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MARITIME REPORTER AND ENGINEERING NEWS

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October 2010

Marine Design

Efficient Design Aids Efficient Operation

After Deepwater Horizon
Now What ?

Arctic Ops
Baltic Icebreaker Does Double Duty

Maritime Security
Information Ahead of Awareness

Government Update
In Defense of Environmental Regulation

Five Minutes With
Dave Growden, JHSV Project Manager, Austal

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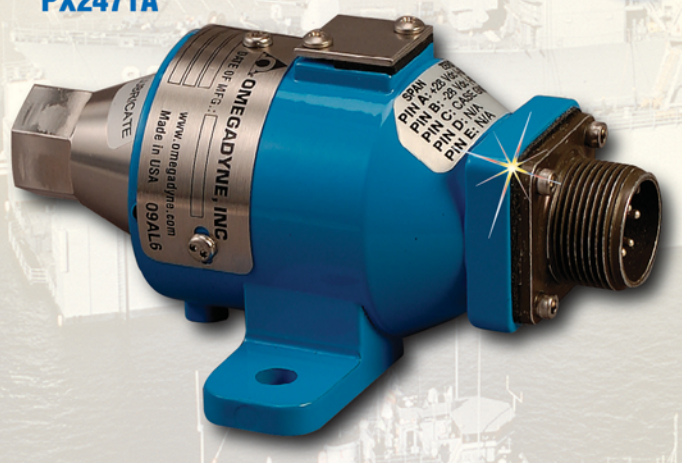

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ON THE COVER Last month the maritime world met in Hamburg, and unveiled were a wealth of new, innovative technologies for marine vessels. Pictured is an image from **Furuno**, who launched a new training concept and simulator solution called NavSkills.

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See story on page 16

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See story on page 18

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See story on page 20

Henrik Segercrantz is a Finnish Naval Architect with 30 years experience from the shipbuilding industry. **See story on page 22**

Capt. Edward Lundquist, USN (Ret.), is a senior science writer for MCR LLC.
See story on page 30

Joseph Keefe is a maritime industry editor and journalist. He is lead commentator on *www.MaritimeProfessional.com*
See stories 38, 40, 42, 43

Michael Rahm works as a project manager at SP Fire Technology, with a background in Mechanical engineering and is a part of SPs competence platform “Marine light weight structures”.
See story on page 30

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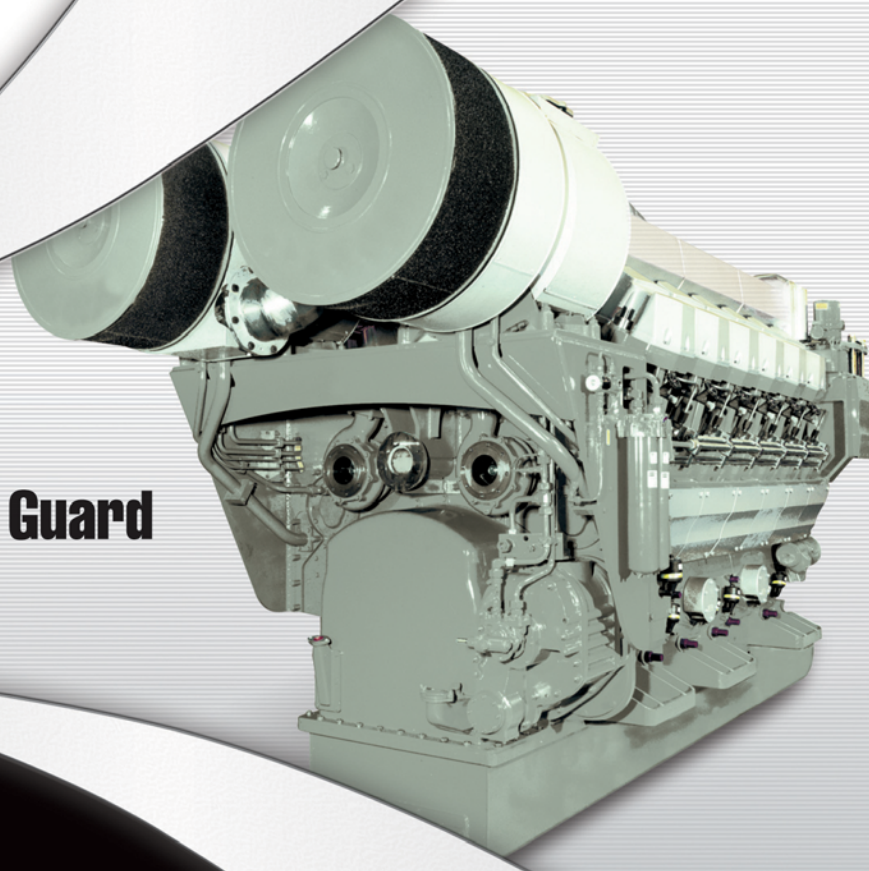

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Lloyd's Register, which is celebrating its 250th anniversary this year, held a reception recently at the New York Yacht Club in Manhattan. To put its age in perspective — as LR chairman **David Moorhouse** gently needled the American crowd in his welcoming remarks — Lloyd's Register, founded in 1760, is older than the United States.

It was here that I had the opportunity to catch up with **Tim Protheroe**, President of LR North America, to discuss the industry in general; specifically how the dour world economy is affecting the business of class. While the world certainly has changed since LR came to being in 1760, and has had more than its fair share of undulations, it is refreshing to see such a storied organization that to this day is firmly grounded in its founding principles, which at its heart is safety, specifically investing its time, money and resources to fulfil Lloyd's Register's mission: to protect life and property and advance transportation and engineering education and research. Protheroe said that while the world economy may have come to a standstill, the avalanche of new rules and regulations regarding the construction and operation of vessels has not missed a beat, and today more than ever shipowners count on class to help them navigate the increasingly complex web.

It was there with Tim, and here with you, that I'm pleased to announce a new project for 2011 from the publishers of *Maritime Reporter & Engineering News*, the publication of a new quarterly magazine — ***Maritime Professional*** — based on the overwhelming success of our MaritimeProfessional.com, which debuted in October 2010 and to date, less than 12 months later, has more than 10,000 members. While the title is new, the names are not, as Managing Editor **Joseph Keefe** (jkeefe@marinelink.com) takes the lead on this spin-off, presenting a unique and insightful presentation of the maritime industry and the professionals that make it run. In step with Pretheroe's comments, the first edition, scheduled to publish in March 2011, is dedicated to **MARITIME RISK** and all that it entails.

Youngest SNAME Member Arrives!

Maritime Reporter & Engineering News welcomes the youngest SNAME Member to its pages: **Reid John Burgess**, son of **Kristen (O'Malley)** and **Peter Burgess**, first grandson of **John C. O'Malley**, publisher, *Maritime Reporter & Engineering News.*

For full details on SNAME's 2010 Annual Meeting, turn to page 54.

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Dave Growden

JHSV Program Manager, Austal USA

Please provide a brief professional history of yourself?

I have more than 20 years of experience in all aspects of the planning and production of a wide variety of aluminum high speed vessels ranging in length from 26m to 107m. **I have been employed by Austal since age 16 and completed a four year apprenticeship as a Shipwright before progressing into supervision and management** of production staff and then program management. Along with experience with 30-60m passenger catamarans and commercial dinner cruise vessels and crew boats I also was actively involved with the construction of the 101m WestPac Express and the two Hawaii Superferries – the largest high-speed vessels built in the United States to date – which were each more than 100m long.During my tenure with Austal, and in addition to vessel construction and program management roles I have planned and managed successful vessel service, warranty, and repairs worldwide, including the coordination of labor, materials and equipment.

How did you come to be the JHSV Program Manager at Austal USA?

Through experience with the construction and program management of the very successful Hawaii Superferry Program

How has your work on JHSV differed from other projects in your career?

With all of my past experience in the industry being commercial-based the difference is mainly seen in dealing with a Navy program and the associated requirements driven by being a Navy program.

Please provide a brief overview of the JHSV program.

Similar to the Austal-built "WestPac Express" operated by the U.S. Marines for the past nine years, but with the addition of a flight deck for helos, the 103-m JHSV will be capable of transporting troops and their equipment, supporting humanitarian relief efforts, operating in shallow waters, and reaching speeds in excess of 35 knots fully loaded. The vessels will be a joint-use platform operated by both the United States Army and Navy.

What is the current progress on #1?

As of September 15, 2010 – Vessel 1 construction started in December of 2009 after completion of the design phase of the program. Currently 7 modules have been erected in the assembly bay and 26 of 42 total modules are currently under construction at our site. The modules currently under construction within the MMF facility include the mission bay and superstructure assemblies, main engine rooms, bridge and jet rooms. Vessel 1 is on schedule to be launched in June of 2011 and deliver in December of 2011. Vessel 2 started construction on Sept 13, 2010, as scheduled with the cutting of the generator room hull structure.

In your estimation, on any first-off ship construction project, what are the greatest challenges?

As with any first-of-class vessel, the challenges lie with understanding the vessel requirements and the customer. Since award we have been able to maintain a

very positive relationship with the Navy. Communication is key in the success of a program and ensuring both the customer and the contractor understand each other's needs and the contract requirements ensures successful execution.

What have been the biggest challenge (s) in building the first JHSV, to date, and how have these challenges been overcome by Austal/USN?

With the growth required by Austal USA to support this program, **the challenges have been with successful expansion of our plant and the recruitment of personnel to complete the work scope.** We have been very successful in both of these areas, with the new MMF being completed to schedule in advance of construction start and our team of human resources personnel being able to successfully recruit skilled labor to plan and ahead of our needs.

What, unique to Austal, has helped to ensure the ultimate success of this project, in your estimation.

We have worked very hard to maintain relationships with our customer and along with this we have a very experienced management team and skilled workforce in place to execute the program.

What is the status of the JHSV series?

Spearhead (JHSV 1) is under construction and on schedule for launch in June 2011 and delivery in December 2011. Construction on Vigilant (JHSV 2) was underway as of September 13, 2010. Austal has been awarded the construction contract for JHSV 3 and the contract to order long lead time materials on JHSV 4 and JHSV 5.

www.austal.com

(Photo courtesy Austal USA)

Less than one year after beginning fabrication of Spearhead (JHSV 1), Austal has commenced construction on Vigilant (JHSV 2), the second of up to ten 103-meter Joint High Speed Vessels (JHSV).

Semco 320-ft. Leg Liftboat

A 320.3 ft., three-legged liftboat has been designed by A. K. Suda, Inc. for SEMCO. The jacking system, electrical and automation design has been done by SEMCO. The vessel will, when completed receive ABS MODU Restricted Service certification as well as USCG Subchapter I-A/L.

Suda designs are generally considered robust, in that the component and parameter selection is optimized to avoid unnecessary spare (unusable) capacity of any component. For example, the legs do not have to be twice as strong as the jacking system capacity. This design is no different. Notice the depth of merely 14 feet, no more than is absolutely necessary to provide a strong, stable and efficient working platform. The saving in hull weight benefits the leg and jacking system design which in turn, improves variable load carrying capacity.

Smaller vessels have larger depths. The leg design boasts of a lower weight per foot, based on comparable designs in the industry, while still meeting or exceeding all design factors of safety based on class and other standards. The designer believes that this is the largest dwt/displacement ratio (a measure of merit in ROI) vessel of its type. The selection of the parameters is complemented by a streamlined deep chine form with a complementing bowthruster pod. One of the secrets of success is the working relationship, not only between the yard and the designer, but also with SEATRAX, the designer and manufacturer of the behemoth cranes. The uniqueness of these cranes lies in their patented design and ease of operation, wrapped around the forward legs. This helps to provide an even larger unobstructed working area than would have been possible with a vessel of this size. The design parameters allow this vessel to not only work as an oil exploration support services vessel, but also in wind energy support services. The vessel can carry components of an entire windmill at a time.

Main Particulars

Hull length, o.a.	195 ft.
Hull beam molded	129 ft.
Hull depth molded	14 ft.
Leg diameter	9.5 ft.
Leg length	320 ft.
Open deck space	14,230 sq. ft.

Environmental condition elevated – Normal Operations

Max. Water depth (includes tides)	250 ft.
Wave height	14 ft.
Wave period (max.)	8.5 second
Wind velocity (1 minute)	70 knots
Current (surface)	2.5 knots
Current (Mudline)	1 knots
Air gap	20 ft.
Leg penetration	0 to 10 ft.

Environmental condition elevated – Survival Conditions

Max. Water depth (includes tides)	140 ft.
Wave height	18 ft.
Wave period (max.)	12 second
Wind velocity (1 minute)	100 knots
Current (surface)	3 knots
Air gap	30 ft.
Leg penetration	0-10 ft.

Capacities

Fuel storage tank	43,400 gal.
Fuel day tanks	4,300 gal.
Fresh water tanks	67,290 gal.
Lube oil tank	1,250 gal.
Hydraulic oil tank	5,000 gal.(portable)
Waste oil tank	2,000 gal.
Oily water bilge tank	5,000 gal.
Buffer Tank	2,450 gal.

Tonnage (International)	3,163
Accommodations	100
Power to Props (total)	4,600 BHP
Classification	ABS

A 320.3 ft., three-legged liftboat has been designed by A. K. Suda, Inc. for SEMCO. The vessel will, when completed receive ABS MODU Restricted Service certification as well as USCG Subchapter I-A/L.

World's Largest Gas Ferry

Rolls-Royce will provide gas engines and main thrusters for a double ended ferry to be built for the Norwegian operator Fjord1. The ferry will primarily serve the busy Arsvågen-Mortavika route forming a link in the main road system on the west coast of Norway between Bergen and Stavanger. Three Bergen C25:33L9A nine cylinder gas engines power the four thrusters through an electric transmission. The C-series is a new design of gas engine now going into production, taking over from the older K series fitted in the existing five ferries on these routes, using the same successful lean burn combustion principle but incorporating the latest engine technology. The contract to build this ferry was won by Fiskerstrand BLRT, a Norwegian registered joint venture between Fiskerstrand Verft in Ålesund, Norway, and Western Shipyard in Klaipeda, Lithuania.

Owner	Fjord1
Builders	Fiskerstrand BLRT
Designer	Multi Maritime
Main engines	3 x Bergen C25:33L9A
Azimuth thrusters	Rolls-Royce AZP100
Dimensions	129.9 x 19.2 m
Speed	20+ knots
DWT	1300 tons
Capacity	242 cars/22 trucks/ 600 pax.

Oil & Gas

DNV Studies U.S. GOM v. Norwegian Offshore

In the wake of the Deepwater Horizon accident, DNV was tasked to report on the similarities and differences of the U.S. Gulf of Mexico and the Norwegian offshore drilling regulatory regimes and regulations. The findings: several similarities, but overall there are some fundamental differences between the two countries' regulations. After the accident, the Norwegian Oil Industry Association (OLF) asked DNV to research and prepare a report comparing the regulations in the US and Norway.

"The Deepwater Horizon accident was very serious. The Norwegian oil industry is not in a position to investigate the incident, but the OLF asked DNV to examine the regulations in the two countries so that interested parties could better understand the differences between the two regulatory regimes and, not least, consider any changes to the Norwegian regulations," comments Director General Gro Brækken in the Norwegian Oil Industry Association.

Different structure

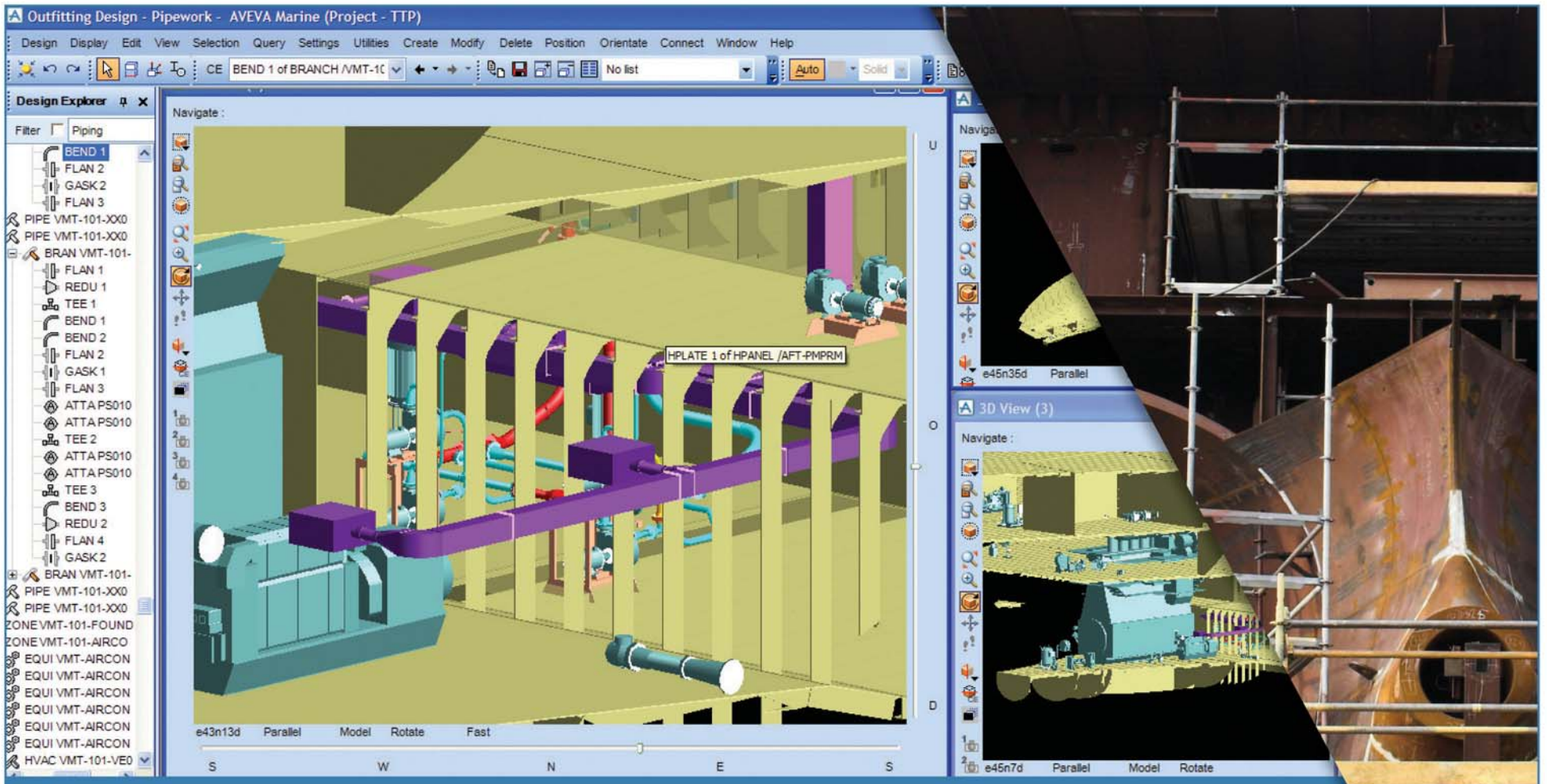
The US and Norwegian regulations are fundamentally different in structure. In the US, regulations are prescriptive – i.e. they specify the means and the minimum steps or actions required for compliance. In Norway, the regulations are mainly performance-based, which allows for different, and optimal, approaches to achieve safety targets. Additionally, Norway has included systematic risk management practices in its regulations. In practice, prescriptive regulations set the lowest acceptable safety level and the regulatory agencies may feel the greatest sense of responsibility to confirm compliance. On the other hand, performance based regulations in Norway may allow for continuous development, adoption of new technology and global best practices, and this responsibility is placed on the owner or operator.

Increased understanding

The report provides a thorough and technical review of the safety regimes. "The report will hopefully contribute to increased understanding and provide detailed insights into how US and Norwegian regulations compare.

The importance of roles and responsibility, risk management and technology are some of the important elements,and they are approached differently in the US and Norway," says Chief Operating Officer Elisabeth Tørstad in DNV.

"I hope the report will provide oil companies and authorities with a good basis for important policy discussions in the US, Norway and internationally when the industry and governments sum up what we can learn from the accident in the Gulf of Mexico and consider regulatory changes. In fact DNV has has already observed that many investigations and major newspapers have expressed keen interest in the differences between the US and Norwegian regulatory regimes, concludes Tørstad."



