliner. This immediately made more vessels available that would have been tied up in the slow moving strings. So with no peak season expected and too many large ships hitting the water, the only option left for embattled line executives is to settle back into their genuine leather chairs, glug the last of the Chivas Regal and send ships to lay-up with no dinner. With over supply of vessels and demand predicted to remain sluggish, what other options are available?

— Greg Knowler

Down Under to Downtown Mobile

At a glance

Austal

100 Clarence Beach Road
Henderson, Western Australia 6166
Telephone: +61 8 9410 1111
Fax: +61 8 9410 2564
Web: www.austal.com

Following the launch of its Wind Express series in mid-2010, Australia's Austal has announced the award of a contract for the design and construction of three purpose-built 21-meter offshore support vessels (OSVs) for Turbine Transfers Limited, based in Holyhead, United Kingdom. The OSV catamarans will be used to transport service crews and equipment to offshore wind farms along the coastlines of several European countries. Turbine Transfers is a well-established fleet owner that has been supporting wind farm owners and operators for a number of years. The company currently owns and operates a fleet of 18 vessels. The Austal-built OSVs will be the first that Turbine Transfers has commissioned outside the United Kingdom. Due for delivery in May 2012, the vessels will be built at Austal's Henderson shipyard. Austal introduced its Wind Express series in mid-2010 in order to capitalize on increasing market demand for transportation solutions in the burgeoning offshore wind farm industry. By utilizing Austal's hull design and engineering capabilities, each Wind Express vessel is specifically designed to provide offshore wind farm operators with a multi-purpose work boat platform. Characterized by optimum personnel comfort and safety, each vessel in the Wind Express series can be further customized to suit specific sea conditions, routes, and payload requirements. **Meanwhile, the U.S. Navy has exercised contract options funding the construction of the sixth and seventh Joint High Speed Vessel (JHSV), as part of a ten-vessel program potentially worth over $1.6 billion.** The construction contract for both vessels is valued at approximately $313 million. As prime contractor, Austal was awarded the construction contract for the first 103-m JHSV in November 2008, with options for nine additional vessels between FY09 and FY13. The Austal JHSV team includes platform systems engineering agent General Dynamics Advanced Information Systems, who will be responsible for the design, integration and testing of the ship's mission systems, including internal and external communications, electronic navigation, and aviation and armament systems. Austal received authorization from the Navy to start construction on the first vessel of the contract, Spearhead (JHSV 1), in December 2009 after completing the rigorous design over a 12-month period. Spearhead is scheduled for launch in August 2011 and delivery in December 2011. Construction on Vigilant (JHSV 2) began at Austal's Mobile, Alabama shipyard on September 13, 2010. Austal is also currently building a second Independence-variant, 127-meter Littoral Combat Ship (LCS) for the U.S. Navy, Coronado (LCS 4), which is scheduled for launch in September 2011. As prime contractor, Austal recently received a U.S. Navy contract for construction of up to ten additional Littoral Combat Ships, including Jackson (LCS 6) and Montgomery (LCS 8), to be appropriated in the following five years, with a total value in excess of $3.5 billion. Once commissioned, these vessels will join the Austal-built USS Independence (LCS 2) commissioned in January '10. ***A. Thorpe***

The 21 m offshore support vessel (OSV) for Turbine Transfers Limited.

U.S. Yards Seek, Create New Opportunities

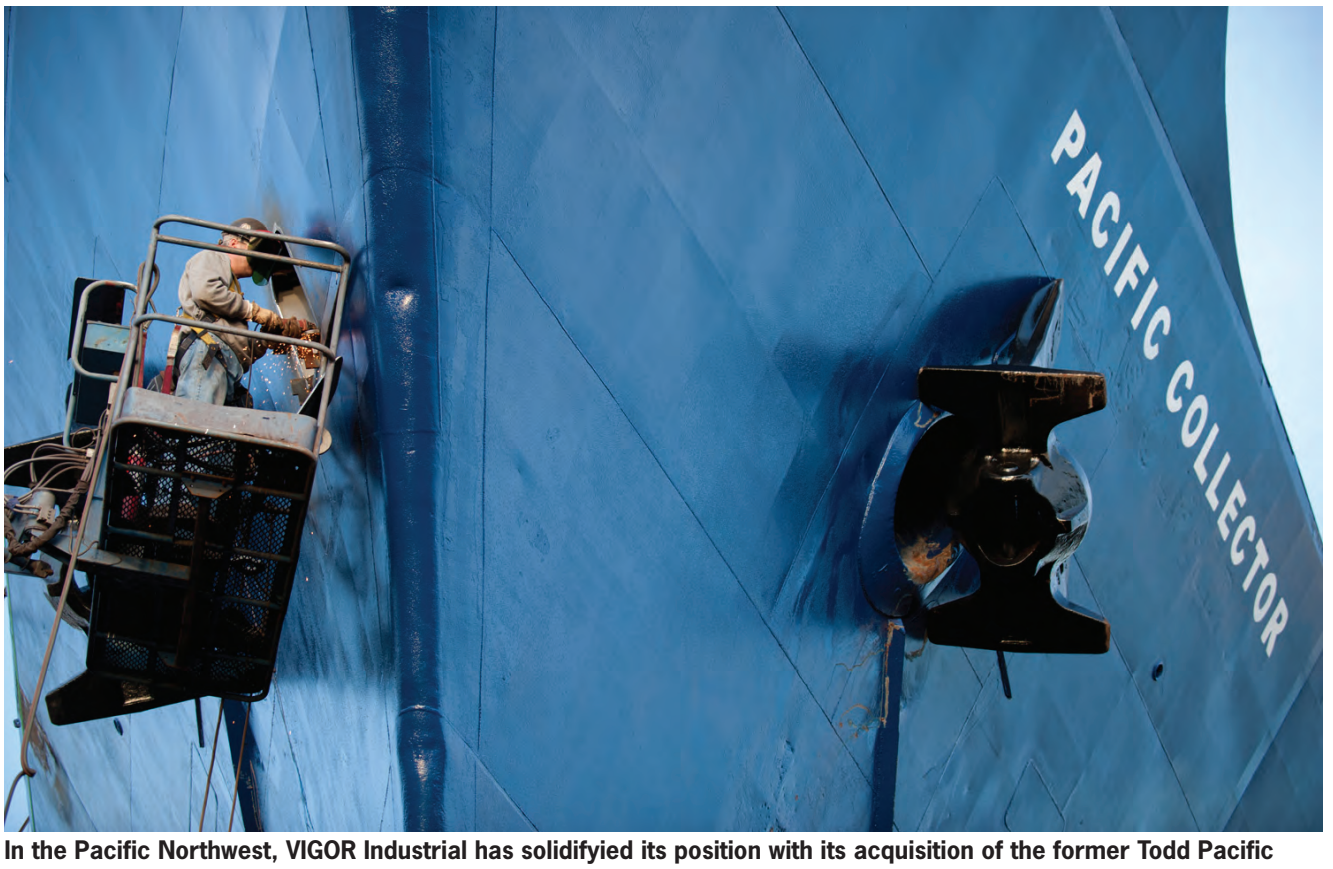
Looking around U.S. ship and boat yards, one would be hard-pressed to find many brimming with optimism. One of the industry's prime drivers, the offshore oil and gas business in the Gulf of Mexico, is slowly starting to come back to life in the wake of the massive oil spill and resulting drilling moratorium; and as the country struggles with a historic debt load, the U.S. Navy budget is squarely in the crosshairs of legislators. But as the global maritime market struggles to deal with the global economic collapse and still-lingering financial malaise, it is evident that opportunities abound, particularly for those companies adept at finding them or making them. Increasingly stringent environmental regulations mean that the newest generation of ships and boats will have to be nearly environmentally benign; and while the offshore O&G business has its historical peaks and troughs, the appetite for "clean" energy via offshore wind and tide systems is opening new areas to serve. Case in point was Harvey Gulf's announcement late last month that it will build the first U.S.-flagged LNG Offshore Supply Vessels. Harvey Gulf Chairman & CEO Shane J. Guidry said that a contract would be awarded to a U.S. shipyard on or before August 28, 2011.

The SV310DF vessels, designed by STX Marine Inc., will be dual-fuel with LNG capacity for seven days with three engines at full rpm. In addition, the vessels will carry 5520 tons of deadweight at load line and have a transit speed of 13 knots. Harvey Gulf will make the capital investment of $100m for two vessels.

Eastern Shipbuilding Group in Panama City, FL has been busy building a new series of 300 x 64 ft. "Green" OSVs for Harvey Gulf, significant in that they are the first being built to the ABS Class Notation GP (Green Passport). Eastern also earlier this year won contracts to build five platform supply vessels (PSVs) for export to Brazil, to provide service in new deepwater oil fields there, the direct result of a U.S. MarAd $241 million loan guarantee.

On the West Coast U.S., San Diego-based **NASSCO** is traditionally one of the stronger players in U.S. shipbuilding, a major builder for the U.S. Navy as well as commercial entities. In fact, over the last four decades, NASSCO has delivered more than 100 ships to the world's fleets, 51 ships to commercial customers, and 63 auxiliary and support ships to the U.S. Navy. These have included oil tankers, ferries, containerships, and oceanographic research ships for commercial customers; and hospital ships, fast combat support ships, tank landing ships, and roll-on/roll-off ships for the Navy. NASSCO currently has contracts to build 14 T-AKE dry cargo/ammunition ships for the U.S. Navy and five U.S. Jones Act product tankers for American Petroleum Tankers. In May, the Navy tapped NASSCO again, awarding the shipyard a $744 million contract to build the first two in its class of Mobile Landing Platform (MLP) ships. The first of these ships is expected to be delivered in 2013.

In the Pacific Northwest, **VIGOR Industrial** is solidifying its position as a premier shipyard for both new construction and repair. With its recent acquisition of the former **Todd Pacific Shipyards**, VIGOR now owns and operates facilities in Portland, Seattle, Tacoma, Bremerton, Everett and Port Angeles. VIGOR is finishing outfitting the third of three 64-car ferries it built, under budget and ahead of schedule for Washington State Ferries, the largest ferry operator in the U.S. VIGOR is the primary commercial maintenance force for three of the U. S. Navy's 11 active aircraft carriers, in Bremerton and Everett, Wash. Major projects in Seattle include restoring a vital U.S. Coast Guard icebreaker to active service and performing structural and propulsion maintenance for the skyline-dominating Sea-Based X-Band Radar floating



In the Pacific Northwest, VIGOR Industrial has solidifyied its position with its acquisition of the former Todd Pacific Shipyards. VIGOR owns and operates facilities in Portland, Seattle, Tacoma, Bremerton, Everett and Port Angeles.

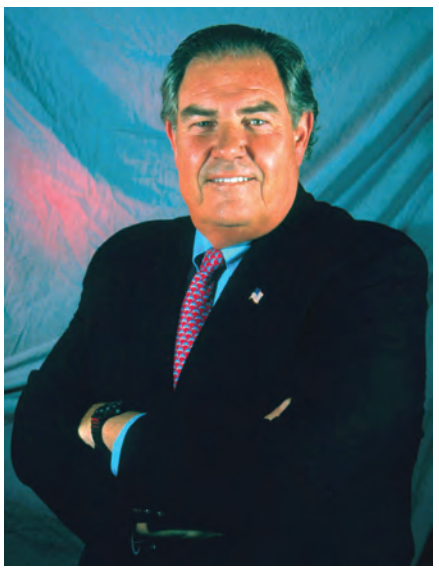
platform. Commercial work continues to form a large portion of Vigor's work across the Northwest, in its drydock and berths. Workers in Tacoma are splitting and "stretching" commercial fishing vessels to extend capacity and increase fuel efficiency. In Seattle, the company recently started environmental and safety upgrades for Shell Oil's arctic drilling platform, Kulluk.

VIGOR's solid barge-building operations continue to grow. US Barge itself was christened recently with a new name, US Fab, reflecting the division's expansion into offshore alternative energy platforms as well as land-based fabrication.

"Care of your customers in a good economy," advised Travis Short, President of **Horizon Shipbuilding, Inc.,** "as excellent customer relations in a good economy can help you survive in a down economy." More than sound advice, as it seems, as Horizon has remained busy during the downturn of the previous few years and positioned itself for new opportunities as the economy improves. Horizon currently has a backlog that includes government work (a pair of U.S. Army Corps of Engineers towboats) and 140-ft. towboats for a commercial customer. "Our strategic alliance with Florida Marine Transporters (FMT) will continue to be the base of our new construction business," said John Carnley, Project Manager for the FMT 140-ft. towboats. While customer service is the entry, modern facilities help a boatbuilder in the long-run and Horizon has embarked on a large scale shipyard facility improvement program. "At some point Horizon intends to be a full service marine facility that is able to provide any service a ship operator/owner may require from docking and resupply to servicing equipment to repairs to new builds," said Short. Current facility improvements include new bulkheads with concrete caps and aprons, pier facilities, electrical power upgrades, potable water and bulk welding gas line installation and production and administration building upgrades.