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Topaz Delivers $75m O&G Project

Topaz Energy and Marine delivered the deck structure of a Mobile Offshore Production Unit and storage (MOPUstor). The MOPUstor deck was constructed by Topaz Fabrication and Construction; part of the Topaz Engineering division under a subcontract from Single Buoy Moorings Inc for its client, Talisman Energy Norge AS. The value of Topaz Engineering's portion of the work was $75m.

"Single largest offshore unit ever built in the Middle East"

Topaz's scope of work was fabrication and construction of the hull and topsides of the MOPU, project completion took more than two years with the workforce peaking at 1,400 men. The MOPUstor weighed 12,400 tons at load out and involved more than seven million man-hours all completed without a single Lost Time Incident (LTI). The MOPU was constructed in Topaz's Abu Dhabi yard (ADYARD) and was transported to the Norwegian sector of the North Sea. The unit was loaded out onto a heavy lift transportation vessel for the 5,000km trip to Norway. The MOPU will be deployed in the 'Yme' field approximately 110km offshore on the Norwegian continental shelf at a water depth of 92 meters.

USNS Washington Chambers Launched

USNS Washington Chambers, the Navy's newest ship in the Lewis and Clark-class of dry cargo/ammunition ships, was christened and launched Sept. 11, during a morning ceremony at the General Dynamics NASSCO shipyard in San Diego. The 689-foot Chambers, designated T-AKE 11, slid into the water for the first time as the ship's sponsor broke the traditional bottle of champagne against the bow. Chambers' sponsor is Loretta Penn, wife of former Assistant Secretary of the Navy for Installations and Environment and former Acting Secretary of the Navy, B.J. Penn.

Chambers is expected to be delivered to the Navy's Military Sealift Command next year following a series of tests and sea trials.

"This is a monumental day," said Capt. Michael Flannigan, the ship's civil service master. "We remember the 9/11 attacks and launch this great ship. I'm honored to be a part of it, and can't wait to get onboard, get to work and get out to sea and do what we do best – supporting the warfighters."

The ship honors Navy Capt. Washington Irving Chambers, a pioneer in Navy aviation who arranged the world's first airplane flight from a warship, confirming the potential for carrier-based naval aviation. The flight – flown by aviator Eugene Ely – was from light cruiser USS Birmingham Nov. 14, 1910.

MSC operates approximately 110 non-combatant, civilian-crewed ships that replenish U.S. Navy ships, conduct specialized missions, strategically preposition combat cargo at sea around the world and move military cargo and supplies used by deployed U.S. forces and coalition partners.

'Oldest' steamship heads for new home on Thames

According to a Sept. 13 report from BBC News, the SS Robin, a ship thought to be the last steamcoaster in the world, is preparing to head to her new home after a £1.9m restoration in Suffolk. The steamcoaster, built in 1890 and listed on the National Historic Fleet register, has been converted into a floating museum. She will stay at the Port of Tilbury for up to a year while a decision is made on her London base.

(Source: BBC News)

Largest Mobile Harbor Crane on U.S. East Coast

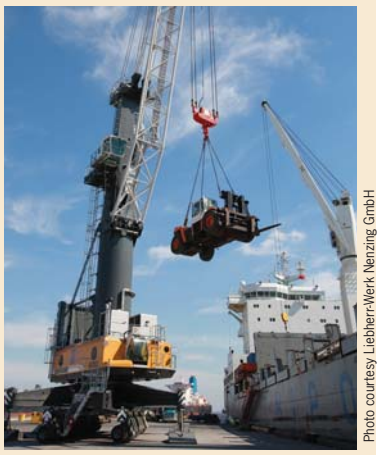

Photo courtesy Liebherr-Werk Nenzing GmbH

In August Liebherr, supplier of port equipment, delivered a Mobile Harbor Crane, type LHM 500S to Rukert Terminals. The Rukert Terminals is located at the Port of Baltimore and specializes in the handling of metals, ores, salt, alloys, and other dry bulk and break-bulk cargoes and containers.

Maritime Deployed Laser System Shows Lethality

Tests of the U.S. Navy's Maritime Laser Demonstration (MLD) system conducted recently at the Potomac River Test Range reportedly have confirmed the laser weapon system's readiness to proceed with at-sea testing later this year, according to Northrop Grumman Corporation, prime contractor. Operating from a fixed site on land, the MLD weapon system fired a laser beam at a number of stationary targets, including representative small boat sections, across the Potomac River, company executives said. The laser burned through small boat sections in these tests, conducted in late August and early September. "We have shown that the Maritime Laser Demonstrator's design is as lethal at longer ranges as other previously demonstrated approaches," said Steve Hixson, vice president of Advanced Concepts, Space and Directed Energy Systems for Northrop Grumman's Aerospace Systems sector.

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When ballast water treatment regulations take effect, you'll want a mature technology to meet them.
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USCG

Sentinel-Class Cutter Contract Option Win

The Coast Guard awarded a $166.1m contract option to Bollinger Shipyards of Lockport, La., on September 14 to begin production of four Sentinel-class Fast Response Cutters (FRCs). This option award brings the total number of FRCs under contract with Bollinger to eight with a current contract value of $410.7m.

The current FRC contract contains options for up to 34 cutters and is worth up to $1.5b, if all options are exercised.

In September 2008, the Coast Guard awarded Bollinger an $88m production contract for the lead FRC. That ship, named the Bernard C. Webber, is approximately 70% complete and expected to be delivered to the Coast Guard in the third quarter of fiscal year 2011. The Bernard C. Webber will be homeported in Miami, Fla., supporting vital law enforcement and national security missions throughout the Caribbean and Gulf of Mexico. This first contract option, for construction of three more FRCs, was awarded to Bollinger in December 2009; those ships are currently under construction at Bollinger's shipbuilding facility in Lockport. The second FRC is approximately 40% complete; FRCs three and four are 15% and 1% complete, respectively. The Sentinel-class will eventually replace the Coast Guard's Island-class 110-ft patrol boat. The FRC uses a proven, in-service parent craft design based on the Damen Stan Patrol 4708. It has a required flank speed of 28 knots and will be armed with one stabilized, remotely-operated 25mm chain gun and four crew-served .50 caliber machine guns. Other requirements include the ability to perform independently for a minimum of five days at sea and capable of underway operations for a minimum of 2,500 hours per year. The cutter will meet ABS design, build and class standards. The Coast Guard plans to build 58 FRCs.

U.S.Coast Guard Photo

Multraship Takes New Damen Tug

Multraship strengthened its fleet of specialist tugs and multi-purpose vessels with the addition of the Damen newbuilding ASD 3213 tug Multratug 3. On September 30, the vessel embarked on its delivery voyage from Vietnam, where it was built by Damen Shipyards, to Terneuzen, Multraship's home port in The Netherlands.

Seaspan New Tugs for Vancouver Harbour

Seaspan International announced the largest tug build commitment of a single class of vessels in over 35 years. The company signed a contract with Sanmar Denizcilik Shipyard, of Istanbul Turkey; to build four state-of-the-art ship assist tugs.

The prime duties for these tugs will be to dock, undock and escort ships in Vancouver Harbor and Roberts Bank. The RAstar 28 m tugs will feature full fire fighting capability and upon arrival will be amongst the most powerful vessels to sail BC waters.

Internationally renowned and Vancouver based naval architects', Robert Allan Ltd., designed the new tugs.

The first vessel is scheduled to arrive by the end of this year; while the remaining three tugs will be delivered in the summer and late fall of 2011.

"We are excited to announce this fleet enhancement to our employees, the BC marine industry and the community at large," said Jonathan Whitworth, Washington Marine Group CEO. "The benefits of a purchase of this type are numerous, including the rebuilding and modernization of our fleet, and increased safety and capabilities for all ship escorts performed in the Vancouver Harbor. As recently reported, the Port has an immediate need for more modern and powerful tugs to assist the growing number of tankers within the Port. Seaspan recognized this growing concern, and I'm extremely pleased to report that we took the necessary steps to assist Port Metro Vancouver and the BC Coast Pilots in providing the solution."

For the Record

In the September 2010 edition of *Maritime Reporter & Engineering News*, an erroneous photo was published in conjunction with Wing Inflatables in the RIB report. The correct information is published here.

Wing Inflatables

Name: P-Series CRRC

Wing Inflatables has developed a new line of inflatable CRRC's, starting with the P-4.7 for military, commercial and workboat applications. Wing Inflatables uses Cooley Coolthane polyurethane, a highly puncture and abrasion resistant fabric. Tube seams are heat welded into a single fabric. Call for availability: 707-826-2887 x100.

P-4.7
LOA .....15.4 ft.
Beam .....6.6 ft.
Folded, bare boat: .....234 ft. x 4.9 ft.
Usable deck space: .....38.7 sq. ft.
Wt. bare boat, w/o deck: .....180 lbs.
Max. payload incl. engine & fuel: .....2760 lbs.
Crew/passenger capacity: 10

In Defense of

Environmental Regulations

About the Author

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While it may be an unpopular opinion, I support marine environmental regulation – so long as it is sensible, fair, well-researched, and structured so as to result in minimal unintended consequences. Knee-jerk regulation, on the other hand, is invariably counterproductive.

Examples illustrate these points.

The issue of whether oil tankers should be constructed with double hulls was debated within the maritime industry for years. Only a few shipowners were sufficiently intrepid to actually build such ships on an experimental basis – and they operated at a financial handicap as compared with their competitors who operated cheaper, simpler vessels. Immediately after the Exxon Valdez oil spill, the United States Congress enacted the Oil Pollution Act of 1990 (OPA 90), which, among other things, mandated that in order to trade to the US, new tankers had to be constructed with double hulls and single-hull tankers had to be phased out. Some in the industry proclaimed the end of the US oil trade. Instead, ship builders and naval architects got to work. OPA 90 did not define what constituted a double hull. The International Maritime Organization (IMO) had been studying the issue for some time and had developed guidelines. The various classification societies had modest experience in such work. In developing its regulations to implement OPA 90, the US Coast Guard worked with the IMO, the class societies, and the maritime industry to forge a set of standards that were acceptable to the principal players. The IMO eventually amended the MARPOL Convention in a consistent manner. Single-hull tankers are now almost all retired and the world's tanker fleet is the safest ever. If this process had been left solely to the commercial sector, the transition from single-hull to double-hull tankers might never have occurred. Once the new requirement became universal so that everyone was in the same boat, opposition to the double-hull largely (but not entirely) faded. Some (including myself) contend that the requirement should have recognized the possibility of alternative hull designs. The important factor, though, is that the requirement got the argument off top-dead-center and the tanker industry is better for it.

A recent example of regulation run amok is provided by the Environmental Protection Agency (EPA) proposal to prohibit ocean-going vessels from discharging treated sewage within the marine waters of California. While this action has met with wide approval from environmental advocacy groups and from the State of California, it does not seem sensible, fair, well-researched, or structured to as to minimize unintended consequences. While reducing the volume of sewage (treated or untreated) entering the marine waters of California is certainly a good concept, it is unclear how ocean-going vessels got singled out to bear this burden. These ships are not the largest source of sewage discharges into California waters. Various municipalities, residences, and facilities dump raw or partially treated sewage into these waters on a routine basis. The majority of vessels operating in California marine waters are not ocean-going. While there are a handful of cruise ships operating out of California ports that carry several thousand passengers each, the average merchant vessel has a crew of about twenty, less than many charter fishing boats. These non-ocean-going vessels will not be subject to the "No Discharge Zone" proposed by the EPA. Unlike the ballast water management regulations, the EPA sewage proposal has no exceptions for emergencies. If an ocean-going vessel is unable to discharge its processed sewage ashore before the storage tank reaches full capacity, the master will have two choices: either violate the regulation by discharging into the surrounding waters, or put the vessel and its crew at risk by overloading the sewage treatment system. If the sewage discharge prohibition is appropriate, then all should participate. It is unfair to play favorites and impose a regulatory and economic burden on one party while exempting all others. At a minimum, the EPA should analyze the situation and clearly identify the entities discharging sewage into the marine waters and the steps that can reasonably be taken to reduce or eliminate that impact.

> "Thus, existing ships can continue to carry decrepit equipment that not only doesn't work well, but forces chief engineers to adopt practices that may violate other laws."

There are numerous additional examples that can be identified on both sides of this divide.

The oily water separator (OWS) is an excellent tool for reducing operational discharges of oil from ships. The IMO several years ago upgraded the standards for new OWSs to account for technological advances. Unfortunately, it failed to adopt a phase-out schedule for older OWSs. Thus, existing ships can continue to carry decrepit equipment that not only doesn't work well, but forces chief engineers to adopt practices that may violate other laws. On a different note, both Michigan and California adopted outlandish standards for ballast water discharges for which there is no existing technology. California has been forced to extend the deadlines for its standards, hoping that its requirements and reality will eventually coincide. This is not a responsible approach for lawmakers and regulators. The defenses of legal and factual impossibility come to mind.

The bottom line is that regulation can be invaluable in protecting the marine environment. It is a powerful tool which, if employed wisely, can achieve improvements otherwise unobtainable. If wielded unwisely, environmental regulations can result in wasted monies, counterproductive bureaucracies, and disrespect for the law. The major responsibility for wise environmental regulation lies with legislators and regulators, but environmental advocacy groups and the marine industry have important roles also.

Environmental advocacy groups should avoid pushing for new rules that are unwise, unfair, and unattainable. The marine industry should avoid opposing every new proposal without regard to its benefits. All parties must work together to make reasonable progress in improving the marine environment.

Using Model Tests to find Correlation of

Speed-Power Predictions

About the Author
Michiel Verhulst is project manager at the Ships department of MARIN.. MARIN offers simulation, model testing, full-scale measurements and training programmes, to the shipbuilding and offshore industry and governments.
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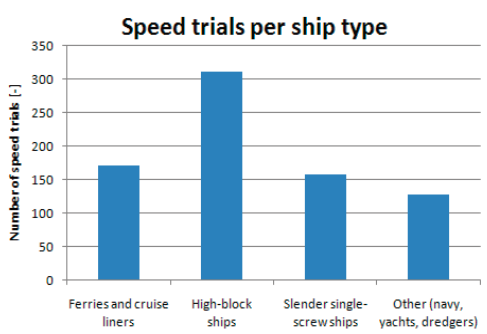
Speed-power prediction plays an essential role in ship design. At MARIN the unique combination of model-scale and full-scale services are present, generating a wealth of high quality validation material to provide our customers with reliable power predictions. Despite the increasing role of numerical methods, speed-power prediction by model tests is still the most reliable way of assessing the powering characteristics of a ship in calm water. This prediction process should be well validated by comparing extrapolated power measured on a model in the towing tank, with full-scale values measured during the ship trials. The MARIN ship-powering database contains geometric descriptions of thousands of ships, together with the results of the open water, resistance and propulsion tests. When full-scale speed trial results are obtained these are also added to the files. This database was used to develop the well-known Holtrop-Mennen method and can conveniently be used for correlation studies. Figure 1 shows the number of speed-trials included in the database per ship type. For these full-scale results (which includes several series of sister ships) the corresponding model test data is also available.

Over time, the amount of correlation material steadily grows because owners and builders see the importance of providing the model basin with feedback. Furthermore, the MARIN Trials & Monitoring department generates a lot of accurate and valuable data, where internal procedures make sure all full-scale data is linked to the right model-scale data if available. The speed trials are conducted, measured and analysed according to the standards of the Sea Trial Analysis (STA) Joint Industry Project. In calm water model testing extrapolation methods are required to predict the full-scale power and rotation rate from the measured model values. These methods account for various scale effects between model and full-scale. William Froude was the first to develop a scientific approach to this problem of extrapolation. Surprisingly, the assumption of the mutual independence of the wave and viscous resistance components as adopted by William Froude has worked wonderfully for more than a century.

Figure 1: Number of speed-trials per ship type in the MARIN database.



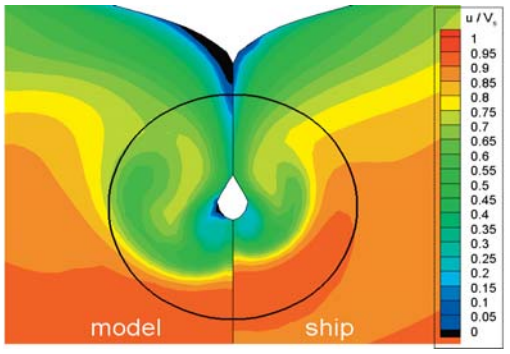
PARNASSOS

Only recently, the interaction of components has been recognized as a possible refinement in the extrapolation of model experiments. Raven et al. (Marine CFD 2008) showed that the numerical tool PARNASSOS, which is used extensively for viscous hull flow computations, can also be used to study scale effects on various resistance components. An interesting viscous scale effect on the wave resistance was found, contrary to the assumptions in current extrapolation methods. PARNASSOS can be used to determine form factors by means of flow calculations on a double model ignoring free-surface effects on both model and full-scale. This was validated last year by comparing form factors derived from model measurements with those calculated with PARNASSOS. Figure 2 shows the model and full-scale PARNASSOS calculated axial velocities in a plane just in front of the propeller of a high-block tanker, with a scale factor of around 30. The dark-blue region at the hull above the propeller indicates separated flow with (almost) zero or negative speed. This is only present in the model calculation and not at full-scale. The example suggests the use of large ship models, as MARIN does as standard, because the scale effect induced by the flow separation is uncertain and not known beforehand. Moreover, it strongly depends on the scale factor, making the power prediction progressively more uncertain for smaller models in this case.

Future Extrapolation JIP

Although the uncertainty in the extrapolation is (usually) only a modest contributor to the total uncertainty, it is important to have a transparent and physics-based method. Such a method preferably makes use of the form factor concept in combination with a good friction line. Especially when testing new concepts, or ships with deviating dimensions or speed, modern extrapolation methods should give more reliable predictions. Initiatives for an Extrapolation JIP are underway which aims to introduce and evaluate modern extrapolation methods in combination with CFD tools such as PARNASSOS.

Figure 2: PARNASSOS calculation of the axial velocity model and full-scale in a plane near the propeller.