St. Johns Ship Building is one of the best kept boatbuilding secrets in the U.S., located along the historic St. Johns River 60 miles south of Jacksonville, FL. Here is where a full service shipyard emerged when in 2006 Steven Ganoe and business

(Continued on page 56)



"These discoveries show that if they let us drill, we can do it safely and find oil and gas," said Donald "Boysie" Bollinger, Bollinger Shipyards.

First of 10 in Series of GPA 696 IMR

Bourbon Evolution Series Starts Delivery

Built at Zheijang Shipyard in China • DP-3 & FiFi 1 • Inspection, Maintenance & Repair

Bourbon has built its reputation on owning and operating innovative vessels to complete some of the most demanding jobs offshore. In mid-June the company has added to its legacy with the delivery of the first of ten GPA 696 IMR (Inspection, Maintenance & Repair) vessels, built at Zheijang Shipyard in China for Bourbon Offshore. The DP-3 and FiFi-1 certified GPA 696 IMR vessels are equipped with three 1,686 kW azimuthing drives, two 843 kW tunnel bow thrusters, one 843 kW drop-down azimuthing bow thruster delivered by Schottel and six 1,235 kW Cummins generators, as well as one 1,235 kW auxiliary generator and one 450 kW emergency generator. The configuration of the diesel-electric propulsion system, including two engine and two electrical rooms, creates full redundancy in accordance with DP-3 requirements. The diesel-electric propulsion system also results in reduced maintenance cost and improved station-keeping at offshore installations, and significantly increases crewmember safety. Because of its design and standardization, the GPA 696 IMR series can compete with more expensive, similar-sized vessels, reducing operational cost to the customer by up to 20%.

The deck equipment of the 100-m vessels includes one 150 MT @ 10 m radius main crane, which can lower packages to a depth of 3,000 m and one 40 MT @ 9 m radius deck crane. Both cranes, with built-in swell compensation systems, cover the entire 1,200 sq. m. deck surface to ensure handling and storage of packages over the entire area. The SOLAS-certified IMR vessels also have significant below-deck cargo capacities, capable of carrying 380 cu. m. of methanol, 2,541 cu. m. ship‘s ballast, 1,080 cu. m. fuel oil and 749 cu. m. fresh water. The vessels are also equipped with a helideck designed for a Super Puma Helicopter EC225.

Versatility is another benefit as the vessels have the capability to adapt to different operational needs and can serve as a stimulation vessel, rescue vessel, hotel vessel or provide light intervention on wells while offering modern conditions aboard with meeting rooms, offices, lounges and comfortable cabins. The vessel design allows for the following configurations:

- **ROV Vessel:** 2 ROVs can be used at the same time.
- **Deck Cargo:** Maximum deck Cargo is 2080 MT, with an equivalent 18512 m-MT deadweight vertical moment.
- **Hotel Vessel:** Accommodations for 105 people on board under comfortable working conditions.
- **Mini-FPSO Vessel:** Increased freight loading capacity with a storage capacity of 24,000 barrels of crude oil.
- **Oil Well Intervention Vessels:** Support of interventions on oil wells for measurement and cleaning.

A remarkable feature of these vessels is the ability to operate both cranes and both ROVs simultaneously over the complete operating envelope of the vessel without any restrictions. These vessels are certified to satisfy both the current IMO deterministic and probabilistic damage stability requirements.

With these ten GPA 696 IMR vessels, the number of GPA-designed 600, 200 and 100 series of offshore vessels, including PSVs, AHTS and FSVs, already serving the industry or currently under construction has increased to over 140, reinforcing GPA’s position as one of the world’s leading naval architects for the offshore industry.

Seattle-based Naval Architecture and Marine Engineering firm Guido Perla & Associates, Inc. (GPA) delivered the concept design, regulatory package, and final design for these vessels.

THIS IS NO PLACE TO LOSE POWER

EPD - Designing power systems for *any environment.*

World Leader in Integrated Diesel / Electric Power Systems

Electronic Power Design, Inc. (Houston) and **EPD Asia Group (China)** are considered among the top design/engineering and manufacturing companies in the world for marine diesel/electric power systems. With the expansion of **EPD Singapore Services (Singapore)** and the new **EPD do Brasil (Rio de Janeiro)**, the EPD group of companies manufactures and supports customers' equipment worldwide.

Our Range of Services:

- Engineering
- Design
- Programming
- Manufacturing
- Commissioning
- Field Service






For more information contact Sales@EPDLtd.com

EPD ELECTRONIC POWER DESIGN, INC.
ELECTRICAL SYSTEMS INTEGRATOR

EPD ASIA GROUP, LTD.
ELECTRICAL SYSTEMS INTEGRATOR

EPD SINGAPORE SERVICES, PTE. LTD.
ELECTRICAL SYSTEMS INTEGRATOR

EPD CHINA GROUP, LTD.
ELECTRICAL SYSTEMS INTEGRATOR

EPD DO BRASIL, LTDA.
ELECTRICAL SYSTEMS INTEGRATOR

Houston: +1 713-923-1191 | Asia: +86 514-8752-7700 | Singapore: +65 3156-3646 | Brazil: +55 21-3738-9887 | www.epdltd.com


Laurum
HI
P-75

Apprenticeship Training Programs

Shipyards make long-term commitment to start employees on the right track

By Edward Lundquist

Apprentice training programs are vital to ensuring a qualified workforce for the future, according to shipyard industry experts.

The BAE Systems apprenticeship program is a four-year program, conducted in partnership with Tidewater Community College (TCC).

"We have a robust program at our Norfolk yard, which we're looking to expand," said Joe Chopek, maritime communications manager for BAE Systems Ship Repair in Norfolk.

The apprentices are part-time students. During the day, they work the first shift in their prospective trade. They receive a Career Studies Certificate Maritime Technologies and are certified as a journey mechanics (first class) in their trade at the end of the four years.

The graduation rate is high, said Chopek, and so is retention of those who have participated in the program.

"Since 2008 we have graduated 53 apprentices of which 47 are current employees," he said. "Of note, 24 have been promoted to leadership positions since graduation."

"We have seven senior people on our staff at Norfolk who have graduated from our apprentice program in the 70s," he said. "For some of them, working in our shipyard is the first and only jobs they've ever had."

Retaining qualified talent is vital, he said, especially in the boom-and-bust cycles of the shipbuilding and repair industry. "The talent pool in the skilled trades is shrinking. Their skill level is high enough that they can and will go elsewhere. You don't get them back. That asset is lost."

Some lower skilled jobs inside the yard, like fire watches, are subcontracted, and temporary workers can be brought aboard for a surge. You want to keep your core workforce intact," Chopek said.

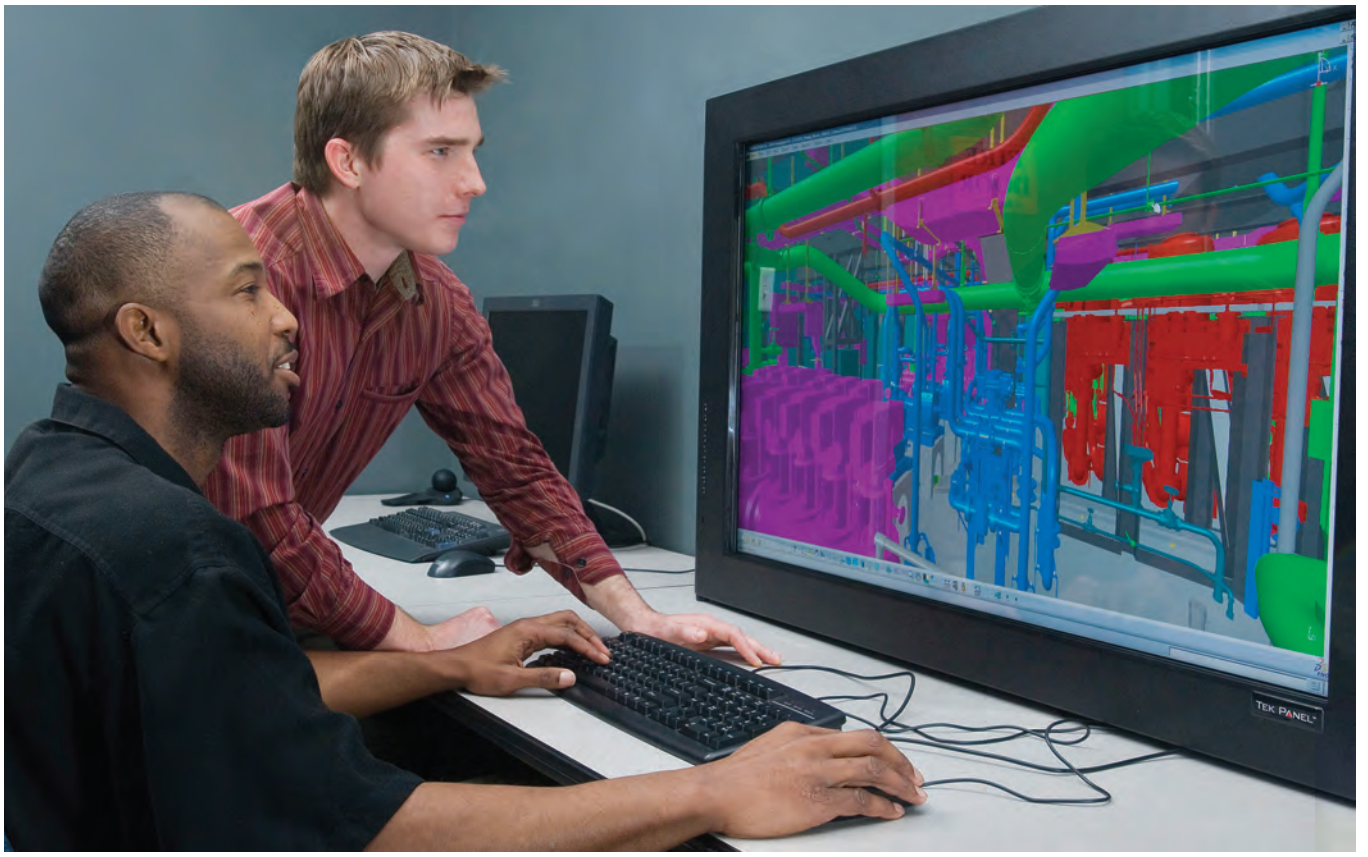
Chopek said his company has an older workforce. The average age is 50 in Norfolk, and 48 for the BAE Systems yard in Mobile, Ala. This is a problem throughout the industry. It's not just a matter of replacing people one-for-one when they reach the end of their career. "As these people approach retirement age, how do you replace someone with 30 years of skill in a trade?"

Recruiting workers is one thing, but qualifying them is another.

"People can't just get hired to go to work in a shipyard. They have to be trained so they can be productive and are not a danger to themselves or others in what can be a dangerous work environment," Chopek said.

"A physical exam is required due to the demanding physical requirements of the job," he said. "Also, apprentice candidates are required to complete a physical qualification test that simulates physical demands presented daily on the job (ladders, stairs, lifting, confined space entry/exit, etc) – this may be applied to entry-level hires at all locations in the future as we continue to recruit and train our future workforce."

Chopek said BAE Systems employees attend a full day of orientation of which approximately 4 hours is specific to safety and the hazards of working in ship repair. "For apprentices, they are in orientation for the first one to two weeks as they are exposed to and begin training in basic tool usage, procedure training and trade orientation. In addition, all em-



LEFT
Lauryn-Mae Pang is an apprentice crane mechanic at Pearl Harbor Naval Shipyard. (Photo by Kathryn Vanes)

ABOVE, RIGHT
Newport News shipbuilding Apprentices Benjamin Price, Donald Rickerson III. (Image: HII)

BAE Systems: Falon Mason operating the Vulcan CNC burning machine in the Sheet metal Shop. (Photo credit: Ed Ketz)

ployees receive the Occupational Safety and Health Administration (OSHA) 10-hour Marine Industry Safety training within their first 6 months of employment. Management-level new hires attend the 30-hour version of the OSHA Marine Industry Safety course."

Chopek said BAE Systems also has a formal 24-month trainee program. "Employees begin at a non-skilled level and progress to a semi-skilled with satisfactory performance. This is a program for advancement and facilitates skill development. The expectation is that within 1 – 3 years of completion of the training program, the employee would obtain the skills of an entry level mechanic (third class)."

Laborers or non-skilled helpers can also receive on-the-job experience. The expectation is that a motivated employee with satisfactory performance (attendance being a component) would advance to an entry-level mechanic (third class) within 5 – 8 years. "In comparison to the apprentice or trainee program, this is the long way to go," Chopek said.

GROWTH IN WORK; GROWING TALENT

Both major divisions of Huntington Ingalls Industries, Ingalls Shipbuilding and Newport News Shipbuilding, expect to hire experienced and entry-level individuals for engineering, 17 different crafts and material support in the near future, according to Beci Brenton, corporate director for public affairs for Huntington Ingalls Industries. "This hiring is a result of expected attrition and some growth in work."

Brenton said some shipyards grow their workforce by hiring skilled craft workers who require minimal training once hired. "At HII, we hire experienced workers, but we also actively recruit career-minded individuals who happen to lack shipbuilding skills. Additionally, we rely on a structured pipeline of employees through relationships with local high schools and community colleges. We believe that the strength of our recruiting pipelines and development programs allow us to take those individuals who are interested, energetic, and willing to learn and grow top-level craft workers. By having this development philosophy our entire production workforce is exposed to common training experiences, which helps to create a common culture and synergy that has made HII a leader in the industry over the long run."