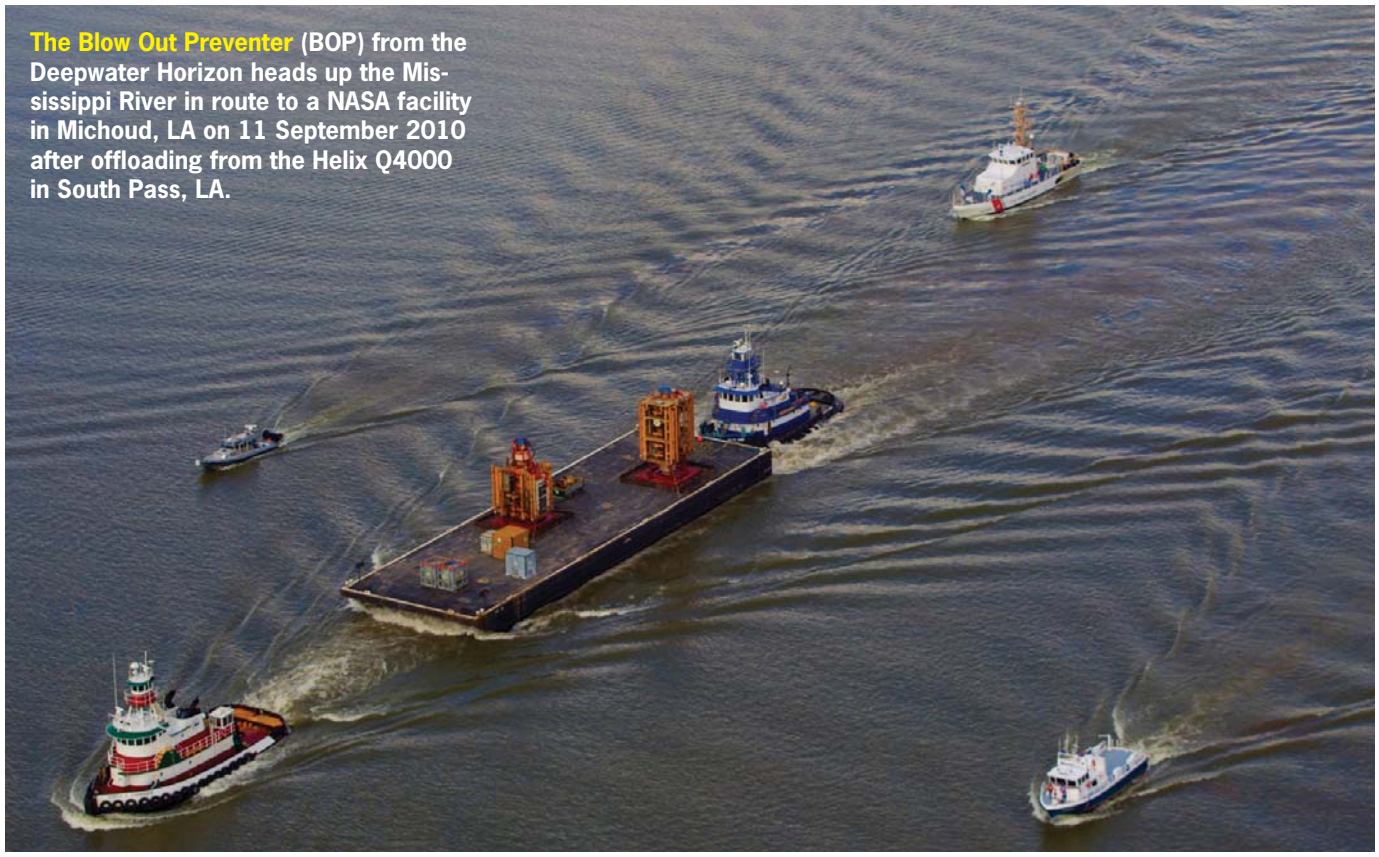
About the Author

Jonathan K. Waldron, a partner at Blank Rome LLP, concentrates his practice in maritime, international, and environmental law. Waldron is ranked by Chambers USA as a leading shipping attorney. Email: Waldron@BlankRome.com

Afer the Deepwater Horizon Response ...

What Now?

Who could have predicted such an incident? As discussed in more detail below, the aftermath of this incident is raising more questions than answers now that the focus can turn from the response efforts to claims efforts and future improvements. According to reports as of this writing, BP has spent more than $8 billion in the response and the Administration sent a sixth bill for another $128 million to BP and the other Responsible Parties in early September 2010. BP paid the previous five bills totaling almost $390 million. In addition, more than 42,000 claims have been filed against the new Gulf Coast Claims Facility since it opened in August 2010 and approximately $80 million has been paid since the BP claims were transferred to the Facility. BP has made approximately 127,000 payments totaling about $400 million prior to the transfer of the claims to the new Facility. Investigations are ongoing, it is unclear what legislation will ultimately be enacted, and the moratorium continues.



The Blow Out Preventer (BOP) from the Deepwater Horizon heads up the Mississippi River in route to a NASA facility in Michoud, LA on 11 September 2010 after offloading from the Helix Q4000 in South Pass, LA.

(© BP p.l.c)

Law Suits and Claims

The Multidistrict Litigation Panel (MDL) has ruled that the suits pending against BP and others relating to the Deepwater Horizon oil spill will be consolidated for all pre-trial purposes before Judge Barbier of the U.S. District Court for the Eastern District of Louisiana. Judge Barbier has set the initial pre-trial conference for the MDL for September 16, 2010. The purpose of this conference is, in part, to establish case management orders for the proceeding. It is unclear how long these cases will take to resolve.

On August 23, 2010, the Gulf Coast Claims Facility (GCCF), administered by attorney, Kenneth R. Feinberg, trustee for the $20 billion fund established by BP Exploration & Production Inc. (BP) to settle claims arising from the Deepwater Horizon casualty, opened for business for the receipt of claims. Claimants can file for Emergency Advance Payments (EAPs) between August 23 and November 23, 2010 in accordance with the GCCF Protocol for Emergency Advance Payments and for Final Payments until August 23, 2013.

Although claims for Final Payment can be submitted to the GCCF now, the EAP Protocol published on August 23, 2010 addresses only claims for EAPs and not Final Payments. A subsequent protocol will be published to address Final Payments at a later date. Any party suffering damages or seeking reimbursement for removal costs as a result of the Deepwater Horizon casualty should consider submitting a claim for an EAP as a bridge until the claimant's full damages or removal costs can be fully assessed. Obtaining an EAP from the GCCF will not jeopardize a claimant's right to purse full compensation with the NPFC or against a responsible party through litigation if not satisfied with action taken by the GCCF.

If a claimant, however, is either not satisfied with the EAP payment offered by the GCCF or desires to pursue a Final Payment now, it does not appear that GCCF will be ready to act on a claim for Final Payment until the Final Protocol is issued. Once a claimant desires to move forward with a determination of a Final Payment from the GCCF, the claimant should be prepared to sign a Release and Waiver of Rights for any future claims as a result of this oil spill as a condition to receiving payment, or be prepared to litigate the matter or pursue the claim against the NPFC. Either of these options can take years to resolve. Claimants should consider conferring with legal counsel to ensure they understand all options available to them.

Investigations

The joint Coast Guard and Bureau of Ocean Energy and Management (BOEM) investigation continues to develop conclusions and recommendations as they relate to the Deepwater Horizon explosion and loss of life on April 20, 2010. The facts collected at this hearing, along with the lead investigators' conclusions and recommendations will be forwarded to Coast Guard Headquarters and BOEM for approval. The Blow-Out Preventer was just raised and it is only now that the government has an opportunity to review this evidence and the investigation has recently been extended to at least November 2010. It is unlikely that anything will be finalized until 2011.

Meanwhile, the Department of Justice (DOJ) continues its investigation and has not publicly released any information on its status. However, the stakes are high, as the specter of a possible finding of gross negligence looms in this case and DOJ could purse substantial criminal and civil fines. For example, on a per barrel basis, a civil penalty could be pursed in the vicinity of $5.4 billion. If there is gross negligence the fine could be up to $21 billion.

In addition, the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, consisting of a bipartisan presidential commission, established by Executive Order by Barack Obama on May 21, 2010 is continuing its work to provide recommendations on how the United States can prevent and mitigate the impact of any future spills that result from offshore drilling.

Spill Legislation

In response to the Deepwater Horizon incident, numerous hearings have been held with a focus on the economic and environmental effects of the spill, as well as the impact of the oil rig explosion on offshore oil and gas development policy. When Congress broke for the summer recess, the House had passed H.R. 3534, the Consolidated Land, Energy, and Aquatic Resources Act of 2009 (the CLEAR Act). This bill incorporated key provisions from a bill introduced by Congressman Oberstar that would, among other things, repeal limits of liability, increase the minimum level of financial re-

sponsibility for an offshore facility to $1.5 billion, authorize recovery for non-pecuniary damages and human health injuries, require all vessels engaged in OCS activities to operate under the U.S.-flag and be 75% U.S.-owned (and a Mobile Offshore Drilling Unit (MODU) would also have to be built in the United States), and substantially revise the oil spill response planning and safety regimes for vessels, facilities, and MODUs.

The Senate, on the other hand, failed to pass a bill, but consolidated proposed oil spill legislation in S. 3663, the Clean Energy Jobs and Oil Spill Accountability Plan, which was introduced by Senator Reid on July 28, 2010.

It became clear, before the Senate on August 6 went on summer recess, that there was opposition, both on the Democrat as well as the Republican side of the aisle. Senator Begich (D-AL) and Senator Landrieu (D-LA), both critics of the unlimited liability language in S. 3663, introduced separate measures shortly after S. 3663 was introduced intended to hold oil companies accountable, without placing a burden on taxpayers and shutting smaller companies out from operating offshore. In addition, the Republicans have their own legislation in play, S. 3643, the Oil Spill Response Improvement Act of 2010, introduced by Senator McConnell (R-KY) on July 22, 2010.

Given the pressures involved with re-elections and other priorities, it is unclear whether the Senate can pass spill legislation this fall and then work with the House to finalize and enact spill legislation before the end of the year. If not this year, then most certainly it will be a major issue in 2011.

Moratorium

One of the key impacts of the spill incident is the six-month moratorium the Obama administration imposed on new deepwater drilling permits in May 2010 following the April 20 blowout. Although a federal judge in New Orleans blocked the ban after a number of energy companies filed suit challenging it, on July 12, 2010 the Interior Department replaced it with a revised one with additional justifications. The revised ban is still being targeted by industry to overturn it. Given the substantial economic implications, the moratorium is not only having directly on the offshore oil and gas operations, but also indirectly on the industries supporting these offshore activities.

Conclusions

The implications of the Deepwater Horizon are staggering. The oil impacts were substantial and the resulting claims, including for economic damages, huge. Many companies are simply considering whether it is worth conducting such operations in U.S. waters given all the uncertainties.

Claims and lawsuits will continue for an extended period of time. We await the results of the investigations and Congressional action in determining actions that will be taken against BP and possibly other Responsible Parties and the potential for a completely revised offshore liability, prevention, and response regime.

In the interim, stakeholders should continue to let Congress and the American public understand the importance of their interests, and the potential implications, to assist in resolving these outstanding issues.

About the Author

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Evaluating & Implementing Effective Anti-Piracy

Technology & Technique

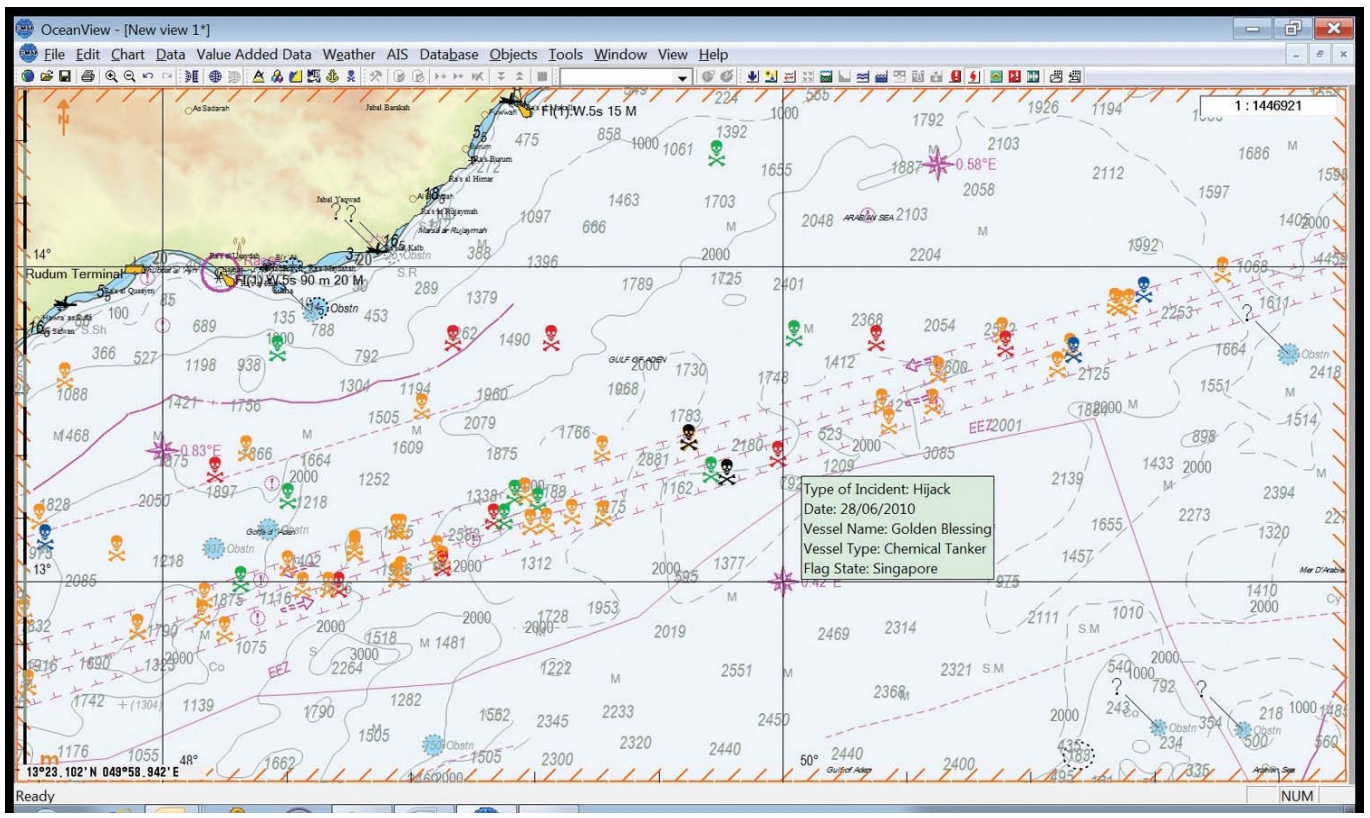
There is a new focus on technological solutions for ship self-defense against pirate attacks. Although some systems have been around a bit longer, the surge in new products is attributable largely to the dramatic increase in attacks on ships by Somali pirates over the last few years, the expanding areas of their attacks, and the worldwide attention these attacks have garnered. Suppliers have rushed to adapt existing products and develop new ones for the counter-piracy mission. In some cases, however, little consideration has been given to the economics of the shipping industry or to real-world testing of products' efficacy

Before investing in new technology, ship operators should first ensure that they have fully implemented the latest industry-sponsored Best Management Practices to Deter Piracy (BMP), which include many practical and relatively inexpensive recommendations that have contributed to foiling pirates from Somalia in the past. Indeed, the naval forces attempting to suppress piracy in the region have reported that most of the vessels these pirates have successfully hijacked have been ships that had failed to put the BMP into effect. Beyond the recommendations of the BMP, operators of US-flag ships in high-risk waters must comply with the requirements mandated by the USCG's Maritime Security Directive 104-06 (Revision 3). Following both documents results in a significant "hardening of the target" from the view point of the pirates.

Given the reservations many shipping industry groups and others have about employing fire arms aboard commercial vessels, the focus of this article is on non-lethal means to deter and defeat piratical attacks. Systems to counter pirates have been developed for all phases of the attack cycle: some focus on pushing the detection range farther out, others on deterring pirates outside the range of their weapons; some seek to impede pirate skiffs from coming alongside a target vessel, others to prevent pirates from boarding the ship.

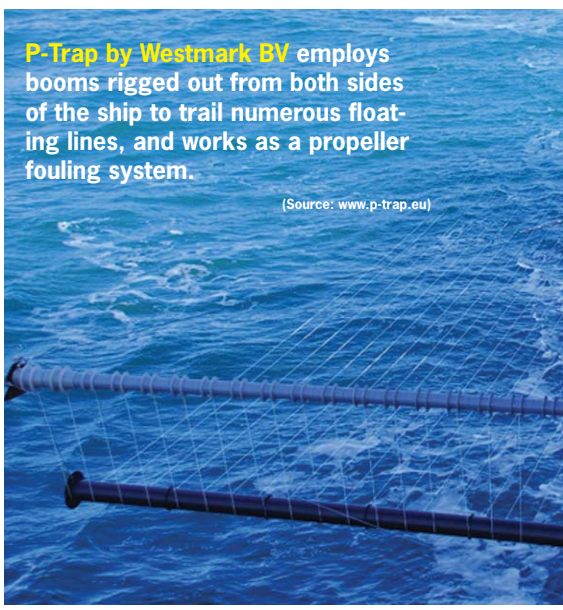
Expanding the detection range is one of the most important contributions technology can make in the fight against piracy. The more warning of an impending attack a ship has, the more time there is to implement defensive measures that can cause the pirates to break off and search for a softer target or that can prevent the pirates from boarding long enough for help from naval forces to arrive (if any are close enough). Closed Circuit Television (CCTV) cameras with zoom lenses have been available for some time. More recently some manufacturers have paired them with infrared sensors that can aid in detection during periods of low visibility. At the high end, British defense contractor BAE has announced a sophisticated system combining a special radar able to pick up small boats at up to 15 miles, a 360-degree video camera and display system with motion detection, threat level alarms, plans to incorporate infrared, and improved lighting to detect nearby boats at night and to act as a deterrent. Controls for water canon, acoustic devices, and laser systems can be incorporated into a two-person control station. The necessary structural modifications, additional manning requirements, and a probable initial cost of several hundred thousand dollars make this system of questionable utility to the shipping industry. Less costly are a variety of thermal imaging systems with varying ranges, some paired with daylight cameras. Although known for nighttime applications, thermal imaging can be useful in picking objects of interest out of the background in daytime as well. FLIR now offers the First Mate line of hand-held thermal imaging cameras, starting at around $3,000. The trade off is reduced range—2½ miles, or less depending on model.

Standoff "weapons" designed to keep pirates from approaching a ship include equipment employing sound or light. Acoustic devices, such as LRAD (Long Range Acoustic Device) and MAD (Magnetic Audio Device), provide the capability to issue warnings out to almost two miles. The warnings provide an indication to the pirates that the their target is aware of, and has prepared for, them. Warnings that are ignored help clarify the intent of approaching small craft. At closer ranges, the sound output from these devices can be disorienting and even quite painful. Laser devices, such as SeaLase, are painful to look at ranges out to about 1,000 yards and the pulse pattern can induce nausea. Beyond that range, glare obscures view of the pirates' target. At closer ranges, effects may include temporary blindness. The ShipRay BBL-3 combines visible and infrared illuminators, for detection, with an Optical Incapacitator that uses an intense beam of incoherent light to disorient and incapacitate without the permanent harm that a laser could cause at close range. There are also hand-held visual disruptors available, but they require someone on deck to operate them, with the risk of exposure to live fire. This is also a drawback of the most affordable (about $20,000) acoustic devices, which lack remote controls. Additionally, as Somali pirates usually use at least two skiffs to attack, and lately have occasionally used larger "swarms," more than one acoustic or visual device would be necessary for an adequate defense. Technologies designed to prevent pirates from getting close enough to target vessel to board include equipment designed to create a barrier with water and systems using lines intended to foul pirate skiff propellers. Water barrier sys-



(Photo Courtesy of Jeppesen)

Piracy overlay on detailed electronic charts (from Jeppesen) allow you to see more details, e.g. the IRTC (Internationally Recommended Transit Corridor). Each incident can be inspected in by moving cursor over any Piracy symbol.



P-Trap by Westmark BV employs booms rigged out from both sides of the ship to trail numerous floating lines, and works as a propeller fouling system.

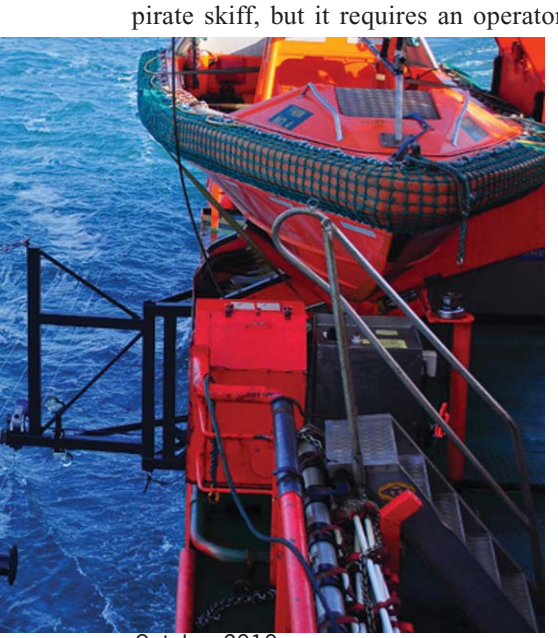
(Source: www.p-trap.eu)

tems seek to improve on the standard practice of operating fire hoses continuously while in pirate country in order to make it more difficult for the skiffs to approach and for the pirates to climb aboard. As manual operation is not recommended, because it puts the operators in harm's way, the hoses are generally tied down, which may leave coverage gaps for the pirates to exploit. Some water barrier systems create a curtain of water for complete coverage, but, in the process, dissipate the initial water pressure produced by the fire pumps. In contrast, the Nemesis 5000 units use rotating marine tank cleaning jets to produce a moving set of overlapping high-pressure water streams off the vessel's sides. The units, which attach easily to rail or gunwale, do not require anyone on deck after they are tied into the ship's fire system. The author attended a demonstration of this system last summer and came away impressed with the difficulties a pirate would face attempting to climb up a moving vessel through the shifting high pressure streams. The system is designed to accommodate the addition of irritants and creates an even more unpleasant environment when connected to a tank cleaning heater. Each unit costs about $4,000, so completely outfitting a low-freeboard vessel would run $40,000-$80,000 depending on length.1

As an example of propeller fouling systems, P-Trap by Westmark BV employs booms rigged out from both sides of the ship to trail numerous floating lines. Once deployed, the system operates 24/7 without further intervention or requiring anyone on outside decks in pirate-infested waters. Should a line snag a pirate's propeller, it will break off before the skiff is towed any distance. The lost line can be quickly replaced. There is also at least one propeller fouling system that uses a compressed air canon to fire a floating line in front of an approaching pirate skiff, but it requires an operator cool enough to aim carefully under the stress of the pirates' approach, including incoming rounds. The same disadvantage accrues to hand-held systems designed to launch non-lethal projectiles at pirates to stun them. Such systems are best left to professional security teams.