"If you compare apprentice program offerings among the private sector and government shipyards, there are numerous similarities," she said. "Traditional apprentice programs that train welders, machinists, pipe fitters, and fitters are common. HII's innovative approach to developing and training its workforce includes "non-traditional" apprentice programs that train dimensional control technicians, pattern makers, marine designers, composite manufacturers, production planners, modeling and simulation analysts, nuclear test technicians and cost estimators, to name a few."

According to Brenton, Ingalls Shipbuilding has a large-scale mockup of a ship superstructure to conduct training in conditions and spaces identical to the conditions the trainee will experience once he or she graduates. "This provides the trainee with an experience that prepares him/her for their experiences in production and provides the company with assurance the craft person will perform as expected – not only from a pure production standpoint, but also with respect to safety and quality compliance."

In many cases, such as work on Navy ships, workers must be U.S. citizens and receive a security clearance, Chopek said.

"Prospective employees need to be

Foundry pour by Newport News ShipbuildingApprentice Students (from left) Stephan Robertson, apprentice craft instructor, Robert Page, Sean Massey, James Lipford, and guest Apprentice Instructor Jennifer Ryan.

aware that most of our craft work is completed outdoors, sometimes in extreme conditions," Brenton added.

NAVAL SHIPYARDS TRAIN NEW GENERATION

The Navy is also taking an active role in recruiting and training the next generation of workers. The Pearl Harbor Naval Shipyards Apprenticeship Training Program is highly selective. "We had 5,000 applicants for this year's class. Ultimately we'll select 100 to 150 apprentices who will begin the four-year program," said Robert Fogel, production resources manager at PHNSY.

"It can take as long as a year from when someone first looks into the program to when they actually begin," Fogel said.

The program is conducted in partnership with Honolulu Community College (HCC), and is highly selective.

"Turnover is incredibly small," said Fogel. "About 95 percent of each four-year class graduate. From a class of apprentices that complete their four year program together, about 60 percent of them will still be working together when it comes time to retire."

Apprentices attend classes at HCC at a satellite facility right on the shipyard.

"They attend courses in the morning and then learn trade theory, taught by instructors from their particular shop. We have about 100 production department people who are dedicated to training, including working with our apprentices," said Steve Wantanabe, the apprenticeship coordinator.

After receiving their AAAS degree, the apprentices receive continued training while they work with their shop gaining experience for two more years to become certified according to Department of Labor standards as journeymen. "Eventually, they can become a work leader and master craftsman, and then a supervisor or even project superintendant," Fogel said.

PUBLIC-PRIVATE PARTNERSHIPS

Speaking to the Southern Growth Policies Board (SGPB) Conference in Roanoke on June 14, 2011, Huntington Ingalls Industries CEO Mike Petters said that his company is faced with an aging workforce. "We have nearly 38,000 employees, many of whom are third-, fourth- and even fifth-generation shipbuilders," he said. "The average age is 45, which means we have a lot of very experienced folks who can retire in a little more than a decade. And only 24 percent of our workforce is under 35 presenting us with troublesome challenge."

"The cost of training a worker at HII is considerable. In fact, it's about $8,000 per employee in the first year. When we were part of Northrop Grumman, the average cost for the corporation to train an employee in the first year was $3,160. The point here is that the complexity of shipbuilding requires more extensive training and therefore a higher investment," he said.

"The great majority of the people we hire need some kind of training already – whether it be in the technical, engineering or computer science areas. That does not always mean someone with a bachelor's degree."

"In many cases we look for someone with technical school or community college education to satisfy our requirements. And we also recruit the 'work ready' high school graduate who has educational foundation and who we believe we can train to be successful on the waterfront.

A large majority of HII employees must be U.S. citizens, and half of these must be able to acquire a security clearance, said Petters.

"This becomes increasingly important in trying to recruit the younger generation today before lifestyle choices compromise their ability to obtain security clearances," he said. "And it's one reason why we target some of our workforce development programs to middle school age chidren."

Captain Edward Lundquist, USN (Ret.), is a naval analyst and principal science writer for MCR Federal.

Newport News Shipbuilding Apprentice Jessica Henderson works on pipe. (Image: HII)

Ballast Water Discharge Regs

Still Swimming Upstream

The recent Joint Subcommittee Hearing examined ways to improve Ballast Water Discharge Regulations and ensure cost effective standards. A federal standard remains elusive as release of final rule is again delayed. That's just the tip of the iceberg.

I follow the ballast water treatment, technology and regulatory beat with particular interest and until last Wednesday, thought that I knew just about everything there was to know about this ongoing drama. Stretching back more than 15 years and involving so many players you need a supercomputer to keep score, **the ballast water treatment battles, while seemingly on the verge of ending, might just be starting to heat up again.** If the whole thing still confuses you, the only thing you really need to know for the time being is that a unified federal standard, expected this summer, won't happen any earlier than later this fall. And, based on what I heard in the subcommittee meeting – I watched it twice – I'm not going to hold my breath waiting on the latest timeline. Here's why: Unlike many of these congressional subcommittee hearings, I have to admit that last week's hearing was substantive and to the point. Panelists and committee members alike showed themselves to be knowledgeable, concerned and the Q&A proceeded with a minimum of grandstanding. Witnesses included Vice Admiral Brian Salerno, Deputy Commandant for Operations, United States Coast Guard, Mr. James Hanlon, Director, Office of Wastewater Management, Environmental Protection Agency, Dr. Deborah Swackhamer, Chair, EPA Science Advisory Board, and Dr. James Carlton, Chair, Committee on Numeric Limits for Living Organisms in Ballast Water, National Research Council. A second panel included industry advocates Mr. Thomas Allegretti, President, The American Waterways Operators on behalf of Shipping Industry Ballast Water Coalition and Mr. Michael Jewell, President, Marine Engineers' Beneficial Association. When it was all over, though, this impressive list of folks dredged up more issues than solutions. Chairman LoBiondo began the hearing by explaining that as many as 28 states and Indian tribes, in the absence of a federal benchmark, had implemented their own standards. Some – New York, for example – were set to ridiculously stringent levels that far eclipsed (1000x) the expected federal standard which will, in its preliminary phase I rollout, probably mimic the IMO's standard. That international benchmark has been ratified by 28 nations, representing 26 percent of the world's merchant shipping tonnage. Because the Convention will enter into force 12 months after the date on which not fewer than 30 States (representing not less than 35 percent of the gross tonnage of the world's merchant shipping) have become Parties to it, the urgency to unify U.S. laws to a global approach has never been more apparent. On a different tack, LoBiondo also pressed James Hanlon of the EPA to estimate how many smaller vessels in U.S. waters could be impacted if the EPA did not put into effect a different permit for smaller vessels. With some hesitation, Hanlon admitted that as many as 140,000 individual hulls could fall under the new laws. Beyond this, EPA's (proposed) General Permit seeks to regulate more than 25 different streams of discharge from vessels, a regulatory burden which AWO President Thomas Allegretti characterized as "a broken system." For those holding out for a more stringent standard than the proposed Coast Guard Phase I benchmark, the kind of technology that is available and feasible to measure just that was also discussed. Dr. Deborah Swackhamer, Chair, EPA Science Advisory Board testified that measurement technology that exceeded the IMO standard (by just 10X) was possible, but also admitted that this fell well shy of the 1000X standard put forth by New York and others. She also insisted that a "higher BWT standard" could and would spur industry to produce remedies and testing methods that were better than that available today. Unanswered in all of that was how long we would have to wait for it and what would happen in the absence of a federal standard in the meantime. The folly of duplicative regulatory coverage between the Clean Water Act and the Invasive species Act was discussed at length. Indeed, the competing and differing nature of the two laws and their ultimate intent is troubling, especially at the federal level which is supposedly trying to resolve the thorny issue of 20+ local standards and provide a unified federal approach that would provide for smoother and less-burdened interstate and international commerce. And, by this point in the hearing, the federal standard that looked to be so very close just six months ago now seemed, if not unattainable, certainly fraught with roadblocks. Closing out the first panel's testimony, ADM Salerno, perhaps, sought to mollify those in attendance by assuring the subcommittee that it was the Coast Guard's intention to "seek harmonization with the EPA later this fall." The final federal rule, he said, was first published in 2009 and since then, the Coast Guard has received more than 2,000 comments on its wording from industry and other interested parties. That Interim Final rule, he said, was now "in clearance." And yet, based on the testimony and questions posed last Wednesday, the matter seems anything but close to its conclusion. For me – and I admit that I had not given this much thought before – the possibility that an EPA General Discharge permit would eventually impact as many as 140,000 small vessels in terms of as many as 25 different discharge streams, is another fly in the ointment. Unless resolved, this issue will make the impending selection of a BWT system for your 100,000 ton DWT tanker seem like a walk in the park. The promise of a federal BWT standard this summer has come and will eventually go unfulfilled. Based on what I heard last Wednesday, anyone expecting the autumn to bring any significant joy in that regard will be similarly disappointed. It's far more complicated than marrying the Coast Guard's Phase I rule to the IMO's standard. Chairman LoBiondo said, in a prepared statement, "The current overlapping and contradictory patchwork of ballast water regulations hampers the flow of commerce, threatens international trade, unduly burdens vessel operations in U.S. waters, undermines job creation and hurts our economy." He's right. But, even after listening to some of the brightest folks that the U.S. government can muster to attack the problem, I'm not sure we are any closer to solving it than we were in 2003, when then USCG Ninth District Commander ADM Ronald Silva told me, "The problem of invasive species is the highest priority marine environmental issue for the U.S. Coast Guard, not just here in the Ninth District, but nationwide, as well." Today, those "critters" – as the subcommittee members were affectionately calling the invasive species last Wednesday – are still swimming to our shores. As for the rest of us, we're still swimming upstream against a stiff current.

Posted on MaritimeProfessional.com by Joseph Keefe

How do you lose 600 containers?

This qualifies as an "Only in the Philippines" story: Out of a shipment of 900 containers that arrived in the port of Manila and were supposed to be trucked to the port of Batangas, only 305 actually made it to Batangas.

How do you lose almost 600 boxes that have not cleared Customs and are supposedly in bonded transit?

A report from a Philippine newspaper said an "alert" was triggered when the containers failed to show up at Batangas almost a month later. This raises a serious issue, namely that the Customs department needs to urgently rename its alert system to something more suited to Philippine circumstances. Maybe it should be called the "Containers. What containers?" system. The boxes all apparently left the port of Manila but 600 did not make the 120km trip south to Batangas. Or if they did it was not recorded and no duty was paid on the contents – plastic resins, textiles, foodstuff, personal effects and household products from China, Taiwan, Singapore and Malaysia. Customs Commissioner Angelito Alvarez was left scratching his head, but he must smell plenty of rats. Stealing 600 containers is no small feat and there must have been many hands involved. It is not clear if the boxes were TEUs or FEUs, but it would still take at least 300 laden truck trips to get the containers out of the port of Manila. That means there will be a lot of drivers floating around the port with knowledge of where the boxes were taken. Interrogate a random sample of drivers and surely a pattern will soon emerge. There would be culprits in the container yard and the port gates as well as someone in the admin section and in Customs. It does not appear to be a major mystery, just another example of the corruption that is rampant across Asia's most unfortunate country. Is it possible the containers were not stolen and have been mislaid in a quiet corner of Manila's port? Unlikely. When things go missing in the Philippines there are few innocent explanations.

Posted on MaritimeProfessional.com by Greg Knowler, Hong Kong

Shippers Demand Share of
Slow Steaming Benefits

Two reports were published recently that put the boot into container shipping line practices.

The first to come out was on slow steaming and its effects on Asia pacific supply chains. US-based logistics operator BDP International conducted a global survey of importers and exporters and their responses highlighted the deeply unpopular practice of slowing ships. According to the survey, slow steaming impacts 92 percent of Asia Pacific businesses involved in international trade. The impact manifests itself in the area of customer service where 58 percent of companies said they were unable to deliver goods on time or experienced difficulties meeting their commitments to customers. Another big area of displeasure was in inventory levels, where companies either could not get parts in time or were forced to hold more inventory than before slow steaming was introduced. But the majority of respondents felt the carriers should share the financial benefits of slowing down vessels with their customers, who are being forced to adjust their supply chains and shoulder the associated cost and falling service burdens. They want rates to be lowered and the savings by slow steaming to offset any future increases. This is a fully understandable position by shippers, but it is hard to see where rates could be reduced. Asia-Europe freight rates are way down, as are those on the transpacific, all a result of slowing demand and too much capacity. So shippers may be forced to employ additional planning and carry a bit more inventory, but if rates fell much more, the lines would be paying shippers to carry their cargo. The second interesting take on the container shipping business was contained in the ComPair Data, Rate-Capacity Nexus Report. Following the first quarter demand slide, lines responded by poorly managing capacity on key trade lanes to and from North America in the second quarter, according to the report. This saw contract rates declining sharply and liner profitability following suit. No one seems to understand the business plan of the container lines, which appears to be a "maintain market share at all costs" approach. With all the surplus capacity floating around or on the way, those costs continue to mount. Shipping line accountants may as well put all their black ink back in storage and bump up inventory levels of the red stuff because it will come in handy for the next set of financial results.

Posted on MaritimeProfessional.com by Greg Knowler, Hong Kong

Count Felix von Luckner

Better known as the World War I naval hero "Der Seeteufel" – the Sea Devil

Posted on by Dennis Bryant

Felix von Luckner was a German nobleman, born in Dresden on June 9, 1881. He ran away from home at age 13, signing on to a sailing ship bound for Australia. Luckner returned to Germany in 1901 and entered a maritime training school. After graduation, he sailed with the Hamburg Südamerikanisch Line. In 1912, he obtained a commission in the Imperial German Navy. During World War I, Luckner saw action in the Battle of the Helgoland Bight. During the Battle of Jutland, he commanded a gun turret on the battleship Kronprinz Wilhelm. After the Battle of Jutland, Germany deployed very few surface warships. It did, though, utilize a number of merchant raiders – Q ships. One such ship was the converted three-masted sailing ship Pass of Balmaha. Two 105 mm guns were hidden behind hinged gunwales. The ship, by now renamed the Seeadler (Sea Eagle), was also fitted with auxiliary engines. Count von Luckner was appointed its commanding officer and it departed on patrol on December 21, 1916. Starting in the mid-Atlantic on January 9, 1917, the Seeadler captured 11 merchant vessels and their crews. Eventually, von Luckner was holding almost 300 prisoners. He transferred the prisoners to a barque that was captured on March 20. After removing the barque's topgallant mast and additional sails and spars, as well as the radio, von Luckner released the ship from his custody. By then, the Royal Navy was searching the Atlantic for the Seeadler. Von Luckner sailed around Cape Horn into the Pacific. After seizing and sinking two merchant vessels, the Seeadler, its crew, and its prisoners traveled to a small coral atoll in the Society Islands for a planned respite. While anchored there, a storm struck and the Seeadler was wrecked. Von Luckner and five men sailed an open boat to the Cook Islands in an attempt to obtain a relief vessel. Instead, he and his men were captured. He escaped, but was recaptured several days later. Count von Luckner was repatriated to Germany in 1919 and was immediately celebrated as a war hero. He was noted in particular for his many maritime exploits with minimal loss of life. In fact, only one person died during his maritime raiding – when capturing one ship, a shot was fired to disable the ship's radio. The bullet ricocheted, ruptured a steam line, and scalded a sailor.

Delta Rigging & Tools Patented Shackle-Loc Thimble

Delta's Patented Shackle-Loc Thimble ensures the entire, sling set remains intact after certification. The thimble's welded insert plate prevents the certified shackle from being removed and replaced in the field, which could compromise the integrity of the sling.

FEATURES:

•Patented Design

•Ensures certified shackles cannot be removed in the field

•No welding torch heat near wire rope as may occur in "home grown" shackle locking solutions.

www.deltarigging.com

Truston Technologies Custom Splices Dyneema Line

Truston Technologies, Inc. provides custom splicing of Dyneema lines manufactured by Samson Rope. Dyneema's floating lines offer benefits including the same strength as wire rope of equal size; resistance to abrasion, flex-fatigue and reduced risk of injury by failure; lightweight enough for easy handling; and no risk of metal splinters. Dyneema lines are offered in different constructions and sizes to perform all traditional wire rope and fiber rope applications.

www.truston.us/rope_rigging

FibreMax Selects Delta for Distribution

Delta Rigging & Tools has been appointed as the distribution and service representative for FibreMax in the U.S. FibreMax, based in The Netherlands, specializes in lightweight precision cables produced with Endless Winding technology, a completely automated process of continuous winding of parallel strands of fibres around two end fittings until the right cable strength or required cable stretch has been reached. By maintaining a constant and equal tension (with an accuracy of 0.1%) in all fiber strands during the winding process, an efficiency of more than 80% on the used fibers is reached.

www.deltarigging.com

Pulling Power

(Photo Courtesy Cortland)

As vessels grow increasingly large, powerful and versatile, so too must the winches and ropes that help to ensure maritime work is executed as efficiently and safely as possible. Maritime Reporter last month polled major players in the field to discover recent trends and advances.

When a European client of **Cortland** needed to use a high strength capacity but lightweight lifting sling, the lift requirements exceeded the manufacturing capability of most providers. The solution was patented Plasma synthetic fiber in a patented 12x12 braided configuration; available through Cortland.

When assessing the job, three primary issues needed to be overcome. First, the rope design needed to maintain a high level of translational efficiency in large diameter without sacrificing other performance properties such as structural integrity, spliceability and resistance to abrasion damage. Second, the solution needed to entail the ability to actually make a rope that could achieve the required strengths while not having limitations imposed by the design of the rope itself. Finally, the application required detailed performance data to facilitate the design and implementation of the lifts.

Cortland, with its patented 12-strand construction, addressed the issue of strength translation. In the 12 x 12 design, each of the 12 strands in the finished rope is, in itself, a 12-strand braid. Cortland already owned the answer to a second issue: a large 12-strand braider capable of making ropes up to approximately 200mm in diameter. Finally, Cortland tested the large Plasma slings using a 5,000-ton fully instrumented test bed, and all tests met or exceeded design specifications. With these recent test results, lightweight synthetic Plasma 12 x 12 ropes have proven their performance capabilities in large sizes suitable for use in the most demanding of operations. Despite the exceptional size, this rope is 7 to 8 times lighter than a comparable steel rope, yet is much easier to handle and splice. Furthermore, Cortland has not reached the upper limit of the sizes that can be produced and will continue to test new sizes and materials.

Competition in the global cordage market is heating up, and another company situated in the Pacific Northwest, **Samson**, is an able competitor. Samson was a finalist in the Seatrade Awards, and Samson's synthetic emergency tow-off pendant (ETOP) Vulcan provides a means of towing a ship away from the dock in the event of a fire without the use of wire rope. The patented synthetic ETOP is made of Technora fiber in conjuction with a proprietary fire-resistant coating. The combination results in a rope that meets OCIMF breaking strength recommendations after exposure to flames and a high-temperature environment.

Marlow Ropes is returning to the marine and offshore sector with the launch of Oceanus, designed specifically for use in winch applications. Oceanus is an Ultra High Modulus Polyethylene (UHMPE) core dependent, covered rope ideal for use on all types of winches, especially those where abrasion and friction are an issue. Manufactured and pre-spliced to exact lengths and specification, the 12-Strand UHMPE core can be made from Dyneema SK75 for high strength, SK78 for high strength and minimal creep or SK90 for super high strength.

New England Ropes has reconstructed the Endura 12 and introduced the STS-12, a 100% HMPE fiber rope characterized by extremely high tensile strength and ultra low elongation. The rope features a Marine-Tech coating to enhance its durability. Applications include slings and winch lines, replacement for steel cable, helicopter lifting lines, underground pulling lines and tug boat tow lines.

Equally important to selecting the right rope is keeping the rope shipshape over its life, and **Fluoron Inc.** contends that it offers the ideal solution. Fairlead rollers are designed to support and guide mooring lines used to stabilize marine vessels

during docking operations. If the fairlead rollers are not maintained, the lack of maintenance causes failure of the synthetic mooring line. Fluoron developed a cover material, which can be applied over the fairlead rollers using a patented application procedure. Fluoron's material is designed to reduce the maintenance time and costs for scraping paint and rust and to eliminate the need of repainting the surface of the rollers. But more importantly, it is designed to increase the life cycle of the synthetic lines. Fluoron's roll covers will help prevent fraying and breaking of synthetic mooring lines, reducing the chances of injury. Fluoron's cover material has been applied to deck equipment on tugs and cruise lines resulting in the reduction of maintenance costs and increasing the life cycle of synthetic mooring lines.

HEAVY LIFTERS

Working in conjunction with rope, synthetic and wire, is a vessel's deck machinery, and advances in this regards have been proceeding at breakneck speed. **Rolls-Royce** recently won a $81.4m contract by Swire Pacific Offshore to supply anchor handling systems for four offshore vessels, currently under construction in Singapore. The systems are developed for the safe handling of large anchors on deck, such as the torpedo anchors used in the deep water oil and gas fields off the coast of Brazil.

Rolls-Royce will supply a complete deck machinery system to each of the four vessels, which are being built at the ST Marine Singapore shipyard. At the heart of the system is a low-pressure hydraulic winch for anchor handling and towing, with a pulling capacity of 500 The equipment package includes anchor handling cranes, an anchor recovery frame which enables safer and more efficient handling of large anchors, and a stern roller with environmentally friendly bearing technology.

Markey Machinery earlier this year introduced its new line of Abandonment and Recovery (A&R) winches suited for oil field services such as maintenance, repair and decommissioning. Markey's type DEPS-76AR is a single drum, direct-pull type winch with level wind designed to work 3,300m of 4.75 inch diameter wire rope. Redundant vector-motors developing 1,750 hp turn the drum through an induction hardened helical transmission. AC-variable frequency drives produce retrieval speeds of 32 m/minute. Markey's automatic render/recover controls tame peak loads while pulling in 450Tm over cable weight.

NABRICO is a full line marine supplier of anchor winches, winches, hatches, doors, castings, and other specialty products. NABRICO's DF-AW-1200-30-2/15H-AUX anchor winch has 25,000 lbs of line pull, line speed of 30 fpm, cable capacity of 1200 ft. of 1.75-in. wire rope, chrome plated levelwind to help prevent corrosion, and 15-in. warping heads on each side of the anchor winch. The DF-AW-1200-30-2/15H-AUX is a hydraulic anchor winch with an auxiliary power source that could fully operate the winch if the hydraulic systems would fail to operate. The auxiliary power source is fully integrated into the winch and is operated by engaging the clutch assembly and applying power to the electric gearmotor.

Readman Retires After 40 Years

On July 22, Luke Readman, Chairman of Thomas Miller P&I Ltd, retired after nearly forty years of service to the Members of the UK P&I Club. He hands over leadership to current chief executive Hugo Wynn-Williams, who will be supported by deputy chairman Nigel Carden. Readman is renowned in the P&I industry as an oil pollution specialist after handling major claims for the UK Club such as the 230,000dwt VLCC Haven, which caught fire and sank off Genoa in 1991. The case was finally resolved by a tri-partite settlement agreement between the Italian State, the IOPC Fund and the Owners/Club. Following the Exxon Valdez oil spill in Alaska in 1989, he was heavily involved on behalf of the International Group of P&I Clubs in the protracted process of implementation of the US Oil Pollution Act 1990. The lengthy saga of Certificates of Financial Responsibility (COFRs) under OPA 90 culminated in 1996 with the creation of the Shipowners Insurance and Guaranty Company (SIGCo) of which he was one of the chief architects. SIGCo now provides COFR guaranties for about two thirds of the ships trading to the US.

A barrister and Oxford classics graduate, Readman joined Thomas Miller in 1971. He pioneered the development of P&I business in mainland China during the early 1980s.

Danaos Appoints Chatzis as CFO

Containership owner Danaos Corporation appointed Evangelos Chatzis to the position of Chief Financial Officer, effective July 22, 2011. Chatzis has more than 16 years of experience in corporate finance and the shipping industry and has been with Danaos since early 2005 where he has served as Treasurer and Deputy Chief Financial Officer. He holds a Bachelor of Science degree in Economics from the London School of Economics, a Master's of Science degree in Shipping & Finance from City University Cass Business School, as well as a post-graduate diploma in Shipping Risk Management from IMD Business School.

Toohey Tapped to Lead WCI

Mike Toohey was selected to become President and CEO of Waterways Council, Inc. With more than 30 years of federal government expertise, Toohey most recently served as Consultant with The Livingston Group's Transportation, Shipbuilding, Shipping and Ports practice area. Prior to that, he served as Vice President of Government Affairs for Ashland Inc.

ACL Makes Management Changes

American Commercial Lines (ACL) has relocated Bill Braman, Senior Vice President and Chief Operating Officer – Transportation Services, to Harahan, LA, where he will lead the field implementation of ACL'S new operating plan and scheduled service platform. ACL also appointed Mario Munoz to the position of Vice President Business Development and Marketing. Finally, ACL appointed Bill Foster to the position of Vice President Maintenance.

Roden Joins Fairbanks Morse Engine

Fairbanks Morse Engine, an EnPro Industries company, announced that Paul Roden has joined the company as Vice President, Washington Operations. In this new role he will represent the company in discussions with Congress and with shipyards, as well as customers in the Departments of Defense and Homeland Security. Roden joins Fairbanks Morse Engine from the U.S. Coast Guard, where he retired with the rank of Captain following a distinguished service career. His most recent assignment was Chief of the Office of Naval Engineering at USCG headquarters, where he was responsible for naval engineering support to all Coast Guard cutters and boats, including policy development, budget execution, training, competency standards, and organizational alignment.

Fernie Appointed at Lloyd's Register

James D. Fernie has been appointed to the position of Business Development Manager, Gulf Coast area for Lloyd's Register North America, Inc., based in Houston. James has held senior positions with ConocoPhillips, BG LNG Services and Marathon Oil, and will be instrumental in developing opportunities in the LNG sector. He has also worked extensively with the US Coast Guard.