Whatever type of technology a vessel operator investigates to aid in the fight against piracy, it should not be considered in isolation. Rather, the question should be what and how does the system contribute to a layered defense that starts with a trained and well-drilled crew implementing appropriate Best Management Practices.

In the interest of full disclosure, Maritime Protective Services (UK) Ltd., the British affiliate of the author's company, supplies anti-piracy training and security teams to those Nemesis 5000 customers desiring these services. The author does not benefit from these arrangements.



Finnish icebreaker Kontio now also doubles as oil combating vessel for the European Maritime Safety Agency EMSA.

Double Duty

Baltic icebreaker doubles as EU Oil Clean-Up Vessel

by Henrik Segercrantz

Finnish State-owned icebreaker IB Kontio has been converted for oil combating tasks. The icebreaker will, as before, continue to provide icebreaking assistance to merchant vessels plying the Finnish fairways in wintertime, but will now also be in stand-by for oil combating tasks, year-round. Before this, IB Kontio, as most other Finnish icebreakers, has laid idle during the summer months.

State-owned Arctia Shipping Ltd. was established at the beginning of this year to operate the five vessel icebreaker fleet of Finland. Arctia Shipping won the tender last summer issued by the European Maritime Safety Agency EMSA for the oil combating service for the Northern Baltic Sea. With an oil tank storage capacity of 2,033 cu. m IB Kontio is now the largest oil combating vessel in the Northern Baltic Sea. The diesel-electric icebreaker has a total shaft power of 15MW. The length is 99m, waterline breadth 24.2m, and maximum draft 8m. There is a crew of 22 persons. The 9130 ton displacement icebreaker was built by the Helsinki shipyard in 1987.

EMSA provides oil spill response along the coastline of the European Union - in the Baltic Sea, North Sea, Mediterranean Sea and in the Black Sea.

EMSA has financed all changes made to the vessel including the oil spill prevention equipment and pays Arctia Shipping close to EUR600,000 annually for maintaining stand-by. The total budget for the project, currently in force for the next three years, is EUR4m including costs for the conversion and oil combating equipment. A separate charter contract is applied in case of engagement. The contract includes an option to extend the contract for three more years. Arctia Shipping is to arrange four full scale rehearsals per year, at own cost, and is committed to participate in one maximum 10-day long international rehearsals per year. IB Kontio's operating area now covers the whole of the Baltic Sea and oil combating services are offered to all EU member states, including Finland. The vessel was fitted with two 30 person Hatecke lifeboats needed to allow for the extended services as well as ISPS, ISPP and IOPP certification.

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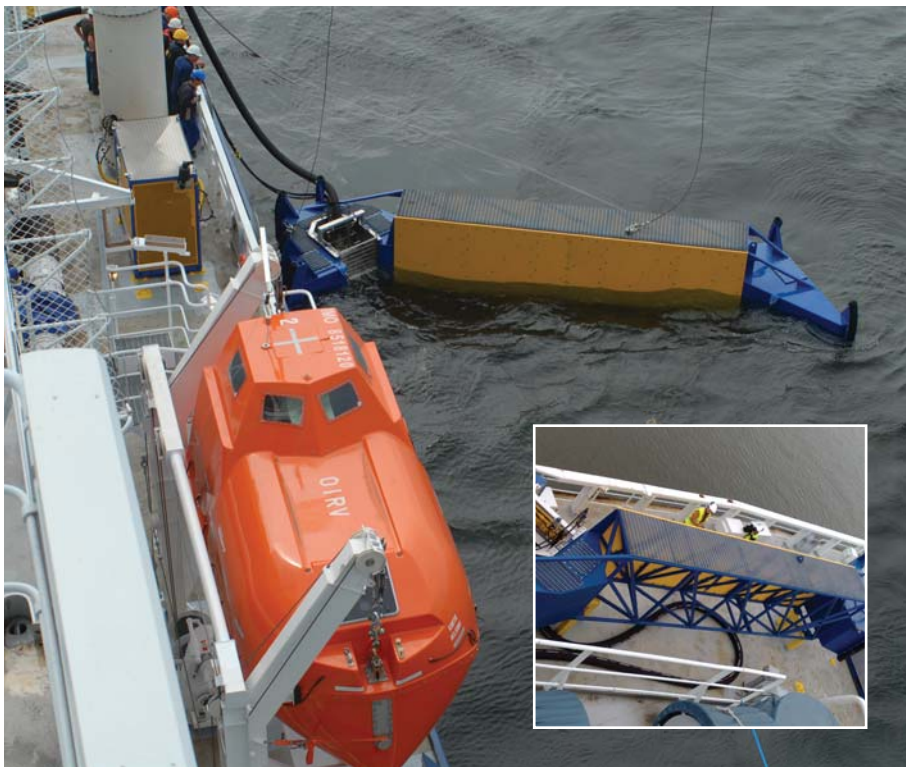
Lamor provided two powerpacks for the oil pumps, and two Hidroacar cranes. Hatecke supplied two lifeboats.

The heavy duty oil boom is stored in 125m lengths on own reels.

Classification, by Germanisher Lloyd, was updated accordingly for the new service. According to Tero Vauraste, CEO of Arctia Shipping Ltd, stand-by can be achieved quite affordably, as the crew on stand-by anyhow services the icebreakers in summertime. IB Kontio must be ready to engage in oil combating within 24 hours regardless of the time of the year. Vauraste points out that the vessel fits very well to this task, as the crew is skilled in operating the vessel in a confined space and close to other vessel. In addition IB Kontio can handle ice management and has towing capability. "As this is a very cost efficient way to provide oil combating services, compared to constructing a completely new ship for this purpose, we would like to do the same conversion also to sistership icebreaker IB Otso, if a possibility arises," Vauraste tells Maritime Reporter. Equipped with a skimmer, oil collection is now also possible to be carried out when the sea in covered with ice, to some degree. The crew has received IMO OPRC Level-1 or Level-2 oil pollution combating training.

Advanced Oil Combating Equipment

The oil combating equipment is provided by Lamor Corporation Ab, a Finland-based company supplying oil spill recovery equipment globally. The equipment is readily installed onboard the icebreaker in summer and is stockpiled ashore when the vessel is deployed in icebreaker duties. The installation of the equipment takes a maximum 12 hours. The equipment consists of one pair of Lamor's rigid 12m sweeping arms, type LS12, each unit with an exchangeable weir skimmer module and brush module. As IB Kontio is 24.2m wide, a total sweeping area of 48m is thus provided. This system uses 6-in. flexible hose for taking the oil onboard. There is a pair of centrifugal oil transfer pumps for the weir skimmer modules, each with a capacity of 300 cu. m/hr. at 6 bar. Oil from the brush modules is transferred using 125 cu. m/hr. screw pumps at 7 bar. The power is provided by two movable hydraulic power packs, also provided by Lamor. Each unit provides 210/280 bar at 330 l/min. through a 120 kW genset. In order to handle the rigid sweeping arms, Lamor also supplied two 15m/5t Hidroacar cranes placed on each side of the vessel. The vessel is also fitted with a set of 500m heavy duty oil boom type



The vessel has one pair of Lamor's rigid 12m sweeping arms, each unit with an exchangeable weir skimmer module and brush module. INSET: When not in use, the sweeping armes are stored on the aft deck.

An oil slick detection radar system by Consilium of type Selesmar SeluxST was also installed.

HDB 2000, supplied in 125m lengths, and one free floating brush skimmer type LFF1002C, suitable for collecting oil at open sea and in clogged ice conditions with a maximum coverage of 70% to 80%.

This unit is fitted with remote radio control and uses a screw pump with a capacity of 125 cu. m/hr. at 7bar and Layflat 5-in. transfer hoses of a total length of 60m. Storage racks for the equipment and a 10 ft. container with spare parts, including a spare transfer pump, is also provided and stored on the aft deck. IB Kontio also received an oil slick detection radar system of type Selesmar SeluxST, with a 23 in. LCD display, supplied by Consilium. Additional equipment includes a minilab for taking samples, multi-gas detectors, and a flash-point tester. The tanks taken into use for oil collection are the heeling tanks and one fuel tank.

The tanks were fitted with heating piping from the boiler providing 1 kW per cu. m. heating, and systems for oil separation-decantation was arranged. Loading and discharge to the tanks is handled through eight inch piping.

There are two discharge/decantation pumps, each with a capacity of 300 cu. m. at 10 bar.

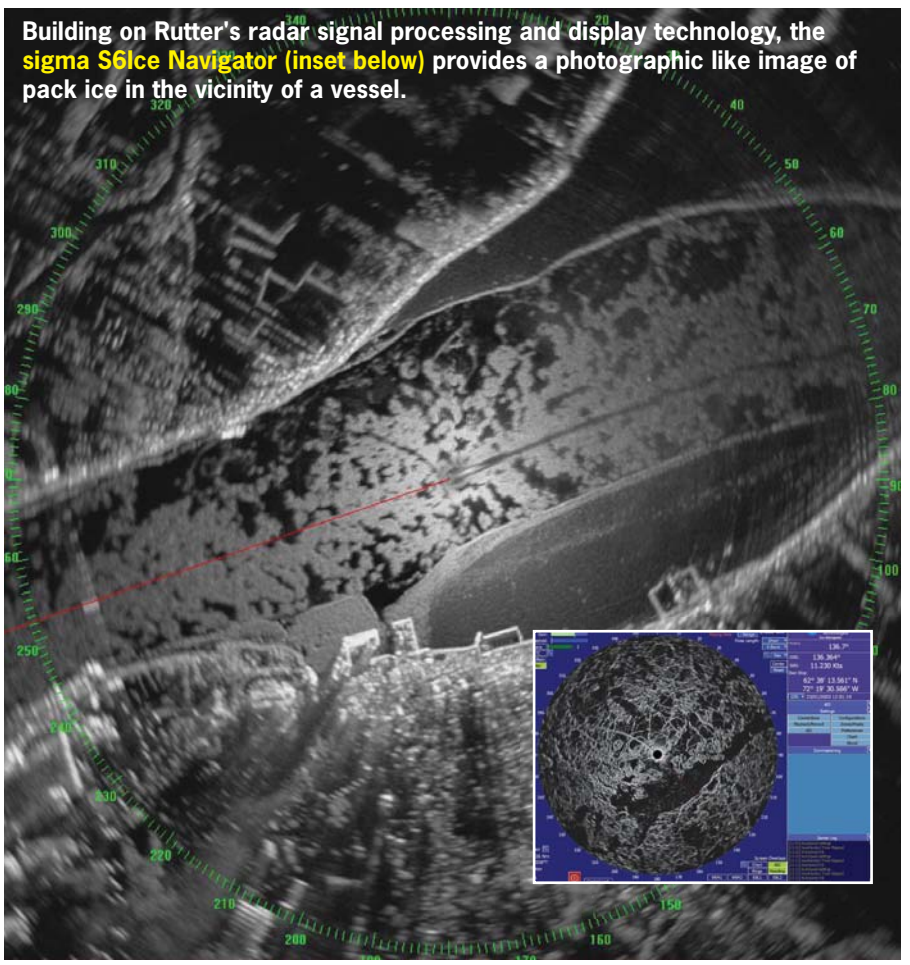
European Maritime Safety Agency

Founded in 2003, the European Maritime Safety Agency aims to progressively improve the safety of commercial shipping in EU waters. Based in Lisbon, EMSA provides technical support and advice to the European Commission and Member States regarding safety at sea. The Agency also monitors how different Member States and organisations implement EU and international laws.

In addition, EMSA performs practical tasks in the field of oil pollution response, satellite monitoring and in the identification and tracking of vessels. Including IB Kontio, there are, in all, some 17 EMSA stand-by oil spill response vessels, including oil/product tankers, bunker vessels, supply vessels and dredgers, fitted with oil spill prevention equipment and placed along the coastline of the EU in the Baltic Sea, North Sea, Mediterranean Sea and in the Black Sea. In the Baltic Sea area, in addition to IB Kontio, there are two bunker tankers placed in Denmark, in Skagen and Copenhagen respectively, contracted for this task.

Enhancing Safety of Arctic Ops

With global warming, discussions relating to routing cargo vessels through the Arctic as a shortcut to markets continue to heat up. In addition to new shipping lanes, the hydrocarbon industry is moving north to the polar regions to discover and recover the rich hydrocarbon resources under the icy dome. As Arctic shipping continues to expand, improved tactical knowledge of ice has become critical to the operators. To ensure the safety and efficiency of Arctic operations, a ship-borne/platform based radar (and sometimes shore-based) system is required to perform reliable detection and tracking of ice and even discrimination between multiyear and first year icefloating in the ocean. Rutter's sigma S6 Ice Navigator is a specialized ice navigation radar system, designed to provide the enhanced ability to detect and track various sizes of icebergs, such as growlers and bergy bits, in all weather conditions. Rutter's sigma S6 Ice Navigator also provides a photographic-like image of pack ice in the vicinity of a vessel, enabling it to maneuver through sea ice effectively and making the optimal route identifiable. The system provides for improved safety, reduced fuel consumption, minimized hull damage, and reduced travel time through ice infested waters.



Building on Rutter's radar signal processing and display technology, the sigma S6Ice Navigator (inset below) provides a photographic like image of pack ice in the vicinity of a vessel.

The sigma S6 Ice Navigator was developed by building on Rutter's sigma S6radar processor and display technology, which represents a core technology in enhanced marine radar data processing and imaging. The sigma S6radar processor converts the analog video return signal from standard full scanning radar into a proprietary digital format and processes that signal in high resolution. It maintains the full fidelity of the signal throughout the processing and displays the result on a high resolution display. The sigma S6processor is able to apply a range of algorithms for unparalleled small target detection in high clutter environments. It completes the package by providing a 256 level display for superior display detail and user configurability. sigma S6's superior target detection and tracking capabilities make it ideal for many different applications, including ice detection and navigation, oil spill detection and response, maritime surveillance, and search and rescue.

www.rutter.ca

Deltamarin to Design SUL Panamax Bulk Carrier

Deltamarin signed an agreement with Chengxi Shipyard for the design of a SUL (Self Unloading) Panamax Bulk Carrier to be built for CSL International Inc. Deltamarin will take care of the Basic and Detail design of the vessel as well as the Procurement support. The vessel is a derivative of Deltamarin's B.delta standard bulker designs with improved cubic capacity and lower fuel consumption compared to competing designs. The ship concept for this new generation of SUL bulk carriers has been created by Deltamarin for CSL International previously.

Email:
vesa.hamarila@deltamarin.com

FORAN Used in Acergy Havila Project

Hayard Steelcad has used the FORAN CAD/CAM System while some subcontractors have acquired the FORAN visualization FCM solution FORAN has been the CAD/CAM system used for the engineering of the Acergy Havila Project, a new Diving Support Vessel (DSV) built after the agreement between Acergy and Havila Shipping. As there were many companies involved in the project, different subcontractors have acquired the new FCM module, which is a FORAN solution developed by SENER for visualization and checking purposes. The Acergy Havila Project will be the state-of-the art DSV specifically designed for efficient diving operations in the harshest environments. The vessel will have a length of 120m, 23m of beam and will be fitted with a 250t crane. Classified by DNV (Det Norske Veritas), the Acergy Havila will have high transit speed, an ice-class hull, class-3 dynamic positioning and be in compliance with the most demanding maritime and environmental regulations worldwide. The FORAN FCM module is a tool for reading and querying 3D scenes or models defined in FORAN. Reading operation can be carried out either via online access to the database or through other specific files.

Shipboard Performance Measurement

by Robert Walsh, President,
Ship Propulsion Solutions, LLC

Shipboard measurement continues to challenge ship owners and their operators. With the focus on the environment and an effort to reduce green house gases (GHG), which includes improving fuel economy, there are many approaches that can be classified as small, incremental improvements. Stern-Appended Hydrodynamic Energy Saving Devices (SAHESD) have proven to be cost-beneficial but challenging to validate their gains in service. Ships operate on the interface of two mediums, water and air, and as a consequence face many variables that can disrupt precise measurements hence masking these small, but positive benefits.

Efforts to validate benefits continue to improve with better measurement tools and data processing. However, as every ship designer knows the general rule of thumb is to allow a 15% sea margin when sizing a propulsion plant to address those uncontrollable forces of wind, waves, current, and degradation of hull and propeller surfaces. With such a large margin it is difficult, if not impossible, to demonstrate small improvements without a major scientifically designed approach.

Because each SAHESD is capable of providing incremental savings, realistically in the range of 2 to 5 %, it is difficult to measure an individual device's contribution on ships in service. With sea margins of 10 to 15 %, finding, for example, a 3% improvement in service conditions requires precise data, whether it be on sea-trials or in long-term service. Therefore, combining several of these energy saving devices, especially before, at and after the propeller, is the recommended approach in order to achieve a greater cumulative improvement which can be more readily measured (potentially 5 to 8 %) , especially on sea-trials for new-buildings where sister-ships are being built in a class. For large ocean-going ships even the main propulsion engines are tested outside the ship not only to demonstrate performance, but also to validate fuel consumption rates. However, for most small improvements validation can only take place on full-size ships when in service. Even the hydrodynamic performance of the ship: hull, propeller, and rudder, are evaluated during newbuilding sea trials even though computerized design and model testing were done to set their form.

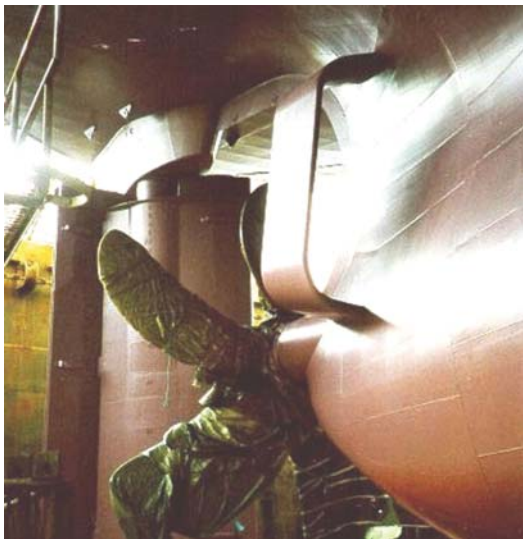
So what needs to be done to satisfy the skepticism of the majority of ship owners and operators about gains from SAHESD's, even though they have been identified by IMO's MEPC Committee's working group as having positive benefits? First, the concept of stipulated savings needs to be given consideration. If the design engineering is scientifically solid and it is validated in model testing, as is done for ship propellers, then at least a level of skeptical optimism should be given to the expected level of improvement. Being at a consciousness level of "Trust but Verify" is helpful when one is operating in a continuous improvement mode. Second, serious weighting needs to be given to these stipulated savings if it is expected that the gains always will be available over the life of the ship. For example, a 3% improvement would allow a sea margin to be reduced from 15 to 12%, or for existing ships GHG could be reduced 3%. Such an approach is necessary when retrofitting existing ships, primarily because many actions are taken at dry-docking that make measurement nearly impossible for any one action. How many ship owners actually validate gains solely from propeller polishing?