Deterding Promoted by Donjon

Donjon Marine named that Paul Deterding General Manager of Donjon Shipbuilding and Repair, LLC, located in Erie, PA. Deterding will oversee the daily operations of the facility, including production, engineering, plant maintenance and administrative duties.

IHC Merwede, BAE Systems Team to Serve US OSV Market

IHC Merwede and BAE Systems entered last month into a cooperation agreement to meet the demands of the offshore construction vessel market in the U.S. The cooperation is part of IHC Merwede strategic internationalization plan, giving it entrance into new markets. For BAE Systems, it is designed to allow the company to increase vessel new construction in its commercially focused shipyards. According to the agreement, IHC Merwede, as a main contractor, will be responsible for the design and build of the vessels. Its Houston office, IHC Merwede America Corp. will be responsible for the sales and business development activities. BAE Systems will provide the production facilities for IHC Merwede at its shipyards in Mobile, Ala., and Jacksonville, Fla. The former offers direct access to and from the Gulf of Mexico and major shipping lanes. The 432-acre site is renowned for ship repairs and conversions.

DryShips Acquires OceanFreight Inc.

DryShips Inc. and OceanFreight Inc. entered into a definitive agreement for DryShips to acquire the outstanding shares of OceanFreight for consideration per share of $19.85, consisting of $11.25 in cash and 0.52326 of a share of com-

Jones Celebrates 100th on the Ship Canal

Len Jones was born in 1911, the coronation year of King George V and the year the Titanic was launched at Harland & Woolf in Belfast. During his lifetime there have been four British monarchs, 19 Prime Ministers, two World Wars and the break up of the British Empire. Women have won the vote, man has landed on the Moon and the world has seen the invention of television, computers, the internet, mobile phones and SatNavs. Len celebrated his 100th birthday with a special trip on the Manchester Ship Canal, where he spent his working life of almost 50 years and retired as deputy general manager. The trip was arranged by Peel Ports, the owner and operator of the Manchester Ship Canal as a way of celebrating Len's birthday and thanking him for his dedicated service. Recently he was joined by former colleagues and current Manchester Ship Canal general manager Dean Hammond on board the tug 'The Viceroy.'

Jones sailed from QEII dock at Ellesmere Port, which he was involved in the design and construction of in the early 1950s, and travelled up the Ship Canal to Port Ince before returning to Eastham Locks. He joined the Manchester Ship Canal Company as a 15-year-old in June 1927, and apart from four years in the late 1930s, he worked for the Ship Canal Company until he retired in July 1975.

During that time he served as chief draughtsman, principal assistant engineer and deputy chief engineer, a post he held for the last four years of his working life. Len is still fit and healthy, being a regular user of a local gym near his Wilmslow, Cheshire home.

Len Jones (2nd left) at QEII Dock with (l-r) former colleagues Jim Cordiner, David Ogilvie, Ray Howells and current Ship Canal general manager Dean Hammond.

mon stock of Ocean Rig UDW Inc., a global provider of offshore ultra deepwater drilling services that is 78% owned by DryShips. The Ocean Rig shares that will be received by the OceanFreight shareholders will be from currently outstanding shares held by DryShips. Based on the July 25, 2011 closing price of $16.44 for the shares of Ocean Rig on the Norwegian OTC, the transaction reflects a total enterprise value of $239m, including the assumption of debt.

International Offshore selects MarineCFO

MarineCFO said that International Offshore Services has chosen to implement the full MarineCFO Enterprise software suite. Through its wholly owned subsidiaries International Offshore Services provides a comprehensive range of offshore services including construction barges and offshore support vessels.

International Offshore Services employs more than 450 individuals.

Travelers

Marine Construction Program for Contractors

Whether building piers and docks, repairing bridges or retrofitting port facilities, construction contractors experienced in working along the waterfront are in demand. To help construction contractors manage both the marine and non-marine exposures that come with working in and around the water, Travelers has developed the Marine Construction program, an insurance package that combines specialized underwriting, risk mitigation solutions and claim services.

"Construction contractors who work around the waterfront face a number of complex risks when managing marine, non-marine and contractual liability exposures," said Virginia Cameron, Chief Underwriting Officer, Travelers Ocean Marine. "Travelers combined its expertise and experience in the marine and construction industries to create an extensivecombination of insurance, risk management and claim services for construction contractors working in and around the water." It can be customized:

- **Marine General Liability** coverage for products and completed operations liability for work performed from watercraft
- **Marine Contractors Liability** coverage for property damage to marine structures under construction while in the insured's care, custody or control
- **Bumbershoo**t providing excess liability protection over both marine and non-marine coverages, including auto, and general and employer's liability
- **Commercial Hull and Protection and Indemnity (P&I)** – providing physical damage and liability protection for owned vessels
- **Contractors Equipment** – including protection while waterborne

Email: CCOOKE@travelers.com

Hydraulic Reciprocating Saw

CS Unitec's 2 HP Hydraulic Reciprocating Saw is designed for fast, hand-held cutting of metal and wood. Model 5 1219 0010 (also known as The SHARK), weighs 13 lbs., quickly cuts pipe and wood up to 6 in. dia. and metal up to 3/4 in. dia. It is also ideal for cutting structural steel, tanks, bolts, plastic and other material. It has the capability to mount on an optional Pipe Clamp to make 90 degree cuts. Use of a clamp with the saw increases leverage five times over hand cutting and is also safer for the operator. It uses universal ½-in. shank, single-tang reciprocating saw blades, as well as thicker, heavy-duty, double-tang blades for 90˚ cuts. Saw blades are available with a variety of TPI and lengths from 6" to 12". This CS Unitec Reciprocating Saw has an ANC (All-round Needle-bearing Crank) gear drive that reduces friction and wear, resulting in less heat and longer tool life. **Email: info@csunitec.com**

www.csunitec.com

Tomahawk 625 Plasma Cutting System

Lincoln Electric launched the Tomahawk 625 plasma cutting system, a model in a new comprehensive line. This system is lightweight and portable enough to carry to any shop or jobsite where an external compressed air source is available. Designed for plasma cutting on mild steel, stainless steel, aluminum, brass and copper, the Tomahawk 625 is ideal for on-site maintenance, service tasks, small construction sites, HVAC work, demolition and rental applications. The Tomahawk 625 operates on 208 or 230 volt single phase 60 or 50 Hz input power. It produces 10-40 amps output and is rated at 40 amps at 96 volts, 35 percent duty cycle. The unit's continuous output control focuses the arc for up to 1/2 inch recommended, 5/8 inch maximum and 3/4 inch severance cut thicknesses.

Call (888) 355-3213

SeaShield SplashZone UW Epoxy

SeaShield SplashZone UW Epoxy is a solvent-free patching compound used for repairing pits, cracks and voids in steel, concrete, wood and other surfaces with very minimal experience or tools required. By simply mixing two equal parts together, the product, can be applied by gloved hand, trowel or broad knife, to wet or underwater surfaces. The product can be applied up to 2 inches thick as a patch or grout repair in various splashzone applications. With a fast cure time, you can quickly repair corrosion damage without any new corrosion damaging agents setting in.

www.densona.com.

Making Surface Prep Simple

Rustibus has been providing its chain based solution for surface preparation in the marine industry for more than 30 years. Its latest launch is the Atex/Ex certified pneumatic series that can be used in potentially explosive atmospheres. This will allow even tankers to use their mechanical products on board their vessels. With the wide product range from walk behinds, hand tool and pipe series, there are virtually no areas the powerful machines cannot reach. The newly given certification was recently presented at Nor-Shipping, Oslo, and got a great response from the audience.

E-Mail: djj@rustibus.com • www.rustibus.com

Plugs and Receptacles

Meltric Corporation of Franklin, WI – a manufacturer of industrial duty electrical plugs and receptacles – presents a new product line for electrical equipment powered by direct currents. Meltric's DSDC Series plugs and receptacles were designed for direct current applications up to 200 amps at 250VDC, up to 100 amps at 600 VDC, or up to 30 amps at 750 VDC. Safety features include a dead-front safety shutter and a padlockable pawl. The plugs and receptacles also utilize solid silver-nickel contact surfaces and spring-loaded, butt-style contacts.

www.Meltric.com

Hayata: ABS Type Approval

Hayata, LTD., manufacturers of high-quality, stainless steel cable ties and banding, has been granted Type Approval status for their products by ABS. This certification states that ABS did visit the facilities in order to carry out a survey of the plant as well as associated quality procedures. The facility is considered capable of manufacturing a product which meets the designated standards subject to annual facility surveys by ABS. "We were very excited to have ABS come to our Dallas Facility and give us this certification which represents a great deal of work by our team", said Tom Crouch, founder and President of Hayata. "The high-quality of the products we manufacture and deliver is a direct result of the business practices we put in place on day one, and the constant monitoring of those practices." Hayata has received certificate #HS1971112.

www.hayata.com

201 TS DC Welder

Completing the DC welder series that includes the 95 S, 161 S and 161 STL, the Thermadyne Thermal Arc 201 TS portable welder is now available. The 201 TS is designed to provide increased power and control for tradesman or welders with more demanding requirements. Powerful yet compact and portable, this Stick / Lift & High Frequency TIG unit delivers 100 Amps on standard 115-Volt circuits for Stick welding and 150 Amps for TIG. When used on 208-230 Volt circuits, maximum output is 200 Amps for either welding process. Like the other portable welders in the series, the 201 TS offers: Increased electrical efficiencies & Reduced amperage draw compared to traditional style power supplies.

www.Thermadyne.com

New Driver Drill

Makita added to its line-up of 18V Lithium-Ion tools: the 18V LXT Lithium-Ion Cordless ½-in. Driver-Drill (model LXFD01). It powered by a Makita-built 4-pole motor with bigger front end ball bearings, and delivers 480 in. lbs. of Max Torque and 290 in. lbs. of PTI Torque. The new planetary gear system and transmission has been redesigned for increased durability in a more compact size, so the LXFD01 is 7-9/16" long and weighs only 3.8 lbs. The LXFD01 Driver-Drill has 16 clutch settings and a 2-speed all-metal transmission (0-400/0-1,500 RPM) to cover a wide range of applications. The improved ergonomic design with a new rubberized soft grip delivers increased comfort on the job, and the built-in L.E.D. light illuminates the drilling surface for applications in dark spaces and close quarters.

www.makita.com

Loosens Frozen Metal Parts

Based on scientific discoveries at Kano Laboratories, Kroil creeps into millionth inch spaces, dissolves rust and lubricates to loosen frozen metal parts. Kroil's unique molecular structure facilitates penetration while maintaining a structure that breaks bonds due to either corrosion or compression. Kroil is now available in 8 sizes including a new 16.5oz.economical industrial size. Guaranteed to meet your expectations whatever they may be. Kroil is available in aerosol and bulk. No minimum order. Call 1-866-458-9112 or order from the website at:

www.kanolaboratories.com

Eliminate Dropped Screws

Bondhus Corporation's line of revolutionary Pro-Hold Tip screw holding tools has expanded to include: T-handles, screwdrivers and L-wrenches in both ballpoint hex and star tips, in a full range of inch and metric hex sizes from .050" through 3/8", 1.27mm through 10mm and T9 through T55. Bondhus now offers the widest range of screw holding tools in the marketplace. Each tool's tip has a non magnetic, corrosion-proof button that securely holds screws on the tool at any angle, eliminating dropped screws even in hard to reach applications. The button is on the flat of the hex tool, eliminating weakened tool corners and tool failure associated with competitor products.

www.bondhus.com

BUG-O SYSTEMS Announce Weld.com

The welding & cutting industry has been without an online resource that addresses all aspects of the industry up until this point. BUG-O Systems has recently developed a new website, Weld.com, which will provide users with information on manufacturers, distributors, representatives, consultants, schools, job postings, and other resources within the welding industry. The site is set to launch in Fall 2011.

www.weld.com

BUG-O SYSTEMS
&
CYPRESS WELDING EQUIPMENT
WELDING AND CUTTING AUTOMATION SINCE 1948

Promote Your NEW PRODUCTS ... in print, online!

If your company has a new product or system to promote, and would like to do so to the largest possible global maritime audience — in print and online — simply send 100 words and an image to trauthwein@marinelink.com, and your information will be considered for publication in the pages of:

- ***Maritime Reporter & Engineeing News***
- ***MaritimeProfessional***
- ***Marine Technology Reporter***
- ***MarineNews***

In addition, it will be considered for inclusion on one or more of our websites, and for inclusion in one of our many "ENews" products:

- ***MarineLink.com***
- ***SeaDiscovery.com***
- ***MaritimeProfessional.com***
- ***MaritimeEquipment.com***
- ***MaritimePropulsion.com***

Hydrex: Tailor Made Cofferdam for Prop Fix

When several of the boss head bolts of the main propeller of a RoRO vessel were found to be missing, the manufacturer asked Hydrex to engineer a solution that would **allow the replacement of these bolts on the vessel and similar vessels without having to go to drydock**. In close communication with the manufacturer, the Hydrex engineering department designed a special cofferdam that would fit the specific needs of these operations. This was complemented with a special procedure set up by the Hydrex technical department that would make sure that all safety and quality demands could be met during the replacement. After the proposed cofferdam had been approved and constructed, the boss head bolts on the first of the ro/ro vessels were successfully replaced underwater by a Hydrex diver/technician team during the ship's stop at Port of Koper, Slovenia.

hydrex@hydrex.be

Hydrex designed a tailor-made cofferdam for a RoRo propeller fix.