Third, coordinated long-term planning by both shipowner, as buyer, and ship builder, as seller, to develop a sea trial program that affords a practicable effort to validate the achievement of these small savings is necessary. This level of cooperation seems to be rarely achieved, especially after specification creation and contract signing.

Fourth, when a series of sister-ships is being constructed, a scientific-logical approach would be to implement the improvements on half the fleet at first. This would permit sea trial comparison and also operational comparative data over several ship years of service. Having dual-axis Doppler Sonar Velocity Logs (DSVL) would provide more precise long-term, in-service speed-through-the-water measurements. If the success of small improvements is acceptably demonstrated then installation on the outstanding portion of the fleet could be accomplished at their next dry-docking availability.

Fifth, the ship owner and operator have an overall moral responsibility to reduce the environmental impact of their operation on the planet. IMO is making an effort to address this global challenge, but formulas, such as the Energy Efficiency Design Index (EEDI), that encourage building bigger ships and slowing them down have many practical limitations. Ship design efforts should include all cost-beneficial solutions and selection of approaches should be economically tiered on a basis of fuel cost savings per capital investment, which generally would favor many incremental approaches, such as SAHESD's. The incentives can be strong enough without economic distortions from fuel taxes or cap and trade market mechanisms. Ship Propulsion Solutions is willing and ready to work with ship owners and operators who are motivated in meeting the environmental challenge and as a result reduce their operating costs by installing cost-beneficial stern-appended hydrodynamic energy saving devices (SAHESD).

contact@shippropulsionsolutions.com



Typical Stern-Appended Hydrodynamic Energy Saving Devices (ESD) applicable for single-screw, high block coefficient ships such as tankers and bulkers. (The first photo is a Propeller Cap Turbine (PCT) retro-fitted on a tanker which had been constructed with a Wake Equalizing Duct (WED). The second photo shows a chemical carrier under construction with the Simplified Compensative Nozzle (SCN) being installed.)

Breakthrough in European Shipbuilding

by Michael Rahm, SP Fire Technology

BESST is a project financed by the EU Seventh Framework program, with the aim of assisting the competitiveness, environmental performance and safety of ships built by European shipyards. The main focus of the work is on passenger vessels, ferries and 'mega yachts'. An important element of the work is to investigate the opportunities for replacing steel by lighter structural materials in order to win benefits in terms of fuel consumption, cargo capacity, stability etc. SP Fire Technology's role in BESST is to ensure total fire safety despite the replacement of non combustible construction materials (i.e. steel) with combustible composites.

European shipyards are being exposed to encroaching competition from low cost countries on an over established market. With added pressure from the climate threat, and a generally increased awareness of safety, this has resulted in pressure for improved passenger safety and reduced environmental impact.

It was against this background that BESST was initiated by EuroYards, a group that represents several leading European shipyards, with the aim of developing new vessels for which improved life cycle performance (LCP) compensates for higher initial cost. The concept of LCP covers primarily the factors of cost, environmental impact and safety. The technical objectives of BESST can be summarised as:

- To develop methods and tools for appraising LCP that consider the life cycle cost (LCC), environmental impact, safety and any specific requirements from society or insurers.
- To develop innovative technical solutions for the most important systems on a ship, and to combine these in such a manner as to produce optimum benefit for the ship's performance.

Benefits and challenges of lightweight materials

Investigations in earlier research projects have shown a considerable potential in replacing traditional steel structures with lightweight composite designs. The resulting weight savings can improve stability, improve payload and reduce fuel consumption.

There are many technical challenges in building vessels using lightweight composite materials. What will be the effect on noise and vibration through the structure? How should metal and composite materials be joined together? Will only specialised shipyards be able to carry out repairs on these ships?

Another important question is the effect of composite materials on safety on board in the event of a fire. Current regulations permit the use of flammable materials in load bearing structures if it can be demonstrated that they provide the same safety levels as with traditional design using steel. SP Fire Technology's contribution to BESST is to show that design proposals based on the use of lightweight materials meet this requirement for equivalent safety.

Some facts on BESST (Breakthrough in European Ship and Shipbuilding Technologies)

Financed by the EU Seventh Framework programme and participating partners

- Budget about EUR 30 million
- 65 partners
- Project start: 2009-09-01
- Project conclusion: 2013-02-28

www.besst.it

About the Author

Michael Rahm works as a project manager at SP Fire Technology. Michael has a background in Mechanical engineering and is a part of SPs competence platform "Marine light weight structures".

BESST is investigating the possibilities of using lightweight materials in cruise ships. Originally published in the #42/2010 edition of "brandposten," a magazine published by SP Fire Technology.

Information Ahead of Platforms

(U.S. Navy photo)

The Navy, USCG & Maritime Domain Awareness

by Edward Lundquist

The U.S. Navy has made a significant shift from being focused on platforms to being focused on information, according to Mark Andress, Director of Navy Maritime Domain Awareness. Admiral Gary Roughead, the Chief of Naval Operations (CNO), has recognized that the future budget may not support the number of platforms we need, and the Navy must better integrate the platforms it has. He recognizes that the explosion in information and the threats to the cyber domain that we're seeing requires the Navy to better focus on information at large," Andress says. "That means wholesale, from how we acquire a future Navy, all the way to how we operationalize it. If you want to know where the Navy is heading in the next decade, it's about information."

Andress says the CNO views this transformation as "being as significant as the transformation from sail to steam to nuclear power. He is really trying to get us to look at information and capabilities across all levels of war and across all disciplines."

The principals of net-centric warfare remain valid, Andress says. "Every platform a sensor, every sensor networked, and information available for use across that network whenever you need it."

But he says there's more, he says. "There is going to be the need for persistent ISR (intelligence, surveillance and reconnaissance), and a very aggressive approach into unmanned systems, to include unmanned aerial vehicles undersea vehicles and surface vehicles. Persistence is the key to going forward."

Persistence means the ability to keep a sensor in place for extended periods of time, and to be able to control it from a source far away. Just as important is expanding a state of processing, integrating intelligence, expanding communication capabilities, he says.

"With over 90% of global trade being conducted on the sea, it's more than just maritime nations that are affected by protection of the global commons—it's essentially the world," Andress says. "We have been actively focusing on fostering an environment where global maritime safety and security is a priority."

Andress says there has been an improvement around the world. "This last October, we hosted the International Seapower Symposium ISS – 19, at the Naval War College. Over a hundred navies were represented, including 90 heads of navies. One of the big themes was maritime domain awareness (MDA), or maritime situational awareness (MSA) as some countries around the world call it. We agreed that all of us need to a better job on issues such as piracy, terrorism at sea, illicit trafficking. We've got to do better at sharing information, and creating better understanding of trafficking in our own waters. Many of these countries have been pretty aggressive at standing up the Automated Information System (AIS) and integrating coastal radar systems with AIS. We're starting to see regional cooperatives. For example, in the Mediterranean, you've got VRMTC, Virtual Regional Maritime Traffic Center. That is a cooperative in the Mediterranean basin where they're all sharing

Maritime Domain Awareness requires information sharing between the Navy and partners, such as the Maritime Administration (MARAD); The Department of Homeland Security, including the Coast Guard, Customs and Border protection and of DHS entities; industry; the intelligence community, including the Office of Naval Intelligence and the National Geospatial-Intelligence Agency (NGA); and international partners.

their picture amongst each other and then they are trying to advance that, with more and more information sharing as can be agreed. We see the same thing in the Pacific and we see the same thing in the Northern Med, and the Black Sea, etc. What's good about these regional networks is that you essentially get a coalition of the willing that is able to effectively share information."

Andress says information-sharing hurdles arise when attempting to establish a single, global network. "It's just too big to overcome, especially as it relates to the information on commercial shipping."

The U.S. government recognizes that it's not a just a Navy issue, or even a Navy-Coast Guard issue. "If we're going to achieve effective maritime security, it's got to be an inter-agency, whole-of-government approach. So through the maritime domain awareness effort, we're bringing together Coast Guard and Navy, FBI, Customs and Border Protection, the Maritime Administration. We have an entire government structure around trying to foster better and better information sharing amongst inter-agency partners, including the intelligence community."

These other countries are realizing this, as well. We've hosted multiple operational games, if you will, inviting different countries. We started inviting their customs, immigration and state department reps to come with their navies. We started information-sharing scenarios, and at the end of it, they're all realizing "Wow, this isn't a navy-navy issue; this is really a whole-of-government issue."

"Inside the United States, we're continuing to expand our partnerships, and now with our foreign partners, they're trying to do the same," he says. "It's almost like a social network starting to form and this social network is expanding into regions. Our next focus is going to be on linking the various regions together. We've got some efforts this year that are making a lot of progress between linking together a region in South America, with the Mediterranean, with the Indian Ocean, and then with the Asia-Pacific region. So it ends up being about 50-some odd countries linked through four different regional partners. Inside the regional partners, they are sharing a lot of information. And then they'll start with a small group, sharing information back and forth."

Andress says the solution must include industry more. That's an area that where I think can always use improvement. We've hosted an industry day and invited industry to come in and hear us explain our requirements, major technology gaps, and where we need help. We openly presented a wide array of gaps from maritime application of infra-red and video surveillance to information integration and anomaly detection. We want industry to know where to direct their IRADD (Individual Research and Development Dollars) to get to a certain point that we're going to be interested in acquiring what they offer. We told them, 'We want to be your best customer.' We will host

(U.S. Navy photo)

Left: Mark Andress, Director, Navy Maritime Domain Awareness, U.S. Navy.

Right: Chief of Naval Operations (CNO) Adm. Gary Roughead delivers remarks and answers questions at the AUVSI Unmanned Systems North America 2010 Symposium & Exhibition in Colorado.

another Industry Day next year and welcome participation from the commercial maritime industry."

The second area is more in direct partnership with industry on maritime security cooperation, Andress says. "I think the best place you can see this right now is in the Horn of Africa in countering piracy. The Navy is a part of a combined task force of protection against piracy in the Gulf of Aden off of Somalia. But this CTF is made up of international partner navies from around the world. They've got a strong EU and NATO presence, and they've even got partnerships from the Asia-Pacific region, as well. So, what they're doing now is making industry aware of the transit zones and transit groups so shipping can transit through at certain times and we are able to provide better protection in the region. What I also think is interesting is that we have had fairly aggressive information sharing with industry, through the Maritime Administration (MARAD), such that Navy and even the intelligence community—the Office of Naval Intelligence and the National Geospatial-Intelligence Agency

(NGA).

Sharing information can raise sensitivities with industry, Andress admits. "I'm a licensed ship captain, so I've shipped. There are a lot of sensitivities with respect to the maritime domain, especially in partnering with industry. I certainly understand that the commercial carriers preserve privacy for the goods they transport. There's a competition factor, too. You've got markets, especially for commodities that are driven by very timely pricing. Understanding positioning of ships and where certain things are going to arrive at certain times can be market-changers. So, there are a lot of sensitivities in dealing with the maritime industry that doesn't make it as black-and-white as you might think. We need to move out, but we need to be sensitive and we need to do it in a way that allows us to take steady strain and make progress."

"Our strategy is about establishing trust and sharing in a region. I don't have to have all the information from a regional partnership led by a foreign country in their region, but I do want to know when they discover an issue of concern to the United States. I don't have to suck up the data and process the data myself. The fact is you're not going to make much progress trying to establish that level of data ingest and processing to get the answer.

So, within these regional partnerships, there is processing and alerting based on criteria they're looking for. It varies by region and by threat. It varies if you are a Customs and Border Patrol or the United States Coast Guard. You've got different criteria you're looking for. And, certainly, the Navy has different things that it looks as do our foreign partners. The important point is that the alerts and the issues of interest are shared across these networks," Andress says. "And by establishing these sharing networks, you're also better able to respond at times of crisis. You've got a known group of people that you can reach out to for other information. Oftentimes, those barriers to sharing information may exist on a day to day basis, but during crisis these barriers suddenly shift, and information starts pouring more freely to help address a certain issue."

"If all of that information was available, all the time, then I could connect the known terrorist watch list to the ship that is loading a passenger in Romania, for example, and I could act. But there are a million and one obstacles between connecting that all together. The biggest obstacle is trust."

"The end state we are striving for is the creation of a cooperative network of regionally focused information sharing exchanges that are able to connect the dots of potential threats from the maritime domain and rapidly respond in times of crisis," he says. "The Navy's future is in information and we can better integrate it, better process it for understanding, and how to better partner and share it in order to better protect the United States and its maritime industry," Andress says.

Donjon-Smit

Teaming to Tackle OPA-90 Business

by Greg Trauthwein

Risk and Reward.

Perhaps in no other corner of the marine business are this pair so closely linked as they are in marine salvage and firefighting. The inherent nature of the marine salvage business means equipment and personnel sometimes come into harm's way; a risk mitigated by experience, preparedness and quality and quantity of information on the job at hand.

When operating vessels in and around the United States, risk is everywhere, particularly if and when an accident occurs and cargo is accidentally discharged in U.S. waters. As readers of this publication likely already know, the risk factor in and around the U.S. is set to rise much higher starting February 2011, courtesy of new OPA-90 regulations for the salvor and marine firefighter, regulations which dictates how and where vessel owners must be prepared if an accident happens.

Intent on helping shipowners to manage risk, enter Donjon and Smit, a pair of esteemed and storied salvage companies with cumulative experience of more than 200 years, creating an alliance – Donjon-Smit – specifically designed to fulfill one market niche: helping vessel owners navigate the potential perils of new OPA-90 regulations set to enter force in February 2011.

Putting it simply: "This (collaboration) is a natural extension of what these companies have done for more than 200 years," said John A. Witte Jr., Executive Vice President, Donjon Marine Co., Inc. "And everything being equal, if the OPA-90 was not here, I think that Donjon and Smit would be providing a similarly high level of service."

OPA-90

The genesis of OPA-90 regulations are well recorded, born from the historic grounding and spill of the Exxon Valdez in Alaska's Prince William Sound more than 20 years ago; an accident which resonates still today in its material effects on owning and operating tanker vessels globally. In 2008, the U.S. Coast Guard published new OPA-90 Salvage and Marine Firefighting regulations, in the form of 15 selection criteria (see complete list page 36) industry should examine when choosing the contracted provider of salvage and firefighting resources.

"This (the publishing of 15 Prerequisites) ensures a capable field of marine salvors, eliminating literally hundreds of unqualified companies," said Paul Hankins, Vice President Operations, Donjon-Smit, LLC. In addition to the 15 prerequisites, salvage companies and its clients must have a contracting mechanism in place before an incident, a contracting mechanism complete with a funding mechanism and rate sheet, said Hankins.

Also, tight new rules regarding vessel and personnel response times to an incident were put in place, a requirement that will cause vessel owners to take a second, and perhaps third, look at their contracted salvor to ensure compliance. "The bigger deal was to ensure that we could meet all of the response timing standards," Hankins said.

Enter Donjon-Smit OPA-90 Alliance

There are many qualified and long-tenured salvage companies serving the U.S. market, but the executives of Donjon and Smit are convinced that the Donjon-Smit OPA-90 Alliance offers the industry's most comprehensive, transparent and efficient package of services. Heading the Donjon-Smit alliance is Paul Hankins, President, a seasoned industry veteran with a variety of experience including industry, navy and government.

"This (Donjon-Smit, LLC) was set up as a completely separate operation, completely focused on OPA-90 work."

Hankins stresses the importance of this point, noting that the sole focus affords him and his team an unobstructed view of client needs and service in this important area, which backed by the full support of both Donjon and Smit, as well as assets from several key strategic partners,

Executives from Donjon-Smit - an OPA-90 Alliance, recently visited the New York City offices of *Maritime Reporter & Engineering News* to discuss the new salvage and firefighting requirements of revised OPA-90 regs. Pictured from left are: John A. Witte Jr., Executive Vice President, Donjon Marine Co., Inc.; Paul Hankins, President , Donjon-Smit, LLC; amd Douglas Martin, President and General Manager, Smit Salvage Americas.

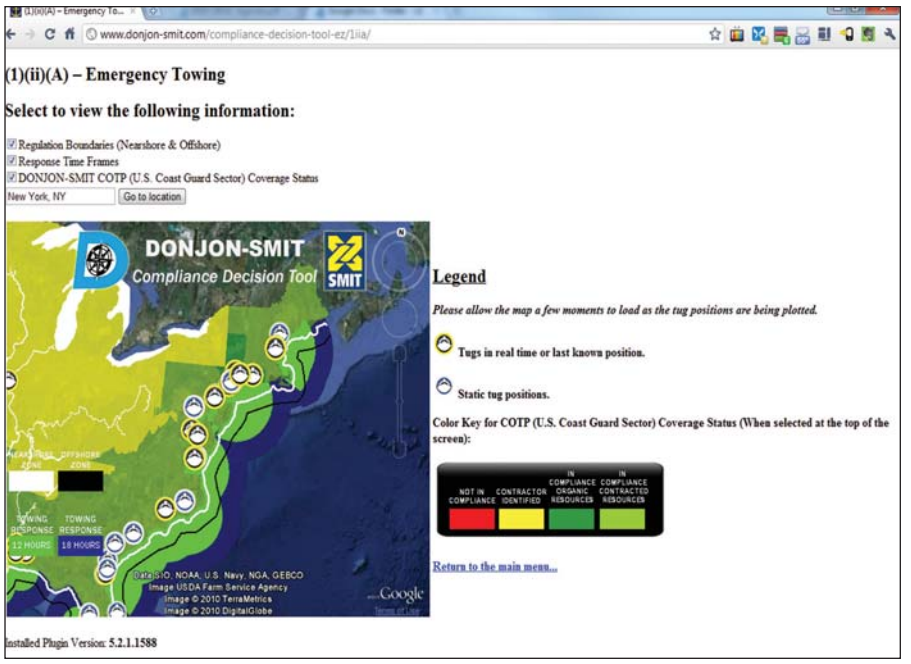
including Cudd Well Control and Moran Towing.

"Our competitors see this as an extension of their business, where we (Donjon and Smit, independently) continue our business as usual, while the combined Donjon-Smit's sole focus is OPA-90 response," said Douglas Martin, President and General Manager, Smit Salvage Americas Inc.

While the overriding concept offered by Donjon-Smit is one of meticulous preparation and complete transparency, it's interesting to find that before the relationship was struck, both individual companies were seriously questioning the upside potential of participating in the OPA-90 business.

"The increased regulatory environment (surrounding the OPA-90 business) initially caused SMIT to walk away from the OPA-90 business," said Martin. "But, as it became apparent that the reward was growing, we formed the Donjon-Smit alliance to spread the risk and share the reward."

Hankins continued: "Vessel Response Plans (VRPs) have to have a 'named' salvor, and that named salvor has to be used. So, if you weren't in the game from the beginning, you would be left out."



The Compliance Decision Tool uses Google Earth Technology.

Creating the Compliance Decision Tool

Adhering to the adage "If a job is worth doing, it's worth doing well," Hankins and his Donjon-Smit team set about a top to bottom analysis of the market, examining the alliance's strengths and weaknesses while formulating its plan to present to ship owners an informative, transparent and easy-to-use tool which provided all information needed to make a ready comparison. This point is particularly important, as with the new regulations the onus is put on the ship owner, not the Coast Guard, to ensure that the salvor and marine firefighting company chosen is vetted.

The process by which Donjon-Smit came to fully ensure that its resources exceeded regulatory and customer needs started with a top-to-bottom Gap Analysis which provided it – and its existing and potential customers – a colorful and easy to read chart which indicated the consortium's capabilities in any situation, in any locale. Just three universal colors – red, yellow and green – were used to give a quick visual enabling shipowners to assess the consortium's stated goal of 100% coverage across the U.S. "When we started, most of the chart was red and yellow," said Hankins.

Port by port, capability by capability, Hankins and his Donjon-Smit team painstakingly examined the team's capabilities in order to best prepare to meet its

vision and mission, and today, the chart does not contain a hint of red. The natural extension of this evaluation process helped Donjon-Smit create its Compliance Decision Tool, which is perhaps the most telling indication of its transparent approach to the OPA-90 Salvage Alliance.

The Compliance Decision Tool uses Google Earth technology to create a multi-layered, interactive, and easy to access system where clients and potential clients can come to vet and keep constant watch on Donjon-Smit's capabilities; able to conduct real-time analysis of it and its partner's assets.

Today Donjon Smit is fully prepared and capable in 52 Captain of the Port and Special Zones. "We urge them to vet them carefully, and to come to us."

Challenges

Creating a comprehensive, transparent and meaningful solution to a complex problem does not come without challenges, and according to Hankins, one of the prime challenges of the new OPA-90 rules centers on the firefighting component, specifically the ability to have an on-scene assessment of the Pier-side ship fire within two hours of the incident report, when the vessel is in port, of course. Putting a dedicated firefighter in every port in anticipation of an incident would prove too costly. To accomplish this requirement, DonJon-Smit is teaming with local municipalities and firefighters, a process in and of itself that is laborious and fraught with hurdles, considering that there are more than 250 municipalities with which to negotiate, and each municipality has its own set of rules in handling these types of situations.

Regardless, it appears that Donjon-Smit has stepped up to the numerous challenges, and has invested a good deal of time and money in building its platform for OPA-90 Salvor and Marine Firefighter compliance, with the anticipated reward the lion's share of business in this niche.

"As relates to the issue of cost, while we understand today's economic environment is a difficult one for the marine community as a whole, there will be a cost to the affected shipping community. While the marketplace will certainly impact this issue, the effort necessary to perform as required by OPA-90 is now quantifiable as are the associated costs." John A. Witte Jr., Executive Vice President, Donjon Marine Co., Inc.

The Compliance Decision Tool is available upon request from Donjon-Smit;

Email: admin@donjon-smit.com

The 15-Point Plan

The US Coast Guard's 15-Point Selection Criteria per the new OPA-90 Salvage and Marine Firefighting Regulations published at the end of 2008, and set to come into full force early 2011.

1. Resource provider is currently working in response service needed.

2. Resource provider has documented history of participation in successful salvage and/or marine firefighting operations, including equipment deployment.

3. Resource provider owns or has contracts for equipment needed to perform response services

4. Resource provider has personnel with documented training certification and degree experience.

5. Resource provider has 24-hour availability of personnel and equipment, and history of response times compatible with the time requirements in the regulation.

6. Resource provider has ongoing continuous training program. For marine firefighting providers, they meet the training guidelines in NFPA 1001, 1005, 1021, 1405 and 1561.

7. Resource provider has successful record of participation in drills and exercises.

8. Resource provider has salvage or marine firefighting plans used and approved during real incidents.

9. Resource provider has membership in relevant national and/or international organizations.

10. Resource provider has insurance that covers the salvage and/or marine firefighting services which they intend to provide.

11. Resource provider has sufficient up front capital to support an operation.

12. Resource provider has equipment and experience to work in the specific regional geographic environment(s) that the vessel operates in (e.g., bottom type, water turbidity, water depth, sea state and temperature extremes.)

13. Resource provider has the logistical and transportation support capability required to sustain operations for extended periods of time in arduous sea states and conditions.

14. Resource provider has the capability to implement the necessary engineering, administrative and personal protective equipment controls to safeguard the health and safety of their workers when providing salvage and marine firefighting services.

15. Resource provider has familiarity with the salvage and marine firefighting protocol contained in the local ACPs for each COTP area for which they are contracted.

Wrap-Up: CIMAC Circle 2010

At SMM in Hamburg, Germany, more than 150 delegates attended this year's CIMAC Circle, covering the total cost of ownership of marine propulsion engines. Inevitably, the panel of engine builders, engine (vessel) operators and engine system and component makers were strongly influenced by the effects on engine first costs and engine running costs of the upcoming IMO Tier II and Tier III emissions regulations, due in 2011 and 2015 respectively. As Dr. Udo Schlemmer-Kelling of Caterpillar Motoren noted in the title of his presentation: *IMO III is knocking at our door.* The levels of emissions reduction prescribed by IMO Tier III for vessels operating in Emissions Control Areas clearly come at a price, and at the CIMAC Circle each speaker presented his own standpoint on the financial effects of emissions compliance. Reflecting their holistic approach to cost reduction, the engine operators stressed the cost effects of electronic engine management versus mechanical governing, reduced engine speed, efficient onboard power generation, overall vessel design and the cost of both lubricating and fuel oil consumption. The engine builders' and component supplier's main emphases were the costs - but equally the cost saving potential - of emissions reduction hardware, as well as efforts to reduce fuel consumption, wear and maintenance.

Representing the engine industry on the panel were Chairman Søren H. Jensen and Stig Baungaard Jakobsen of MAN Diesel & Turbo, Denmark, Dr. Schlemmer-Kelling of Caterpillar Motoren GmbH & Co. KG, Germany and Rolf Vestergren of Wärtsilä Corporation, Finland. Speakers on behalf of ship operators were Lars Erik Egeberg of BW Gas, Norway, Kobune Goto of NYK Line, Japan, Stavros Hatzigrigoris of Maran Tankers Management Inc., Greece, and Ole Graa Jakobsen of Maersk A/S, Denmark. Christoph Rofka of ABB Turbo Systems Ltd., Switzerland, represented engine systems and components. Their presentations can be downloaded at: **www.cimac.com/congress_events/Index1-events.htm.**

Universal Crew Card

Vizada developed the Universal Card Crew Order service to enable crew to purchase and reload private communications credit online with their own credit card. Crew members have independence to buy cards or credit on board. The company must agree to offer Universal Card Crew Order on the vessel, and the price of comms credit.

Whistles and Controls

Kahlenberg introduced the KM-DVM Series of Air Horns and the new M-611 Sound and Light Control for vessels over 75m. The KM-DVM Air Horns feature a new external valve assembly and heated sound chamber that reduce weight, product cost, and installation costs while preserving the durability of all metal construction and the ability to operate in the extreme weather conditions. **Email: info@kahlenberg.com**

Unitor: Contract for Four Newbuilds

Wilhelmsen Ships Equipment (WSE) received an order from a Japanese shipyards for the Type-Approved Unitor Ballast Water Treatment System (Unitor BWTS). The order is for four General Cargo Carriers for Gearbulk Shipowning Ltd, under project management of Kristian Gerhard Jebsen in Norway. The first two vessels are due to be delivered in 2012, and the latter two in 2013. Each vessel will install Unitor BWTS on two ballast pumps with a ballasting capacity of 750 cu. m./hr. "This order marks a new milestone for WSE, as it is the first order since we gained Type Approval for the system," said Peter Stockley, President of Wilhelmsen Ships Equipment. "We have received a lot of positive attention for our system, and we are currently handling enquiries covering a range of treatment capacities and vessel types."

BalPure Passes Milestone

The BALPURE ballast water management system from Severn Trent De Nora has been recommended for final approval at the IMO's Marine Environment Protection Committee (MEPC) 61st session, by GESAMP BWWG. The Group agreed to the recommendation after reviewing all the information submitted by Germany in the application for final approval, together with the information received during the 14th GESAMP-BWWG meeting. Shipboard testing of the BALPURE system currently underway on the California Maritime Academy training ship, the T.S. Golden Bear, is scheduled for completion in December 2010.Type approval of the BALPURE system is expected in early 2011. BALPURE is a modular, lightweight ballast water management system designed for easy installation into a new or retrofitted vessel. The patented BALPURE system is designed to meet the most stringent ballast water discharge requirements. BALPURE reportedly offers an operating cost of less than $0.02 per cu. m. of ballast water treated.

N.E.I.:
Four-Ship Order from Hyundai

N.E.I. Treatment Systems licensee Samgong Co., Ltd. of Korea received an order from Hyundai Samho Heavy Industries (HSHI) for four Venturi Oxygen Stripping (VOS) ballast water treatment systems to be installed on four 318,000-dwt VLCCs being built for SAMCO Shipholding Pte. Ltd. of Singapore. "This is a key milestone for Samgong, our licensee and strategic partner in Korea, representing the first of many VOS System orders to come," said N.E.I. CEO Jon Slangerup. "Samgong has made a significant investment in resources needed to aggressively pursue the market for BWTS in Korea, and that investment is beginning to pay off."
The four 6,350 cu. m./hr VOS Systems for HSHI/SAMCO represent the company's largest BWTS solution on order to date.

Ballast Water Technology

by Joseph Keefe

BWT Competition, Type Approvals and Innovation heating up in advance of expected ratification of IMO-based standard.

Manufacturers to Shipowners: Don't wait too long to order your system.

SITREP 3Q 2010:

The current state of Ballast Water Technology (BWT) regulations is anything but settled, and complicated enough that many shipowners are paralyzed with indecision about what to do next. That's understandable. Fortunately, ratification of an International BWT standard may be right around the corner. When it does come, the potential for the manufacturer's side of the equation to be overwhelmed by the tsunami of new orders is very real. At last month's SMM Exhibition in Hamburg, the mood among BWT producers was cautious, but upbeat. They also had a message for industry: order now and avoid the rush.

Today, 26 flag states accounting for 25% of world tonnage have signed the 2004 IMO Convention for the Control and Management of Ship's Ballast Water and Sediments. A total of 30 states, representing 35% of total tonnage are required for ratification. That's the good news. But, USCG-proposed regulations have been on the street for more than a year and are unlikely to become law until after the mid-term elections or later. Beyond this, many U.S. States – spurred by frustration federal inaction – have enacted their own BWT laws, often without much thought as to how these Balkanized rules will affect the big picture. As MR goes to press, environmentalist and/or industry groups continue to battle in court to either uphold or dismiss the localized regulations.

Meanwhile, and as of April 2010, 24 BWT systems using active substances have received basic approval, 12 have final approval, and 5 have Type Approval Certifications. Additionally, 2 systems that do not use active substances have received Type Approval. Germany, Norway, and Korea are the major countries providing Type Approval and basic/final approvals and numerous industry publications – Lloyds and ABS, to name just a couple – have been produced to provide BWT guidance for shipowners.

Industry Update(s)

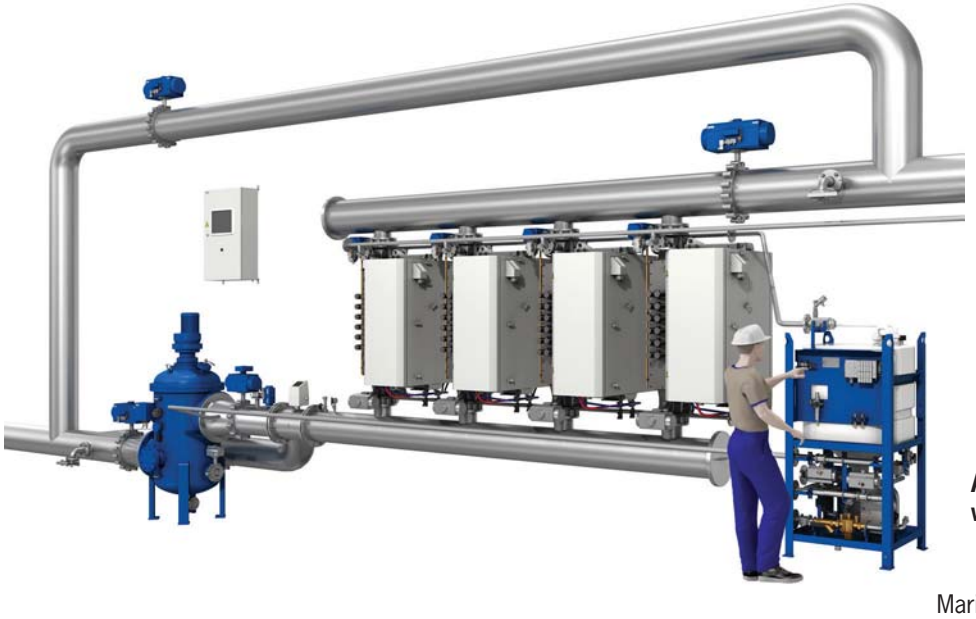
At SMM, the theme of "green shipping" attracted a myriad of BWT manufacturers, all anticipating International standards ratification and eager to keep industry abreast of new developments. Alfa Laval, for example, announced the launch of its PureBallast 2.0 in standard and Ex versions. PureBallast, **Alfa Laval's chemical-free entry** into the BWT arena, has entered its second generation with an updated system boasting substantial, 40 percent reduction in power consumption (appealing to the pocketbook and ECA requirements) among other improvements in an Ex version, PureBallast 2.0 EX. With more than 110 orders for systems on the books, 56 delivered and 25 in service, PureBallast systems have firmly established Alfa Laval as a major player in the BWT markets.

For owners of crude oil, product and chemical tankers, whose cargo creates potentially explosive situations, the launch of PureBallast 2.0 has added significance. PureBallast 2.0 EX, a version of PureBallast 2.0 with additional safety modifications, is designed for Zone I, group IIC and temperature class T4, suitable for installation aboard most vessels that carry ignition-sensitive cargo. According to Joakim Thölin, General Manager of Alfa Laval Marine & Diesel, "The introduction of PureBallast 2.0 EX means that we can now meet even the needs of vessels with potentially explosive onboard environments."

Also at SMM was Bremen-based **RWO**, who touted their own type-certified ballast water treatment system. The CleanBallast technology was developed in 2003, and refined over the years. According to RWO, and under extreme conditions, such as high sediment concentrations, CleanBallast exceeded the IMO test requirements. Removal of sediment reduces tank cleaning costs and prevents the loss of deadweight capacity. Of appeal to Great Lakes operators in particular, is this system's ability to also operate in waters with a low salt content. CleanBallast is offered for various capacities and assignments and both for new building and retrofitting. Already a player in the international bilge water treatment markets, RWO is now pursuing this goal with the CleanBallast BWT system, as well.

In Hamburg, MR also caught up with **OceanSaver CEO Stein Foss**, who helped put into perspective the global BWT situation. Certified to any capacity without restrictions in April 2009 by DNV, the Oceansaver Ballast Water Management System has – according to the tough California States Land commission – potential to meet the California Performance Standard. With 32 orders on the books and a capacity to move 6,000 tonnes per hour, OceanSaver bills itself as the "solution for larger ships."

Foss told MR in September, "2016 will be the key." Referring to the IMO's ballast water mandate that requires ships to meet the Ballast Water performance stan-



Allfa Laval's CleanBallast ballast water treatment system.

dards by the year 2016, Foss also issued a note of caution to shipowners everywhere. "Don't wait too long. The crush of orders expected by 2016 will tax the ability of manufacturers to deliver." He also stressed the need for partnerships with shipyards and third party installation firms to meet coming demand – something that OceanSaver was already actively planning for.

Crunch Time

With approved BWT systems expected to top 30 in number in the near term, shipowners and regulators have a lot to think about. The range of solutions available in today's market is also a reminder that no one system is the perfect solution for every trade route, type of service, size of ship and a dozen other variables. There is no "Silver Bullet," and today, obstacles to ballast water treatment are numerous:

An uncertain international ratification date and the fractured state of the U.S. BWT situation – affecting a large part of the fleets needing to eventually comply – create even more uncertainties. What is certain is that ratification will eventually happen and when it does, shipowners will have plenty of BWT choices from which to ensure compliance. Making the right choice, at the right time, for each and every vessel within an existing fleet could be the difference between mere survival and robust profitability as the global shipping markets continue their collective recovery.

On the WEB **www.veoliawaterst.com • www.alfalaval.com • www.oceansaver.com • www.maritime-enviro.org**

Table 1

Various BWT Obstacles

- Variable ballast water conditions: salinity, temperature, organisms
- IMO Basic and Final Approval-Insufficient resources for land-based evaluations of technologies
- Type Approval-Few Flag States are approving treatment systems
- Acceptance of Type Approved technologies in countries such as Liberia
- Inconsistent Regulations Globally, Nationally, and Regionally
- Shipboard sampling post treatment system installation
- Compliance monitoring
- Enforcement and penalties
- Insurance and Liability
- Treatment system, parts, and services availability
- No singular technology is effective on all types of vessels and trades

SOURCE: Maritime Environmental Resource Center

FURUNO "NavSkills"

At SMM Furuno launched a new training concept and simulator solution called NavSkills, touted by the company as an expressway for ship owners and training centers to be capable of providing DNV SeaSkill-certified ECDIS and IBS/INS training courses to the navigators. The NavSkills solution consists of a full mission training simulator with ECDIS planning stations. The training package includes DNV SeaSkill-certified ECDIS training in accordance with IMO Model Course 1.27, DNV SeaSkill-certified IBS/INS Operator training course in compliance with IMO Model Course 1.32, Bridge/Engine Resource Management training and Bridge Team Management training.

"Since the past 10-15 years INS and ECDIS have been introduced onboard the merchant fleet and today we find INS and ECDIS on all types of vessels. Also, and the equipment have become a part of the daily work for many navigators," said Mads Friis Sorensen. "During this period the technology and sophistication of INS and ECDIS has developed rapidly and has put a new challenge to the navigators who are used to operate a conventional navigation system and using paper charts. A short familiarization training course provided by the maker might not be enough, unless the navigators are experienced ECDIS and INS operators."

Jeppesen Debuts Fleet Management Info System

At SMM Jeppesen unveiled a maritime fleet management information system called Jeppesen Fleet Manager, a Web-based system designed to provide shore-side managers with up-to-date data on ships' progress according to plan and real-time conditions, and provides powerful analytic tools using data from each ship's passage to provide insights that help ship owners more efficiently manage their fleets. The program is designed to integrate with several of Jeppesen's other products and services, including C-MAP charts and Jeppesen's Vessel and Voyage Optimization Solution (VVOS). "One of the key differentiators between Jeppesen Fleet Manager and competing systems is the program's ability to track a ship's performance against charter party terms or pro forma," said Ron Moody, product manager for Jeppesen Fleet Manager. "Both for the operator and the charterer, there is now clear documentation about the voyage." Additionally, Jeppesen Fleet Manager can integrate with Jeppesen VVOS to provide a comparison of planned route and historical track, predicted ETA and variance figures, severe motion and weather warnings and slow-down alerts.

Raytheon Anschütz

Integrated Nav System

Synapsis Bridge Control designed to make navigation more efficient. Selected bridge and navigation functions can also be monitored from anywhere on the vessel via iPad. — *Joseph Keefe*

iPad Excitement & Functionality

Very soon, somewhere on a dangerous sea passage, the Master of a deep draft vessel will rise suddenly from the dinner table in the officer's saloon and bolt for the bridge. Prompted by real time information on a wireless remote iPad device, his actions prevent the $80 million vessel from running aground and spilling its cargo of crude oil into a sensitive wetland. Or, perhaps, the ill-fated ship will just break its back on the reef. Someday soon, the choice could be up to you.

Within the latest generation of Raytheon's Integrated Navigation System (INS), all data is distributed by a new dual Ethernet bus, processed independently at any workstation. Having information consistently available throughout the whole navigation network allows for flexibility with regard to data access for multiple tasks on the workstations. The new technology also allows for full flexibility in creating new shipborne applications. Raytheon Anschütz demonstrated the many new network capabilities of INS at the SMM Show in Hamburg, Germany.

A wireless interface to the bridge network and a simple touch-screen monitor allow remote control of the autopilot's heading and course control modes. Course and heading changes made on the touch-screen are processed immediately on the bridge autopilot system. The demonstration of the newly presented version of an iPad Captain's Display shows how the new network architecture can add further value to the future bridge system. A standard portable iPad was linked to the navigation network with a wireless LAN connection, allowing a variety of navigational data to be selected and remotely seen in real time.

The iPad potentially allows the captain to monitor all systems, anywhere on the ship. The unlimited configurability of the navigation data display can also provide a live experience of navigation to passengers on board using either the iPads or TFTs with a single wire connection.