LR: Tool To Assess Vessel Fatigue in Icy Waters

An example of steel fatigue failure after testing at low temperature

Lloyd's Register (LR) gives shipowners and operators a new tool to help assess designs and reduce the risk of fatigue damage in the hull structures of their ice-strengthened vessels. The development of new procedures under the notation, ShipRight FDA ICE, comes as changes in the exploitation of natural resources, the climate, world trade and marine infrastructure are increasing marine activity in cold-climate areas. The ShipRight FDA ICE assessment procedure examines ship-ice interaction loads, ice-load impact frequency, ice-load distribution, structural responses and the fatigue behaviour of hull structures in cold temperatures including associated fatigue responses. The fatigue-response assessment is determined for different winter conditions and ice thicknesses on typical routes for winter trade.

Intellian Launches v240C

To expand its VSAT communications antenna range, Intellian Technologies has launched v240C, which is designed to provide uninterrupted broadband connectivity compatibility with C-band. The product, intended for use on commercial and deep sea vessels, is available in two models: Circular-only polarized, or Circular and Linear polarized. The latter model was developed to eliminate the need for manual changes by automatically switching between linear and circular polarization.

www.intelliantech.com

Alarm Panel

Thrane & Thrane have developed the SAILOR 3771 Alarm Panel Fleet-Broadband – the first system to take advantage of non-SOLAS voice distress calling via Fleet-Broadband. Once a distress button is activated, the system is programmed to interrupt any non-urgent calls to give priority to the emergency. These distress calls will be connected to operators at Maritime Rescue Coordination Centers (MRCCs), which exist in each Inmarsat-4 satellite region.

www.thrane.com

GSAT Track

Global Satellite USA launched the GSAT Track - a tracking solution designed to provide GPS tracking for both GSM and satellite applications using one single application, without any additional hardware or software required. GSAT Track offers online maps that display the exact location of assets - including position, speed, altitude and heading - through road maps and satellite imagery. Assets and their discrete tracking devices may be configured, grouped and reported remotely under a unified web interface. The product is compatible with all standard web browsers and has been designed to be integrated with Falcom, Inmarsat M2M, Solara, Quake Global and Nal Research.

www.globalsatellite.us

Gyro Retrofit Steadies USN Ship

Deception Pass, an 85-ft. U.S. Navy Torpedo Weapons Retriever/Security craft (TWR-8) is a workhorse, launching and retrieving torpedoes and towing targets, among other complex operations. To improve the crew's safety and comfort , the Navy chose Seakeeper's M21000 Gyro Stabilization System which, as an unexpected added benefit, reduced the ship's fuel consumption. While smaller Seakeeper gyros have been used on new Navy vessels, this is the first retrofit project and first use of the M21000 model .

With a home port at Naval Undersea Warfare Center, Division Keyport, Washington, Deception Pass often travels to a joint test range in Canada. Sea States 3 and 4 during transit are common. "The ship's center of height is so tall, we've had roll mitigation problems," said Richard Bottalico, marine engineer for the Naval Undersea Warfare Center in Keyport. "

"The initial benefits were roll mitigation and crew comfort," said Mike Allen, master of the TWR-8 Range Management & Operations Division. But he noted that when the gyro is engaged and the ship is on autopilot, the Seakeeper system reduces port-to-starboard roll and also helps keep Deception Pass on course, reducing fuel consumption.

Email: sales@seakeeper.com• www.seakeeper.com

Specialty Lubricants for Maritime, Offshore

Klüber Lubrication offers a line of speciality synthetic lubricants for specific use in the maritime and offshore industries. Klüberbio RM 2-150 is non-toxic stern tube oil for fixed-pitch and controllable-pitch propellers. Klüberbio EG 2-150 is synthetic ester oil, designed for use in thrusters and rudder propellers offering the reliability needed for these gears due to their demanding lubrication requirements. Klüberplex AG 11-462 is a white adhesive lubricant used on winches and cranes and can be used to lubricate davits and steel ropes on many types of ships, including but not limited to offshore anchor handling vessels and cruise ships.

www.klueber.com

e7 Multi-function Displays

Raymarine launched its e7 line of multifunction displays. The e7 is the first seven-inch MFD to provide networking with up to six displays, as well as remote system control and music over Bluetooth. The e7's Wi-Fi connectivity allows boaters to stream live video from the e7 to their iPad, iPhone, or iPod Touch. This allows anyone on board to see whatever is on the e7's display – thermal video, navigation charts, radar, sonar, anything that the e7 can display – on their mobile iOS device anywhere on board. Its Bluetooth connectivity lets you control and reconfigure the e7 with the optional RCU-3 wheel-mounted or handheld remote control unit. You can also use the RCU-3 remote to control the audio playback from your iPad, iPhone, or iPod remotely so that your device is stowed safely out of the elements.

www.raymarine.com

(U.S. Yards Seek, Create New Opportunities Continued from page 39)

partner Michael Grandonico leased – and eventually bought – an existing shipbuilding and repair facility on the St. Johns River (mile marker 31), a facility which was renamed St. Johns Ship Building and today stands as one of the more progressive and technologically capable small shipyards on the U.S. East Coast. Visitors to St. Johns Ship Building – a facility which lies on 98 acres in a picturesque locale – are most immediately struck by how neat and orderly the facility is run and kept, a tribute to general manager and 30-year shipbuilding veteran Bobby Barfield, said Ganoe. In the four short years that the management team has been involved with the yard, he has helped to take what was a vacant facility and through planning and investment created a diverse and capable shipbuilding and repair facility. Investment in the yard has been steady, boosted last year by $2.4m in U.S. federal government 'stimulus' funding. The company operates several state-of-the-art machines including two CNC plasma cutting machines, brake press, plate sheer, and will soon welcome the addition of a family of steel processing equipment, including a new Wheelabrator plate system, as well as the machinery to shape and cut steel to most any specification, a move which St. Johns envisions as fulfilling the material processing needs for ship building as well as other industry customers.

Bollinger Shipyards, Inc. is a privately owned builder that owns and operates 12 shipyards located between New Orleans and Houston with direct access to the Gulf of Mexico, Mississippi River and Intracoastal Waterway. Bollinger is active on the commercial workboat, offshore oil and gas and government markets, and is the largest vessel repair/conversion company in the Gulf of Mexico region with a total of 31 dry-docks in Louisiana and Texas.

As the Gulf of Mexico Oil offshore business starts to back to life – fueled by a flurry of rig permits this spring, Bollinger's ubiquitous leader, Donald "Boysie" Bollinger, remains cautiously optimistic. "These discoveries show that if they let us drill, we can do it safely and find oil and gas. But it will take much more activity than a successful well to turn this industry around." One major concern, he said, is that "more and more drilling equipment is leaving the Gulf for other areas of the world."

While Bollinger waits for the return of the GOM oil patch business, it has a variety of additional projects to keep its yards active. Earlier this year, Bollinger launched the first in class United States Coast Guard's "Sentinel" Fast Response Cutter (FRC), Bernard C. Webber from its Lockport facility. The Sentinel class cutter is 154 feet long and is capable of speeds in excess of 28 knots. The vessels will be armed with one stabilized remotely-operated 25mm chain gun and four crew-served .50-caliber machine guns. The cutters will be able to operate independently for five days at sea, accommodating a crew of 23 members. A state-of-the-market command, control, communications, computer, intelligence, surveillance, and reconnaissance (C4ISR) system will be fully interoperable with other Coast Guard assets as well as those of the Department of Defense and the Department of Homeland Security. The cutters will also have a 40 knot rigid inflatable boat, RIB, which can be rapidly deployed using an innovative stern launching system that was first presented to the Coast Guard by Bollinger aboard the 87 foot Marine Protector Class cutters.

The Sentinel FRC design is based on the Damen Stan Patrol 4708 patrol boat.

Gulf Copper is another GOM-region company that has continued to expand its capabilities over the last few years, with a focus on increasing efficiencies to world class level, moves which include bringing into service another dry dock. In addition to acquiring new facilities and purchasing new fabrication equipment, Gulf Copper has expanded several divisions. For example, Gulf Copper's Global Services division sends experienced professionals around the world to complete projects, performing the same tasks that would be completed pierside at one of its full-service locations when its clients are unable to come to them. Gulf Copper's Environmental division brings together a group of qualified experts to accommodate an array of environmental services. Gulf Copper's Mobile Rapid Response (MRR) teams have the ability to be onsite in the event of an emergency, and with our experienced support staff, are able to pre-plan with our clients' to a successful project completion. Further, the MRR teams are qualified and use state-of-the-art equipment, allowing Gulf Copper to take on almost any environmental service needed. Finally, all personnel are HAZWOPER certified with an exceptional safety rating, specializing in Industrial, Marine, Onshore, and Offshore environmental requirements.

Horizon Shipbuilding, Inc., has kept busy building towboats for commercial and government customers, and is investing in upgrading it facilities.

VT Halter: Diversified Capability

Pascagoula, Miss.-based **VT Halter** is a traditional power in the GOM region, equally adept at building ships and boats for government and commercial customers. Last month the company announced a significant milestone with the delivery of the **final in a series of ten 185,000-barrel articulated tug barge (ATB) units built for Crowley subsidiary, Vessel Management Services**. Since construction of the first unit in 2005, all ten 185,000-barrel barges have been built at VT Halter Marine's Pascagoula Operations while the 9,700-hp tugs were built at its Moss Point Marine Operations. Barge 650-10, like its sister vessels (650-1 thru 650-9), is certified by ABS Classification Society to comply with the IMO's Green Passport program. Additionally, 650-10 has a Crude Oil Washing (COW) system whereby oil tanks are cleaned out with crude oil, instead of water. The COW system is mandatory on new tankers under the International Convention for the Prevention of Pollution by Ships (the MARPOL Convention). All of Crowley's ATBs are built under the ABS SafeHull program for environmental protection. Earlier in the spring, VT Halter won a contract from Bouchard Transportation to build a 112-ft. ATB Offshore Tug. This tug will be similar to others built for Bouchard in previous years by Halter Marine, measuring 112 x 35 x 17 ft. The 4,000-hp tug will be classed by ABS as +A1 Towing Vessel, Dual Mode, and it will be equipped with an Intercon Coupler System. Construction of the vessel begins in June 2011 at VT Halter Marine's Moss Point Marine facility in Escatawpa, Miss., with delivery expected in September 2012.

On the government side, VT Halter has made a habit of building some of the most technically sophisticated non-military vessels, the T-AGS oceanographic vessels. At the beginning of 2011, VT Halter held a keel laying ceremony for T-AGS 66 USNS Maury. **In late 2009, VT Halter Marine was awarded a contract of approximately $87m to build an enhanced version of the T-AGS 60 Class oceanographic survey ship for the U.S. Navy. Delivery of the vessel is expected in July 2013.** T-AGS 60 Class ships are designed and constructed to provide multi-purpose oceanographic capabilities for typical missions such as: oceanographic sampling and data collection of surface, midwater and ocean floor parameters; launching, recovering, and towing scientific packages, both tethered and autonomous, including handling, monitoring, and servicing remotely operated vehicles (ROVs); shipboard oceanographic data processing and sample analysis; and precise navigation, track line maneuvering, and station keeping to support deep ocean and coastal surveys. VT Halter Marine is the leading designer and builder of specialized oceanographic ships for the U.S. Navy and has experience in building the previous six ships of the T-AGS 60 Class; T-AGOS 13 through T-AGOS 18 ocean surveillance ships; a T-AGOS 23 Class SWATH ocean surveillance ship, T-AGS 51 and T-AGS 52 hydrographic survey ships; oceanographic survey ships AGOR 23, 24 and 25; NOAA AGOR Ronald H. Brown; and four fisheries survey vessels (FSVs) for NOAA.

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

ALUMINUM

Mandel Metals, 147 Main Street, Chardon, OH

ATTORNEYS

Blank Rome, 600 New Hampshire Avenue, NW Washington, DC 20037, Washington, DC , Germany , tel:(202) 944-3565, fax:(202) 772-5858 , www.blohmvoss.com

AUTOPILOT SYSTEMS

AG Marine, 5711 34th Ave NW 2nd floor, Gig Harbor, WA

AZIMUTH CONTROLS

Prime Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada

BALLAST

HF Sceintific- Watts Water, 3170 Metro Parkway, Ft. Myers, FL

BOATBUILDING AND DESIGN

Brunswick Commercial and Government Products, 420 Megan Z Avenue, Edgewater, FL Molde, Norway , tel:(386) 423 - 2900, fax:386-423-9187, BCGPinfo@brunswick.com

BOW AND STERN THRUSTERS

Omnithruster Inc., 2201 Pinnacle Parkway Twinsburg, Ohio 44087, Cleveland, OH 44139, USA , tel:330 963-6310, fax:330 963-6325, widmer@omnithruster.com contact: Kurt Widmer, www.omnithruster.com

CAPSTANS

Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, USA , tel:228-832-7655, fax:228-832-7675, sales@coastalmarineequipment.com contact: Ralph Waguespack, www.coastalmarineequipment.com

COATINGS/ CORROSION CONTROL/ PAINT

Eureka Chemical Company, 234 Lawrence Ave., South San Francisco, CA , tel:888-387-3522, sales@fluid-film.com

International MetalFusion Corp., PO Box 23279, Houston, TX 08003, USA , tel:409 515-0532, fax:409 419-0762, sales@metalize.net contact: Abad Rebollar, www.metalize.net

COMMUNICATIONS

Japan Radio, 1011 SW Klickitat Way, Bldg B Suite 100, Seattle, WA 98134, USA

COMMUNICATIONS SERVICE

David Clark, PO Box 15054, Worcester, MA 01615, USA , tel:1-800-298-6235, Sales@davidclark.com contact: Sales Department, www.davidclark.com

COMPOSITE SHAFTS

Centa Corp., 2570 Beverly Drive #128, Aurora, IL 60559, USA , tel:630-236-3500, fax:630-236-3565, bobl@centacorp.com

CORDAGE

Helkama Bica Oy, Lakimiehenkatu 4, KAARINA FI-20780, Finland , tel:+358-2-410 8700, sales@helkamabica.fi

CORROSION CONTROL

International MetalFusion Corp., PO Box 23279, HOUSTON, TX , tel:409 515-0532, fax:409 419-0762, sales@metalize.net contact: Abad Rebollar, www.metalize.net

COUPLINGS

Centa Corp., 2570 Beverly Drive #128, Aurora, IL 60559, USA

CRANKSHAFT REPAIR

In-Place Machining, 3811 N. Holton St., Milwaukee, WI 53212, USA

DECK MACHINERY- CARGO HANDLING EQUIPMENT

Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, USA , tel:228-832-7655, fax:228-832-7675, sales@coastalmarineequipment.com

Nabrico Marine Products, 1050 Trinity Road, Ashland City, TN 37016, USA

Smith Berger Marine, 7915 10th Ave. S., Seattle, WA 98108, USA

DIESEL ENGINE- SPARE PARTS & REPAIR

Motor-Services Hugo Stamp, 3190 SW 4th Avenue, Ft. Lauderdale, FL 33315, USA , tel:954 763-3660, fax:954 763-2872 , www.mshs.com

DRIVES

Konrad Marine-, 1421 Hanley Road Hudson, WI 54016 USA

ELECTRIC PROPULSION

Avtron Industrial Automation, 7900 E.Pleasant Valley Road, Independence, OH , tel:216 642-1230/ext 1263, fax:216 642-6037, mduskey@avtron-ia.com contact: Mark R. Duskey, www.avtron-ia.com/marine.htm

ELECTRICAL SERVICES

Ward's Marine Electric, 617 SW 3rd Avenue Fort Lauderdale, Fort Lauderdale, FL , tel:(954) 523-2815 x124, fax:(954) 523-1967, sales@wardsmarine.com

ELECTRONICS/NAVIGATION COMMUNICATIONS SERVICE AND

Japan Radio, 1011 SW Klickitat Way, Bldg B Suite 100, Seattle, WA 98134, USA

ENGINE AND COMPONENT ALIGNMENT

Dynamold, Inc., 2905 Shamrock Ave., Fort Worth, TX 76107, USA , tel:817-335-0862, fax:817-877-5203, pmpeck@dynamold.com contact: Michael Peck, www.dynamold.com

GALLEY EQUIPMENT

Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431, USA

LOIPART AB, P.O.Box 694/Metallgatan 2-4, ALINGS?S , tel:+46 322 668 360, fax:+46 322 637 747, loipart@loipart.se

GOVERNORS

New York State Canal Corporation, Interchange 23, Rt 9w, Albany, NY

GYROCOMPASS

AG Marine, 5711 34th Ave NW 2nd floor, Gig Harbor, WA

HOISTS

Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, USA , tel:228-832-7655, fax:228-832-7675, sales@coastalmarineequipment.com contact: Ralph Waguespack, www.coastalmarineequipment.com

HVAC

Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431, USA

HYDRAULIC MANUFACTURING AND SALES

Pennecon Energy, 2 Maverick Place, Paradise NL , tel:709 726-3490, mn1@pennecon.com contact: Eddy Knox, www.pennecon.com

INSURANCE SERVICES

WQIS (Water Quality Insurance Syndicate), 60 Broad Street 33rd Floor, New York, NY

INTERIORS

Jamestown Metal Marine Sales, Inc., 4710 Northwest 2nd Ave., Boca Raton, FL 33431, USA

Thermax Marine-Panel Specialists, Inc., 3115 Range Rd., Temple, TX 76501, USA , tel:813 340-3940, fax:813 264-2507, thermax@panelspec.com contact: John Hutchinson, www.thermaxmarine.com

JOINER- WATERTIGHT DOOR-PANELING-CEILING SYSTEM

Thermax Marine-Panel Specialists, Inc., 3115 Range Rd., Temple, TX 76501, USA

LIFESAVING EQUIPMENT

C.M. Hammar AB, August Barks Gatan 15, 421 32 Vastra Frolunda , Sweden

LUBRICANTS

Varna Products, 4305 Business Drive Cameron Park, CA 95682 , tel:530-676-7770, fax:530-676-7798, tmcachran@VARNAproducts.com

METEOROLOGICAL INSTRUMENTS

R. M. Young Company, 2801 Aero Park Drive, Traverse City, MI , tel:231-946-3980, fax:231-946-4772, vsherman@youngusa.com

NAV/COMM EQUIPMENT

Marlink, P.O. Box 433, Lysaker , tel:+32 70 233 220, fax:+32 2 332 3327, customer.service@marlink.com

NAVAL ARCHITECTS, MARINE ENGINEERS

BMT Fleet Technology, 311 Legget Dr, Kanata, ON K2K 1ZB, Canada

JMS Naval Architects & Salvage Engineers, 34 WATER STREET MYSTIC, CT 06355 06340, USA

MCA Engineers, Inc., 1100 Quail Street, Suite 218,, Newport Beach, CA 92626, USA

NAVIGATION

AG Marine, 5711 34th Ave NW 2nd floor, Gig Harbor, WA

PADLOCKS/LOCKS

Lockmasters USA, Inc., P.O. Box 2532, Panama City, FL , tel:800-461-0620, fax:850-914-9754, sales@lockmastersusa.com

PIPE FITTINGS/CUTTINGS/CONNECTING/ SYSTEMS

Tube-Mac Industries Ltd., 853 Arvin Avenue Stoney Creek, Ontario Canada L8E 5N8

PROPULSION CONTROL SYSTEMS

Prime Mover Controls, 3600 Gilmore Way, Burnaby, BC V5G 4R8, Canada

PROPULSION EQUIPMENT

Ultra Dynamics, Inc., 1110A Claycraft Rd., Columbus, OH

VOLVO PENTA OF THE AMERICAS INC, 1300 Volvo Penta Drive, Chesapeake, VA

PROPULSION EQUIPMENT AND SERVICES

Motor-Services Hugo Stamp, 3190 SW 4th Avenue, Ft. Lauderdale, FL 33315, USA

RIGID INFLATABLE BOATS

Pennel & Flipo Inc., P.O. Box 1695 Mount Pleasant, SC 29465 , tel:843-270-4191, fax:843-883-3000, orca@pennelusa.com

RUST AND PAINT REMOVAL

Dalseide, 2901 WEST SAM HOUSTON PKWY, NORTH SUITE E-325, HOUSTON, TX , Norway

Rustibus, 2901 WEST SAM HOUSTON PKWY, NORTH SUITE E-325, HOUSTON, TX , tel:832-203-7170, fax:832-203-7171, houston@rustibus.com contact: Dominic Jordan, www.rustibus.com

SATELLITE COMMUNICATIONS

Delta Wave Communications, Inc., 8001 Hwy 182 E. Morgan City, LA 70380, Morgan City , tel:(985) 384-4100, fax:(504) 617-6393, tom.clark@deltawavecomm.com

SEATING

ShockWave Suspension Seating Solutions, 2074 Henry Avenue Sidney, BC V8L 3S6 Canada , tel:1-250-656-6165 Ext. 232, sean@shockwaveseats.com

SHAFTS

Centa Corp., 2570 Beverly Drive #128, Aurora, IL 60559, USA , tel:630-236-3500, fax:630-236-3565, bobl@centacorp.com contact: Bob Lennon, www.centacorp.com

SIMULATION TRAINING

Transas Marine USA, 18912 N.Creek Parkway Ste 100, Bothell, WA 98134, USA , tel:425 486-2100, fax:425 486-2112, gtoma@transasusa.com contact: George Toma, www.transasusa.com

STORAGE BUILDINGS

ClearSpan Fabric Structures, 1395 John Fitch Blvd. South Windsor, CT 06074 , tel:860-528-1119, fax:860-289-4711, damende@farmtek.com

SURFACE PREP TOOLS

Dalseide, 2901 WEST SAM HOUSTON PKWY, NORTH SUITE E-325, HOUSTON, TX , Norway

TANK GAUGING AND SENSORS

Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065, USA , tel:631 928-5015, fax:732 388-5111, jferencz@emsmarcon.net contact: Joe Ferencz, www.emsmarcon.com

TESTING SERVICES

BMT Fleet Technology, 311 Legget Dr, Kanata, ON K2K 1ZB, Canada

WASTE WATER TREATMENT

Enwa Water Treatment AS, PB 257 Forus 4066, Stavanger

HF Sceintific- Watts Water, 3170 Metro Parkway, Ft. Myers, FL

HF Sceintific- Watts Water, 3170 Metro Parkway Ft. Myers, FL 33916, Ft. Myers, FL

WATERMAKERS

Reverse Osmosis of SF, Inc., 2860 W.State Road 84, Suite 108, Fort Lauderdale, FL 3331633312, USA , tel:888-768-2993, Info@Reverse-Osmosis.net

WINCHES & FAIRLEADS

Coastal Marine Equipment, 20995 Coastal Parkway, Gulfport, MS 39503-9517, USA , tel:228-832-7655, fax:228-832-7675, sales@coastalmarineequipment.com

Nabrico Marine Products, 1050 Trinity Road, Ashland City, TN 37016, USA

Superior Lidgerwood Mundy, 1101 John Ave., Superior, WI 54880, USA

WINDLASSES (ANCHORS)

Coastal Marine Equipment Inc., 20995 Coastal Parkway, Gulfport, MS 39503-9517, USA , tel:228-832-7655, fax:228-832-7675, sales@coastalmarineequipment.com contact: Ralph Waguespack, www.coastalmarineequipment.com

WIRES & CABLE

ICC Cable Corporation, 2125 Center Avenue Suite 401, Fort Lee, NJ , tel:(201) 482-5750, fax:(201) 482-5751, jkim@icccable.com

ICC Cable Corporation, 2125 Center Avenue Suite 401, Fort Lee, NJ , tel:(201) 482-5750, fax:(201) 482-5751, jkim@icccable.com contact: Jang Kim, www.icccable.com

Employment/Recruitment • wwwMaritimeJobs.com

Employment/Recruitment • wwwMaritimeJobs.com

AFTI - a subsidiary of **DESMI RO-CLEAN**

MARINE SALES REP

Exciting opportunity to represent one of the world's leading manufacturers of oil spill response and recovery equipment. Applied Fabric Technologies, Inc. and its parent company, DESMI Ro-Clean, produce a broad range of oil containment booms, pumps and skimmers that presently perform in more that 70 countries around the globe. Led by an experienced management team and supported by cutting-edge technology, we are looking for an accomplished self-starter with marine sales background to cover the Texas Gulf/Louisiana coast.

We have a major presence throughout the North America and Caribbean market. We offer above average commissions and a terrific opportunity for success.

Resumes can be faxed to 716.662.0636 or
e-mailed to John O'Brien - obrien@afti.com

PADGETT SWANN MACHINERY

Marine Field Technician

An established marine propulsion, repair and fabrication shop is currently accepting resumes to fill several key positions in the outside machine and fabrication repair shop. The individual must have a bachelor's degree in Marine Engineering or significant shipboard experience. Must have the ability to properly identify, troubleshoot, disassemble and repair marine systems and/or components. Must be able to Plan, organize and control job costs and prepare detailed service reports in a timely manner. Must be able to comprehend OEM manuals and parts ordering systems and maintain excellent customer relations and satisfaction.

- Must have a valid FL driver's license and/or the ability to obtain one.
- Must have a TWIC card and/or the ability to obtain one.
- PC skills and service program experience are required.
- Must have the ability to work in tight enclosed engine rooms on marine vessels as well as the ability to ride the vessel when required.

Millwright

An established marine propulsion, repair and fabrication shop is currently accepting resumes to fill several key positions in the machine and fabrication repair shop. Must have the ability to read and understand Mechanical/electrical drawings.

- Knowledge of ships propulsion related equipment
- Knowledge of control systems (digital/analog)
- Knowledge of hydraulic equipment, Mechanical equipment, and pneumatic systems.
- Experience with alignments of gearboxes and pumps.
- Leadership skills
- Strong knowledge of ships systems.
- Ability to trouble shoot, analyze and solve product related problems
- Ability to carry out relevant measurements
- Knowledge of quality and safety standards
- Proper service reporting.