Today's Technology Expandable for Tomorrow's Needs

Synapsis Bridge Control (SBC) is the brand name symbolizing the intelligence of Raytheon's newest navigation system. Immediate processing of data, consistent data presentation and intuitive support in decision making are all part of the new system. The INS features new wide-screen, task-orientated Multifunctional Workstations, allowing full scalability and future expandability. According to Michael Nogalski, Head of IBS Development, "Apart from adding new functions to the bridge of today, it offers flexibility for upgrades and extensions to further increase the customer's benefit." Possible configurations range from a stand-alone ECDIS workplace to a fully integrated workstation that provides access to nautical tasks such as route monitoring, collision avoidance, navigation control, status and data display or alarm monitoring.

Captain "iPad" Display

The new platform provides interfaces that enable the integration of additional applications such as DP systems or CCTV on Multifunctional Workstations. Using the Voyage Efficiency Monitor, the joint display of navigation data with engine automation and loadmaster computer data can help to optimize voyage planning and fuel consumption.

A new Consistent Common Reference System (CCRS) continuously observes the availability, validity and integrity of all sensor data and calculates a quality indicator for each sensor. CCRS increases safety through intelligent use of board sensor information, while reducing work load of ship's officers. Another essential part of SBC is the new adaptive NautoPilot 5000 with its color TFT and touch screen operation as well as the latest generation of Nautosteer AS steering control system. Raytheon claims that the new steering control sets new standards for safety at sea.

Raytheon Anschütz IBS in Action

Raytheon Anschütz was recently awarded a contract to supply the Integrated Bridge System (IBS), incorporating aspects of Raytheon's newest generation INS, to a new polar supply and research vessel.

The vessel is being built at STX Finland shipyard in Rauma and delivery is scheduled for 2012.

A subsidiary of Raytheon (USA), Raytheon Anschütz GmbH belongs to its Integrated Defense Systems division. More than 30,000 vessels sail with Anschütz navigation systems, serviced by a global network of more than 200 service stations. On the WEB:

www.raytheon-anschuetz.com

Funding Available:

Carbon Trust Launches Global Technical Challenge

The Carbon Trust last month launched a global competition to find world-leading solutions to the problem of transferring engineers and equipment safely from boats to wind turbines as far as 300km offshore in 3m wave heights. The project aims to improve the economics of offshore wind by boosting revenues by as much as £3bn at a crucial time for the next generation of Round 3 offshore wind farms. The need for better access solutions is driven by the location of the next generation of wind farms to be built over the decade. Today's wind farms are typically less than 20km from shore in relatively benign sea conditions, but in future, wind farms will be as far as 300km offshore where they will operate in harsh conditions – excellent conditions for generating electricity, but challenging for operations and maintenance.

The competition aims to generate at least a 4% increase in turbine availability through the development of new technologies for the most challenging sea conditions. This in turn could increase the power generated, which would mean saving £3bn of lost revenue. This improvement in availability would also save an extra 1.3 Mt CO2 per year.

The competition is part of the Carbon Trust's Offshore Wind Accelerator, a major industry collaboration with eight leading energy companies – DONG Energy, E.ON, Mainstream Renewable Power, RWE Innogy, ScottishPower Renewables, SSE Renewables, Statkraft and Statoil –, which aims to drive down the costs of energy from offshore wind by 10%.

The successful applicants to the competition will benefit from funding of up to £100,000 per concept to support the design and development of the successful concepts; the opportunity to work with eight leading offshore wind developers with licences to develop 30GW of offshore wind capacity in UK waters (representing 60% of today's licensed UK capacity) and potentially several million pounds of funding to take the concepts to full-scale demonstration. The competition is supported by RenewableUK, IMarEST (Institute of Marine Engineering, Science and Technology), RINA (Royal Institute of Naval Architects), SMI (Society of Maritime Industries), EWEA (European Wind Energy Association). Companies interested can submit their designs until 5pm, 26th November by

Email: OWA@carbontrust.co.uk

MARLIANT: Non-stop Computing Platform

Marliant represents a product range designed to overcome the challenge of securing the uninterrupted availability of computer applications on sea-going vessels or offshore installations.

This new product seeks to help provide a reliable, secure and cost-effective (multi-user) Windows platforms with unconditional and uninterrupted availability at all times, easily deployed and maintained, and suitable for both 'retrofits' as well as newly build vessels.

The system consists of an autonomous 'single-cabinet' server with integrated interruptible power supplies, data switches and (RAID) data storage and is completed with low-cost thin-clients replacing PC's throughout the vessel. A standardized modular approach serves to unify spares to be readily available at all major ports of call along the major shipping routes.

Email: info@netwavesystems.com

Lubmarine's
New Lube Oil is Sulfur Limit Compliant

Total Lubmarine says its new cylinder oil, Talusia Universal, provides a lube solution to problems encountered by owners and operators in meeting regulatory and environmental requirements relating to sulfur limits. Patrick Havil, global marketing manager of Lubmarine, said, "Lubricants have not always been top of the priority list for ship owners. But this is changing. In the current economic climate, ship operators simply cannot afford to ignore any potential cost savings that can easily be made. And in the current legislative climate, ship operators are forced to face issues arising from the need to operate within Emission Control Areas (ECAs)."

With effect from 1 July 2010, all ships operating in the EU Emission Control Area have had to burn fuel with a maximum sulfur content of 1 percent, down from the previous limit of 1.5 percent. Ship owners are thus faced with not only fuel-switching difficulties but with the additional need for lubricant switching as they move in and out of the ECA. Furthermore, when the USA/Canada ECA comes into force in 2012, it will affect 50 per cent of maritime traffic, and the issue of which lubricant to use will be absolutely vital.

Becker:
Composite Rudder Flap and Stock

Becker, along with Bureau Veritas, is continually searching for new materials such as carbon composites to use in its engineered solutions. Carbon fiber is interesting as it provides a weight savings of more than 50 percent; as well as a reduction of raw material waste of 60 percent compared to forged steel. Becker anticipates that the number of composites and their application in merchant shipping will rise in future, especially for smaller components – like rudder flaps. In this instance, composite materials enable the manufacture of hull surfaces with better propulsion properties such as a slim design provides less drag and improved lift. Composite rudder flaps are available for all types of Becker high-efficiency rudders such as FKSR, SA/SC and Heracles rudders. Becker also offers composite material for rudder stocks. The weight of a rudder stock for a 8,400 TEU container ship, for example, can be reduced from 72.2t to 26.6t by using the new material.

Stern Tube Leaks

Keeping Ahead of Regs

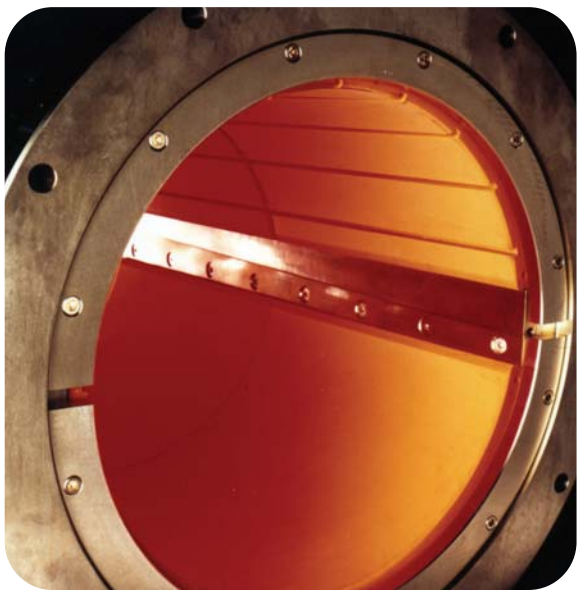
By Joseph Keefe

80 million liters of oil-based lubricants are lost to the sea annually from stern tubes alone. Regulators work to stop the problem and shipowners find more than one way to get to the Promised Land. Oil-based lubricant discharges into the marine environment have long been the subject of scrutiny, especially in terms of overall pollution rates. One study found that 457 million liters of oil enter the oceans annually as a result of shipping operations. Presentations at the International Maritime Organization (IMO) Marine Environment Protection Committee (MEPC58) put the total volume of oil-based lubricants lost at sea annually, from stern tubes alone, at as much as 80 million liters. Formerly treated as a part of normal operations, stern tube leakage is now receiving greater attention and is subject to legal and financial consequences.

Recently, **Dr. Dagmar Etkin of Environmental Research Consulting was commissioned by Castrol Marine** to establish levels of lubricant loss into the marine environment. The study, entitled, "Analysis of Accidental Spillages and Operational Leakage and Discharges of Lubricants from Vessels in Ports," focused on ports and harbors, providing indicators for the extent of lubricant pollution in the wider marine environment. Since ships spend more time at sea than in port, the actual level of annual worldwide discharge may actually be several times higher – with reliable estimates putting the figure at twice that of the EXXON VALDEZ oil spill. At least two viable and proven solutions are already on the market and the greater global focus on stern tube leakage is leading shippers, ahead of what some see as inevitable regulatory action, to seek out ways to mitigate the problem.

What's Coming and Why

According to Dr. Etkin, and with the issue being actively considered by the IMO MEPC and the European Commission, the development of Marine Protected Areas (MPAs) also may lead to tougher restrictions and more conscientious operations in these waters. Some standards for lubricants in the North Sea offshore industry, as well as some inland waterways in Europe, already exist. Etkin's report adds, "In the US, an Environmental Protection Agency (EPA) regulation requires all commercial and non-recreational vessels of 79 feet (24 meters) to have general permits under the National Pollution Discharge Elimination System (NPDS) for all operational discharges of any pollutant in US waters. This includes lubricating oils from stern tubes." Tighter regulation isn't just coming; it is here. Because stern tubes are below the waterline and contain a significant amount of lubricant oil, the shaft seals are the only barrier between the oil and the environment. Ideally, there should be no leakage to the water and the US Environmental Protection Agency says that oil lubricated stern tube seals cannot release oil to the environment under normal ship operations. Unfortunately, that's usually the case. That's not to say industry isn't doing something about it – they are.



Thordon Compac water lubricated propeller shaft bearing.

Biodegradable Lubricants

In response to heightened regulatory scrutiny, biodegradable lubricants are set to assume increasing importance. **TOTAL Lubmarine**, for example, reports that customers are showing increased interest in biodegradable lubricants as they look for ways to eliminate pollution. For stern tube lubrication, TOTAL Lubmarine offers a fully biodegradable product, Bioneptan, which has achieved approval from more than one operator.

Another player is **Castrol**, which has developed BioStat. Designed for stern tubes and gears, the product is designed to provide a high level of protection to heavily loaded bearings and gears, a lower friction coefficient than conventional oils and perhaps just as importantly, reduced environmental impact when compared to conventional lubricants.

Seawater-Lubricated Stern Tube Bearings: Zero Discharge

The simplest way to eliminate oil from the stern tube is to use seawater as the lubrication medium and non-metallic bearings in place of oil and white metal bearings. The seawater enters the forward section of the stern tube just aft of the seal and passes through the forward and then aft bearings prior to reentering the sea. The quality of the seawater supplied to the bearing is critical to long wear life. To ensure that abrasives are removed from the seawater, a water quality package employs centrifugal forces to remove particulate from the seawater stream, then collects and discharges it overboard. Seawater-lubricated bearings eliminate the aft seal as well as the storage, sampling, disposal of oil and – more importantly – the risk of stern tube oil pollution.

According to Craig Carter of **Thordon Bearings**, the installation of seawater-lubricated stern tube bearings is a smart investment. Eliminating stern tube oil pollution as a source of fines is the immediate dividend. Longer term, the higher cost of this simple yet valuable equipment yields a much quicker payout time than one might think. Carter, Director of Marketing and Customer Service, admits that the cost of Thordon bearings exceed that of the conventional oil-lubricated unit, but adds, "We expect 15 to 20+ years of service life, depending on the ship's operational profile." That's only part of the story. Shipowners using Thordon bearings realize significant savings from multiple cost centers, including:

- reduced operating costs (no aft seal)
- greater time spans between required seal maintenance
- fitting and monitoring methods to meet class society approvals
- reduced legal and business risks from oil pollution

On the Web:
www.lubmarine.com
www.castrol.com/marine
www.environmental-research.com
www.ThordonBearings.com

WR Sytem's Marine Emissions Monitoring System

Emsys Gets Type Approval

Virginia-based firm successfully completes Product Design Assessment (PDA) program with the American Bureau of Shipping (ABS) and is awarded formal Type Approval on September 1, 2010.

— by Joseph Keefe

September's Shipbuilding, Machinery and Marine (SMM 2010) trade fair in Hamburg, Germany provided WRSystems (www.wrsystems.com) with the ideal platform to launch the Emsys Marine Emissions Monitoring System to the global shipping industry. Days after the announcement of ABS Type Approval, W R Systems Senior VP Dave Edwards led potential distributors and technology partners through details of how the new combined Laser and Particulate Matter (PM) measurement technology will work.

Emsys is the world's first Quantum Cascade Laser (QCL) based emissions monitoring system to receive Type Approval for on-board verification of marine diesel engines and Exhaust Gas Cleaning Systems (EGCS) in line with the Revised MARPOL Annex VI and the NOx Technical Code (2008). The approvals cover both NOx and SOx emissions and additionally, Particulate Matter (PM). The ABS type approval ends the firm's commercial development phase of the project, which commenced in early 2009.

Simon Brown, W R Systems' Director of International Marine Business, added, "The technology incorporated in the system is a significant leap forward over the systems currently available. Emsys will set new standards in emissions reporting, and can be of significant financial benefit if incorporated within vessel compliance management and operational efficiency programs." Ship's personnel, for example, can adjust a myriad of engine inputs to provide for a cleaner and more efficient burn, based on data received from the Emsys monitoring equipment.

The Emsys design incorporates second generation laser based emissions sensing technology, combined with an 'outside the stack' PM sensor (Patent applied for). Notably, the system can sample multiple stacks while providing real-time and historical emissions reporting. In addition to MARPOL based Approvals, Emsys becomes the first system to be certified for the calculation of totalized emissions, Particulate Matter measurement and the CO2 Operational Index in line with IMO Guidelines.

With emissions reporting becoming commonplace within schemes such as TMSA (operated by OCIMF), the Emsys system is the only technology available to provide a full emissions inventory for NOx, SOx and CO2 for all installed engines and boilers. The sophisticated software suite incorporates GPS position and time stamping to allow highly accurate report generation. Additionally, the automated CO2 Operational Index Software module can simplify data collection and index generation, while increasing the accuracy of reported data.

The integral PM sensor allows reporting of Particulate matter in various formats to provide compliance data for forthcoming Emission Control Areas (ECA). The system utilizes a single PM sensor to measure specific emissions in g/kWh and mg/m3, removing the need for installation of sensors in each stack and eliminating the maintenance and cleaning requirements normally associated with this technology. Designed to meet the requirements of all current and future marine emissions regulations, further enhancements also include Ammonia Slip (NH3) measurement within Selective Catalytic Reductions Systems (SCR), planned for release subject to the finalization of IMO Guidelines in early 2011.

www.wrsystems.com

Pumping Sustained Quality

Into Marine Applications

By Joseph Keefe

The biggest name in pumps that you never heard of is ramping up its already formidable line-up of solutions for the global marine markets. For Grundfos, that's just business as usual.

In the autumn of the worst global financial crisis in the past 100 years, an obscure marine manufacturer is gearing up for big things. With the emerald green Danish countryside as a stunning backdrop, the world's largest manufacturer of circulation pumps took in DKK 17 billion in receipts last year and registered an operating profit of almost DKK 1 billion. **Founded as an independent institution in 1945 by Poul Due Jensen, this privately held firm has never registered an annual loss. The name of the company is Grundfos.**

After pioneering what is touted by the manufacturer as the world's first mass-produced pump operation in 1952, Grundfos eventually moved some production abroad in 1960. Today, Grundfos products are sold worldwide by local distributors, represented by 82 companies in 52 countries, and employing more than 16,000.

With the ingenious device of the screw of Archimedes (which first allowed the rising of water by means of a minor amount of labor) as the firm's logo and at the heart of its mission, Grundfos has embarked upon an ambitious plan to captures a much larger share of the world's marine pump market. A focused visit in September to its Danish headquarters, testing and R&D facilities provided MR with ample reason to believe that it can succeed.

Ashore and Afloat: Yesterday and Tomorrow

While the corporate focus of Grundfos has historically not been industrial, that metric is rapidly changing. The firm's pump products have always serviced a wide range of needs, with emphasis on residential water supply markets – including third world, rural efforts to bring water to those who did not have ready access to it – process engineering, machining and other general markets. Grundfos Business development Manager Kim Kirkegaard said, "We have deep roots in the pump industry – at the heart of that is the desire to provide clean water to millions." That said, Grundfos is no stranger to industrial marine requirements, many of which stem from time (and lab) tested shoreside applications.

An annual output of more than 16 million pump units (you read that right) makes Grundfos one of the world's leading pump manufacturers. Offering circulator pumps for heating and air-conditioning as well as centrifugal pumps for industry, water supply, sewage and dosing, Grundfos today is the world's largest manufacturer of circulators, covering approximately 50 percent of the world market of these pumps.

Quality clearly goes hand in hand with volume at Grundfos. As the first pump manufacturer in the world to be certified according to the ISO 9001 Quality Standard (1989), Grundfos' European production companies have also been certified according to the international ISO 14001 Environmental Standard as well as the EMAS registration, which is the European Union's environmental certificate. In addition, several companies in the Group, including the Danish, have been certified according to the OHSAS 18001 Standard, covering the work environment.

Grundfos hopes to achieve about $150 million in annual turnover in the global marine markets going forward. Kirkegaard admits, "This is not a huge part of our business, but within the industrial group, it forms a much bigger piece." Nevertheless, a focused marketing push to the marine markets that began in September will also include efforts to increase the Danish firm's footprint on the other side of the Atlantic, where Grundfos is already selling to the coast guard and naval markets.

Quietly, Grundfos has also carved out an enviable track record on the water. These successes include a healthy chunk of worldwide boiler feed pump sales, as well building titanium, non-magnetic pumps for military applications. Currently the only manufacturer to produce this type of pump, Grundfos titanium pumps have found a home on high speed superferry vessels, where these extremely light devices are important, and on oil platforms, where the highly corrosive nature of bringing large quantities of sea water to the surface might otherwise wear out conventionally constructed pumps. And for those environmentally driven operators who already employ flue gas scrubbers, the Grundfos titanium solution is unmatched for lifecycle performance.

Now producing pumps that can handle up to 820 cubic meters per hour, designed to meet the needs of vessels of up to 75,000 deadweight tons, Grundfos' marine market penetration, primarily known thus far in terms of quality alone, is poised to get a lot bigger. In a business where size matters, Grundfos will instead focus first on bringing smart technology to operators who now must watch not only fuel costs, but also their impact in various Emission Control Areas (ECA). Balancing power requirements with efficient controls will, if Grundfos has its way, bring an end to tanker operators bragging about the size of their cargo pumps, as opposed to how efficiently they move a bulk parcel ashore.

Cost: a multi-layered concept

With some marine applications adapted and derived directly from American design technology – the acquisition of U.S.-based Paco pumps as a prime example – Grundfos has actively sought out technologies from others and designed others organically from within. Driving the design of its marine offerings is the desire to provide "green marine" solutions that lessen an operator's impact on the environment. And, while there are many ways to do just that, any "green" solution that does not provide measurable savings for the end user will also be a loser when it comes to sales.

Grundfos General Industry Segment Director Morten Gylling points to the bigger picture when he insists, "The price of a pump represents only 5-to-10 percent of the total cost – with as much as 90 percent stemming from energy consumption. Pump speed controls can save as much as 90% of energy expenditures." In fact, Gylling says that payback time on the initial installation of the hi-tech Grundfos cooling pump can be as little as seven months, taking into account energy savings. Like most things, however, the devil is in the details.

Measuring Performance: Economy, Energy and Cost

Recognizing the core principle that oversized pumps waste energy and are therefore inefficient, the Grundfos marine solution suite involves customizing pump

efficiency and size to fit for purpose. Gylling says, “Bigger isn’t always better. We challenge industry to challenge us to provide customized pump solutions for individual vessels.” Outside the pumproom, there are more innovations: Customers have the option of purchasing pumps of stainless and titanium construction for weight savings and to withstand corrosive issues. Grundfos emphasizes that production is not necessarily driven by cost, but instead focused on quality.