The individual must be computer literate and have the ability to work in a team atmosphere.
References Required
Wages depend upon experience and qualifications.
Must have a TWIC card and/or the ability to obtain one.

Florida Based Company

DRUG FREE WORK PLACE

Email resumes to Borme@padgettswann.com

Professional • www.MaritimeEquipment.com

A. K. Suda, Inc.
NAVAL ARCHITECTS & MARINE ENGINEERS

- Concept & Contract Design
- Transportation Analysis
- Construction Drawings
- Owner Representation

3004 19th Street • Metairie, LA 70002
Ph. (504) 835-1500 • Fax (504) 831-1925 • info@aksuda.com

BAYFRONT MARINE, INC.
MARINE SERVICES

LICENSED PROFESSIONALS
WORLDWIDE VESSEL DELIVERY
Masters, Engineers and Crews
www.bayfrontmarineinc.com
bfm@bayfrontmarineinc.com
Contact Mel or Diane Longo 904-824-8970

BOKSA MARINE DESIGN, INC.
Naval Architecture/Marine Engineering

- Conceptual Design
- Naval Architecture
- Marine Engineering
- Lofting & Nesting
- Production Engineering
- Tooling Design

6129 Churchside Drive
Lithia, FL 33547
TEL: (813) 654-9800
www.bmdinc.com
nick@bmdinc.com

We've Got a Boatload of Experience

Put our 35 years of experience to work on your next offshore exploration, production and marine transportation project.

- Design/Engineering Services
- State-of-the-Art Technology
- Project Management
- Legal/Arbitration
- Surveys
- Negotiations

Alan C. McClure Associates, Inc.
Naval Architects • Engineers
Phone: (713) 789-1840 • www.acma-inc.com/mr

Boland Industrial Consulting Services, Inc.

Equipment Reliability • Vibration Analysis
• Laser Alignment • Lubrication
All Vibration and Alignment Problems
Office: (228) 762-3172 Fax: (228) 762-3108
Cell: (251) 232-7163

John S. Boland
President

P.O. Box 612
Pascagoula, MS 39568

CDI MARINE COMPANY

NAVAL ARCHITECTURE
MARINE ENGINEERING
CONCEPTUAL & DETAIL DESIGN
ACQUISITION SUPPORT
LOGISTICS SUPPORT SERVICES
PROGRAM MANAGEMENT
LIFE CYCLE SUPPORT

Contact: Robert Bergeron
robert.bergeron@cdicorp.com
Phone: (904) 805-0700 ~ Fax: (904) 805-0710
For immediate openings see www.cdigs.com
CDI Marine Company is an EEO Employer

Maritime Professional

Nominate an outstanding "Maritime Professional"

Each edition of Maritime Professional print magazine is focused on a particular sector of the maritime industry, and will also profile a maritime professional in that sector.

Coming in 2011:

- Q3 Edition

OPS: SECURITY & TRAINING

- Q4 Edition

MARITIME CLASSIFICATION

Honorees will be selected based on direct recommendations. Nominations must be sent via email, and must be accompanied by a brief statement from the sender.

Please contact:

Jocelyn Redfern
jredfern@marinelink.com

Managing Editor
Joseph Keefe
keefe@marinelink.com

For your FREE subscription:

http://www.maritimeprofessional.com/magazine/subscribe.aspx

WITH YOU TO THE FINISH!

KLEEN BLAST
ABRASIVES · EQUIPMENT RENTALS & SPARE PARTS

$9,855

CUT CORROSION & PREP FOR PAINT
Fast • Portable • Low Cost
MARINE GRADE ABRASIVE BLAST & RECOVERY SYSTEM

NEW!

The KBV-86 M/A

Talk To The Designer Frank
510-821-4331
frank@kleenblast.com

www.kleenblast.com
1.800.KLEENBLAST World Wide Service
San Diego • Los Angeles • San Francisco • Portland • Seattle

Lake Superior Cabs, Inc.

Building Pilot Houses, Equipment Cabs and Control Houses since 1992

www.lakesuperiorcabs.com
121 W. Harney Rd Esko, MN
Tel: 800-328-1823 | Fax: 218-879-4640
Dean Myers LSCABS@aol.com

YOUR JOB - IS TO FABRICATE METAL
OUR JOB - IS TO MAKE YOU MORE EFFICIENT

SINGLE & DUAL CYLINDER HYDRAULIC IRONWORKERS

Capacities: 60 - 240 ton punch and angle up to 8" x 8" x 3/4"

ANGLE, BEAM & SECTION BENDING ROLLS

Full range of capacities and sizes

comeq

DNC SERVO HYDRAULIC PRESS BRAKES

Capacities from 4' to 20' & 40 to 4000 tons

PLATE BENDING ROLLS

3-Roll & 4-Roll Models
ALL Types & Sizes
Full range of capacities

410-933-8500 sales@comeq.com
WWW.COMEQ.COM

Do your Advertising dollars need a lifeline?

Best value and lowest cost per thousand for your marketing budget.

www.marinelink.com

The ShaftMaster

Shaft Torque	Shaft RPM	Total Shaft Revolutions
Shaft Horsepower	Shaft Horsepower Hours	Engine Hours

Our system is not a strain gauge, and will not go out of calibration.

Sea Trials Available

603-566-4330
RJHICC@aol.com | www.torsionmeter.com

We provide many other services such as Liquid Flow Meters, custom Controls & Monitoring, etc. Call Us!

MARINE DUTY PORTABLE SURFACE PREP EQUIPMENT

Pressure Washer Systems Up to 7,000 PSI Shipped Worldwide

WATER CANNON

WATERCANNON.COM
1-800-333-WASH(9247)

CUSTOM BUILT BARGES
EAST COAST

METAL TRADES, INC.

- *BARGE CONSTRUCTION*
- *OVERHAUL & REPAIR*
- *HEAVY STEEL FABRICATION*

Contact: Randy Brown
(843) 889-5249
rbrown@metaltrades.com

Metal Trades, Inc.
P.O. Box 129
Hollywood, SC 29449
www.metaltrades.com

TideSlide®

Mooring Products & Systems

"Your Berth Control is Our Business!"

1(800)780-6094 +1(989)695-2646 www.TideSlide.com

*Free Valuable Deck Space
*Improve Crew Safety
*Pier Height Line Positions
*No Maintenance
*Moor Any Ship, Any Pier Worldwide
*Completely Automatic Deployment
*Safe Sea-State Mooring
*Increase Mooring Efficiency
*Integrated Systems or Retrofitted for Any Vessel

VB1 Vessel Based & Pier Based Mooring Systems

MARITIME REPORTER AND ENGINEERING•NEWS

ADVERTISER INDEX

GET FREE INFORMATION ONLINE at: www.maritimeequipment.com/mr

Page#	Advertiser	Website	Phone #
53	AB VOLVA PENTA	www.volvopenta.se	Please visit our website
14	ABS	www.eagle.org	(281) 877-5861
14	AG Marine	www.AGMarine.com	(253) 851-0862
51	Americ Corporation	www.americ.com	(800) 364-4642
55	Anchor Marine	www.anchormarinehouston.com	(713) 644-1183
15	Aveva	www.aveva.com	44 1223 556655
53	BMT Fleet Technology	www.fleetech.com	(613) 592-2830
39	Bug-O Systems International	www.bugo.com	(412) 331-1776
20	C-Nav	www.CnavGNSS.com	(337) 210-0000
51	Coastal Marine Equipment, Inc.	www.coastalmarineequipment.com	(228) 832-7655
49	Creative Systems	www.ghsport.com/support	(360) 385-6212
7	Damen Shipyard	www.damen.nl	31 (0) 183 63 9174
3	Eastern Shipbuilding, Inc	ww.easternshipbuilding.com	(850) 763-1900
43	ENWA WaterTreatment AS	www.enwa.com	47 51 63 4300
41	EPD Electronic Power Design	www.epdltd.com	(713) 923-1191
37	Eureka Chemical Company	www.fluid-film.com	(888) 387-3522
51	Floscan	www.floscan.com	(206) 524-6625
38	Fluoron	www.fluoron.com	(410) 392-0220
2	GEMAK Shipbuilding	www.gemak.com	90 216 581 2300
4	Governor Control Systems	www.mshs.com	(800) 622-6747
33	Gulf Copper	www.gulfcopper.com	(281) 599-8200
31	Halimar Shipyard	www.halimarshipyard.com	(985) 384-2111
51	Headhunter	www.headhunterinc.com	(954) 581-6996
49	Helkama Bica Oy	www.helkamabica.fi	358 2 410 8700
49	HO Bostrom	www.hobostrom.com	(262) 542-0222
21	HORIZON SHIPBUILDING, INC.	www.Horizonshipbuilding.com	Please visit our website
10	ICC Cable Corporation	www.icccable.com	(201) 482-5750
47	In-Place Machining	www.inplace.com	(414) 562 -2000
20	International MetalFusion Corp.	www.metalize.net	409 515-0532
13	International Paint Ltd	www.international-marine.com	Please visit our website
29, C3	Irving Shipyard	www.irvingshipbuilding.com	(902) 423-9271
35	Japan Radio Company -JRC	www.jrcamerica.com	(205) 654-5644
C4	Karl Senner, Inc.	www.karlsenner.com	(504) 469-4000
27	Kluber Lubrication North America.	www.klubersolutions.com/marine	(800) 447-2238
24	Kobelt	www.kobelt.com	(604) 590-7313
23	Kral	www.kral.at	43 5577 86644 0
17	KVH Industries, Inc.	www.kvh.com	(401) 847-3327
39	Mandel Metals	www.mandelmetals.com	(877) 752-5052
55	Maritime Associates	www.marinesigns.com	(775) 832-2422
8	Military Sealift Command	www.sealiftcommand.com	(888) 228-5509
9	Military Sealift Command	www.sealiftcommand.com	(888) 228-5509
55	Nabrico Marine Products	www.nabrico-marine.com	(615) 442-1300
12	New England Rope	www.neropes.com	(508) 730-4524
53	Pima Valve	www.pimavalve.com	(520) 796-1095
49	R. M. Young Company	www.youngusa.com	(231) 946-3980
19	Raytheon Anshuetz GmbH	www.raytheon-anshuetz.com	49 (0) 431 30190
54	Rustibus	www.rustibus.com	(832) 203-7170
2	Senesco Marine	www.senescomarine.com	(401) 295-0373
54	Smith Berger Marine	www.smithberger.com	(206) 764-4650
25	SNAME	www.sname.org	Please visit our website
12	Sohre Turbomachinery	www.sohreturbo.com	(413) 267-0590
45	St John's Shipbuilding	www.stjohnsshipbuilding.com	(386) 328-6054
31	Strategic Marine	www.strategicmarine.com	61 8 9437 4840
55	Superior Lidgerwood Mundy Corp.	www.lidgerwood.com/sales	(715) 394-4444
11	Talleres Navales del Golfo	www.tnghph.com.mx	52 229 989 2500
26	Transas Marine USA	www.transas-ecdis.info	(425) 486-2100
C2	Vigor Shipyards	www.vigorindustrial.com	Please visit our website
1	VT Halter Marine, Inc.	www.vthaltermarine.com	(228) 696-6888
5	Yale Cordage	www.yalecordage.com	(207) 282-3396

The listings above are an editorial service provided for the convenience of our readers.
If you are an advertiser and would like to update or modify any of the above information, please contact: productionmanager@marinelink.com

Our shipbuilders are among the world's finest.

SHIPS START HERE .ca

We've made aggressive past and future investments in our facilities: Since 2006 alone, our shipyard has invested over $90 million in people, infrastructure and technology, to consistently deliver the best value and provide world-class ships to make Canada proud.

Nova Scotia. Built to build.

BROUGHT TO YOU BY:

IRVING

Irving Shipbuilding Inc.

When Only the Best Will Do!

KARL SENNER, INC.

M/V ENDURANCE

Karl Senner, Inc.
Karl Senner, Inc. supplied two (2) Reintjes WAF 743 vertical offset, free-standing, reverse reduction gears, each with a ratio of 3.95:1 including internal shaft brakes for this new construction.

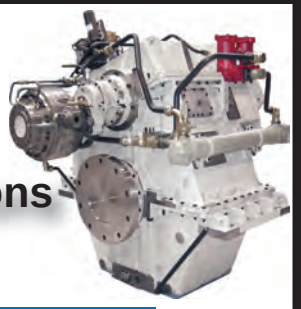
Shipyard: **John Bludworth Shipyard, LLC Corpus Christi, TX**

Owner: **Enterprise Marine Systems LLC Houma, LA**

Azimuthing thrusters

Steerprop

Marine Transmissions



REINTJES

Controllable Pitch Propellers and Bowthrusters

BERG PROPULSION

Contact Us

NEW ORLEANS Karl Senner, Inc. 25 W. Third St. Kenner, LA 70062 Phone: (504) 469-4000 Fax: (504) 464-7528

WEST COAST Karl Senner, Inc. Seattle, WA Mr. Whitney Ducker (425) 338-3344

E-MAIL•US service@karlsenner.com sales@karlsenner.com parts@karlsenner.com

Please visit our new website

www.karlsenner.com