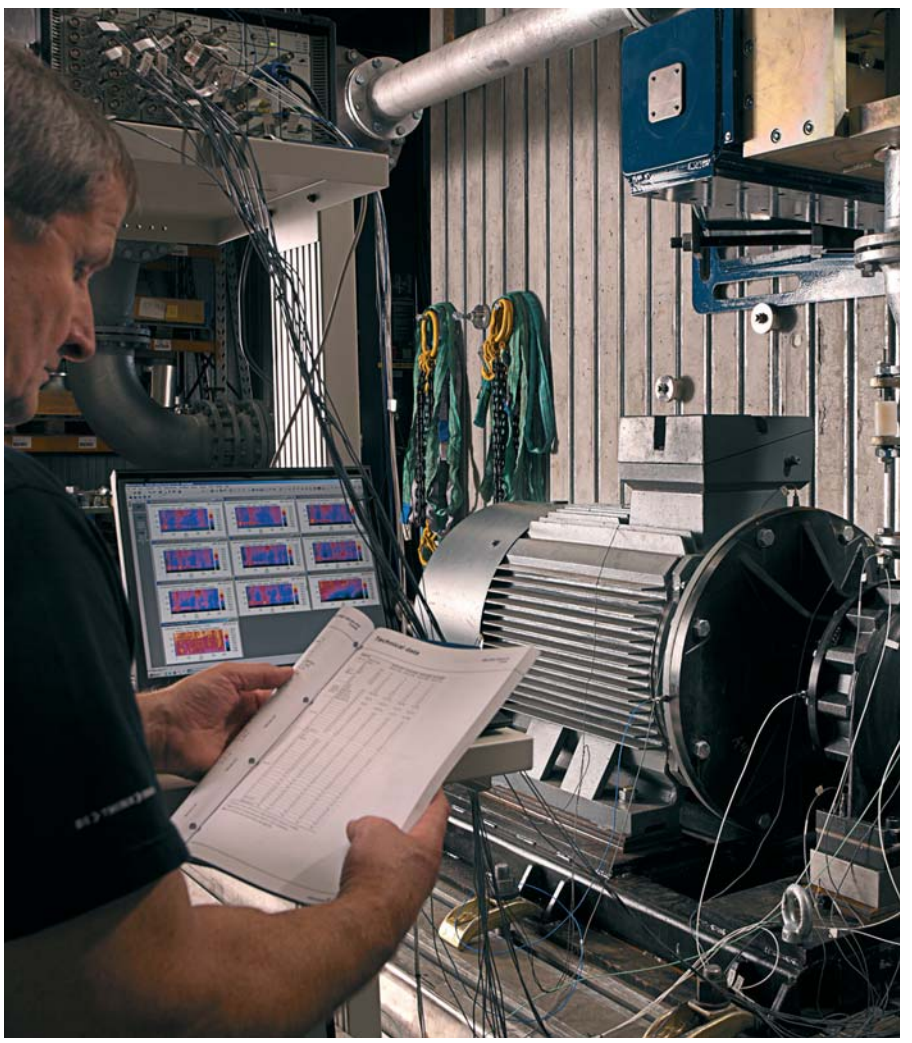
Leading the way for Grundfos is their workhorse in-line centrifugal CR pump series. The basic design of this pump covers a wide performance range, suitable for a variety of applications, from drinking water all the way to high viscosity liquids. Unique hydraulic design and new production techniques allow the CR multi-stage unit to offer high efficiency. The pumps series is offered in four material versions, intended for different applications in 11 different sizes and a wide range of motor specifications and range of temperature (-40 to 240 C).

According to Kirkegaard, the efficient speed control of cooling pump speeds for marine applications, governed by sea temperature, reduces energy consumption and costs up to 50 percent. This means that no energy is wasted cooling the engine at maximum speed when there is in fact no need for it. Breaking with tradition, the variable-speed alternative is as beneficial to the environment as it is to the ship owner's economy. Reduced energy consumption equals reduced CO2 emissions and fuel costs - an increasingly important factor in every industry.

Don’t Try This at Home

At its elaborate testing facility in Denmark, Grundfos performs destructive, as well as vibration, performance and efficiency testing. Morten Gylling explains, “The overarching goal is to KNOW, not guess what will happen in a ship-based environment.” Testing is also performed in a variety of mediums and with multiple product lines, such as salt water and chemical environments (products). Last year, $2.5 million Euro was expended in testing alone.

As one of the few pump manufacturers authorized by classification societies to do its own certifications – DNV to name just one – all pumps are primed, efficiency tested and run to 150 percent of MAWP before shipping. Extra attention is given to shaft seals, with an eye to-



wards combining wearability with superior lubrication. Ultimately, this results in dramatically reduced shaft seal failures and the Grundfos shaft seal design allows for a quicker change of seal than most standard arrangements.

You are never alone: Grundfos Global Reach

Understanding that "downtime is not an option" in the 24/7 marine markets, the Grundfos sales approach extends well past delivery and installation. WEB-based repair videos for ship personnel, utilizing today's increasingly available at-sea Broadband connections, amplifies the Grundfos motto of "You are never alone." Last year alone, Grundfos supplied WEB-based assistance for maintenance, repair and installation to marine customers, with more than 1 million downloads recorded from customers and technical personnel. Additionally, the Grundfos CR series pumps can be monitored remotely (via broadband connection), allowing shoreside technical personnel and management to know in advance when maintenance issues might crop up. A 24-hour next port-of-call guarantee for delivery of spares completes an already enviable service package.

Be/Think/Innovate

Three simple words – Be, Think, Innovate – form the basis of the Grundfos corporate culture. Not just a sales pitch or clever AD campaign, backing that up are also some simple facts:

- **BE**: means being environmentally and socially responsible, and not just in terms of the products being delivered. Grundfos has made the corporate commitment to become CO2 neutral. In 2009, the firm pledged to never again emit more CO2 than they did in 2008. Significantly, and on another front altogether, at least 3 percent of all jobs in each of its plants are reserved for the physically and mentally handicapped. Martin Gylling told MR, "Without a doubt, and as a group, they represent some of our most dedicated and hard working employees."
- **THINK**: means thinking ahead, anticipating trends and future requirements. 65 years of continual growth has fostered the aim for even greater weight with traditional partners, but also to exponentially increase market inroads in China. Kim Kirkegaard characterizes China as "our second home market." Where others might take a more conservative approach in the face of a fragile global financial recovery, Grundfos is forging ahead with plans to expand their marine sector offerings. It probably wouldn't be a good idea to bet against the firm that has never seen an annual report printed in red.
- **INNOVATE**: means the invention of new products and the acquisition of technology to do just that, when it becomes available. The methodical and carefully planned outsourcing of manufacturing to other countries – accentuating a truly global reach – allows Grundfos to concentrate on R&D in Denmark. The reinvestment of as much as 130 million Euro in this area in 2009 alone has allowed the development of custom pump solutions for wind and solar driven systems and expanding further into automation to create more efficiency.

GRUNDFOS

Key figures (million euro.)

	2009	2008
Turnover	2,293	2,556
Ordinary profit before tax	129	171
Profit bef. tax as % of turnover	5.1%	5.0%
Consolidated Equity Capital	1,145	1,034
Return of Equity Capital	6.2%	6.6%
Total assets	2,382	2,375
Number of employees	16,100	17,901

Constant: Change

Over the years – beyond its name – little has changed about the company in terms of its commitment to quality, people and the environment. The same cannot be said about its enhanced business thrust directed into the marine marketplace. The international waterfront is about to find out how and why.

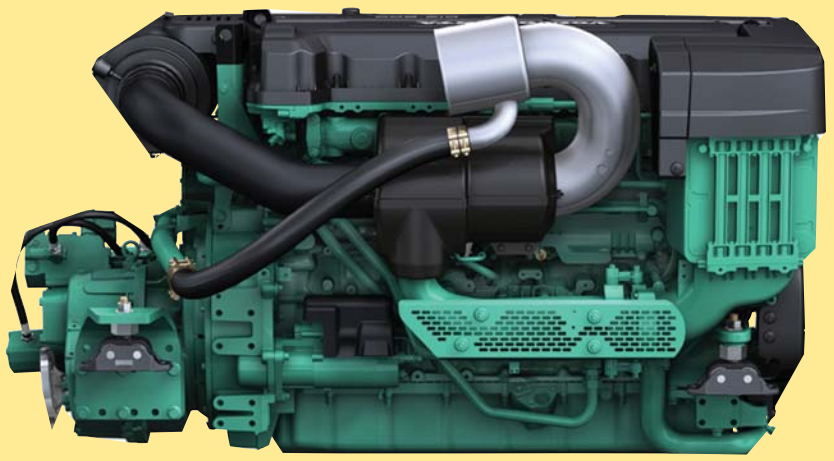
www.grundfos.com

Volvo Penta
D13 Marine Commercial Engine

Volvo Penta introduced the D13 at SMM, a new inboard marine diesel. The D13 is available in 700 hp and 800 hp versions and is designed to deliver performance with low fuel consumption and minimal exhaust emissions. It is suited for fast patrol boats in high speed operations as well as for high-performance workboats. The D13 is equipped with Volvo Penta's twin-entry turbo with pulse charging – the power in each exhaust pulse provides the pulse pressure. The D13-800 features dual-stage turbo technology which helps produce a torque of over 2900 Nm even at 800 rpm. Another feature is that the D13 retains a very high torque throughout its speed range, making it possible to maintain good operating speed even with a heavily loaded boat or in rough seas. EMS 2, the engine control system developed by Volvo, regulates fuel injection and monitors engine conditions. The system controls the unit injectors, one per cylinder, which operate at a pressure of as much as 2000 bar and atomize the fuel for optimum combustion. The result of this efficient combustion is lower fuel consumption for the D13 than the previous model, at the same power output. The D13 is also very low on noxious emissions and particulates. All versions are certified to the IMO NOx Tier 2, EU IWW, and US EPA Tier 2 requirements. They also meet the upcoming US EPA Tier 3 emission regulations – the world's most stringent. EVC-D is a new generation of the Electronic Vessel Control.

D13-700 MC Technical Data

Engine designation	D13-700
No. of cylinders and configuration	in-line 6
Method of operation	4-stroke, direct-injected, turbocharged diesel engine with charge air cooler
Bore/stroke, mm (in.)	131/158 (5.16/6.22)
Displacement, l (in3)	12.78 (779.7)
Compression ratio	16.5:1
Dry weight bobtail, kg (lb)	1450 (3197)
Crankshaft power, kW (hp) @ 2300 rpm	515 (700)
Max. torque, Nm (lbf.ft) @ 1200 rpm.	2570 (1896)
Rating	3



The new series of controls are ergonomically designed and allow for maneuvering with fingertip precision in any situation. Integrated push buttons give easy access to functions such as low-speed mode, cruise control and single-lever mode, which allows safe and easy handling.

The engines and the control system are type-approved by DNV (Det Norske Veritas) for High Speed and Light Craft.

Bureau Veritas Completes Acquisition of Inspectorate

Deal marries one of the world's largest commodities inspection and testing groups with a leading ship classification society. Unique partnership involves two global firms dedicated to eliminating risk.

Bureau Veritas has completed the acquisition of the commodities inspection and testing firm Inspectorate in a deal said to be worth about £450 million. With all approvals from relevant authorities in place, the agreement was made possible in part by financing achieved via existing and newly negotiated credit lines. Following the acquisition, Bureau Veritas' net debt will represent around 2x EBITDA, below the Group's banking covenants. At a recent press conference, Bureau Veritas billed the acquisition as a major step forward in its global leadership strategy, making it one of the world leaders in commodities inspection and testing. Headquartered in the UK, Inspectorate operates in 60 countries, employing more than 7,000 people. Its three main market segments include oil and petrochemicals, metals and minerals, and agricultural products. In 2009, Inspectorate reported £246 million in revenues, followed by organic growth of 10.8% in the first half of 2010. Inspectorate CEO Neil Hopkins now becomes a member of Bureau Veritas' Executive Committee. The newly combined firm will consist of 47,000 employees, operating from 1,000 offices and 330 laboratories in 140 countries. Combined annual revenues are expected to exceed 3 billion.

Synergy

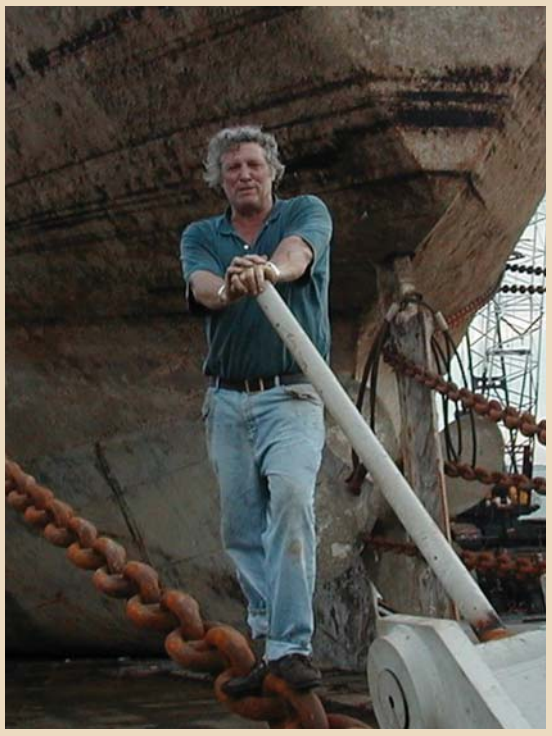
The unique merger provides a new dimension for both groups. For Bureau Veritas, known primarily in the maritime sectors as a founding member of International Association of Classification Societies (IACS) and one of world's largest ship classification societies, the access to Inspectorate's laboratory network could allow the parent company to expand its offerings to its shipowner clients. For Inspectorate, the synergies allowed by a potential increase in business from its meat-and-potatoes maritime sector are as yet unknown, but probably bode well for a firm that reported oil and petrochemical revenues to 59 percent of its 2009 revenues. In the U.S. alone, Inspectorate trailed only one other company in that category.

Bureau Veritas Chairman and CEO Frank Piedelièvre said, "This acquisition is a unique opportunity for Bureau Veritas. In addition to leadership positions in its seven businesses, Bureau Veritas now attains a critical size in the very promising commodities testing and inspection market, in which the Group will now become a key player. By integrating a company of Inspectorate's quality and reputation, we are extending our business portfolio and bolstering our international network in the US and most emerging economies."

Bureau Veritas is counting on the trans-

(Continued Bottom Left page 48)

Obituary:
David Parrot, Founder & Former Chief, TITAN Salvage



David Gray Parrot, 65, founder and former chief of TITAN Salvage, passed away last month. Parrot is survived by his wife Penny, sons Hunter and Gage, and a network of friends and family. "On behalf of the entire Crowley organization, I extend my deepest sympathies and condolences to David's family, friends and colleagues," said Tom Crowley, Jr., Crowley Maritime Corporation's chairman, president and CEO. "He was a remarkable man who founded and helped build TITAN into one of the premier marine salvage and wreck removal companies in the world today. He will be missed by many for his vision, determination and countless contributions, but most of all, for his friendship." Crowley acquired TITAN in 2005.

Founded in 1980 by Parrot, TITAN started as an undercapitalized, one-tug towing firm, struggling to expand and make a name for itself. In 1982, TITAN's tug "NESTOR" and her crew were hired as sub-contractors to assist one of the Dutch firms on a salvage/wreck removal in the Caribbean. When the job was no longer economically feasible for the Dutch firm, TITAN successfully took over the operation. This achievement was a milestone for the company, marking the first of a long series of salvages and wreck removal jobs, which continues to this day. During the '80s the company acquired more tugs, barges and cranes, enabling it to build a regional salvage and wreck removal business in the Caribbean. Parrot's long-time business partner Dick Fairbanks joined the company in 1988. With a degree in mechanical engineering and years of employment with General Electric's marine steam turbine division, he brought a high degree of technical expertise to TITAN. Equally important were his strengths in business and administration. Over the years, Parrot and Fairbanks found that it was often safer and more efficient to sub-contract certain highly specialized services than it was to provide those services themselves. This combination has proven to be the right approach for TITAN and its clients, namely owners, underwriters and P&I Clubs.

Parrot and Fairbanks accelerated the company into the salvage field on a worldwide basis, and it gained even more prominence and stature following the 2005 acquisition by Crowley. Today the company is headquartered in Pompano Beach, Fla., with offices in the UK, Singapore and Australia.

Bureau Veritas Completes Acquisition of Inspectorate

(Continued from page 47)

action to enhance earning per share from the beginning. Achieving this goal, in part, will depend on the extent to which synergies expected from improved operating efficiencies, optimization of back-office functions, IT investments, procurement, offices and laboratories can be maximized. According to Bureau Veritas, the acquisition is expected to create significant value for shareholders, with the mid-term objective of aligning Inspectorate's operating margins to those enjoyed by Bureau Veritas. With very few global players, the inspection and testing markets benefit from high barriers to entry because of the requirements for a global network of accredited laboratories. As the BV Group continues to diversify its business portfolio, the Inspectorate acquisition also further extends its position in the minerals segment, bolstered by a string of acquisitions since 2007 and primarily focused on upstream (exploration and production) activities. Inspectorate's services are positioned further downstream, notably in international trade, and a wider global footprint.

One of a Kind: Turnkey Risk Management

The transaction positions Bureau Veritas among the top three global leaders in commodities testing and inspection, a 5 billion global market with promising growth opportunities, especially as the world's financial problems ease and ocean shipping slowly gets its legs back. The move also bolsters Bureau Veritas' presence in high-growth economies. Beyond this, the deal represents the first time that a major classification society has established direct ties to a global inspection and testing firm.

For shipowners, the combined firm potentially constitutes a turnkey, one-stop shopping source of expertise, especially as the importance of bunker quality, price and quantity measurement increases in the face of expanding ECA zones. For bunker and lube oil suppliers, the chance to do business with an inspection company with deep ties to the world's shipping community could also have its advantages. Individually, and before the acquisition, both firms touted their efforts to reduce and mitigate risk for their respective market sectors. As a combined group, the new Bureau Veritas will arguably have few global peers in its expanded business portfolio.

www.bureauveritas.com / www.inspectorate.com/

HÅØY Appointed President Kongsberg Marine

Håøy

Geir Håøy, 44, has been appointed President of Kongsberg Maritime and will join the Group Corporate Management Team in Kongsberg. Håøy has worked for Kongsberg since June 1993, holding various management positions since 1996. Håøy succeeds Torfinn Kildal, President of Kongsberg Maritime since 1999.

Greenwood Joins Cortland/ Puget Sound Rope

Greenwood

Puget Sound Rope announced that Michael Greenwood has joined Cortland/Puget Sound Rope as Technical Sales Manager. He has more than 34 years in the rope industry, beginning with the family rope company, Tubbs Cordage Company of San Francisco in 1976. For the last 24 years he has been in sales and sales management with Samson Rope Technologies.

Vale Finances 12 Very Large Ore Carriers

Vale entered into agreements with The Export-Import Bank of China and the Bank of China Limited for the financing to build 12 very large ore carriers with 400,000 dwt (Chinamax vessels) at the Rongsheng Chinese shipyard. The two Chinese financial institutions will provide a credit line of up to $1.2b, which corresponds to 80% of the amount required to fund the construction of the vessels. The credit line has a 13-year total term to be repaid, and the funds will be disbursed during the next 3 years according to the construction schedule.

Oil Spill Response Appoints New Global Head of Operations

Oil Spill Response appointed Nick Hazlett-Beard as its new Global Head of Operations. The appointment follows the departure of Thomas Liebert, who after seven years is leaving for The International Oil Pollution Compensation Funds (IOPC Funds) to oversee external relations and conferences.

SPT Inc. Celebrates Milestone

On the morning of August 1, 2010, SPT Inc. reached a significant safety milestone – 365 days without a lost time injury to any of our employees.

"Be Safe, Lighter Right is our motto at SPT," said Simon M. Duncan, President and CEO of SPT. "This is a powerful achievement reached by our team and reflects the exceptional commitment to safety from our Captains, Crew, Mooring Masters, Mooring Master Assistants and shore side personnel. This achievement clearly reflects the value of employing, training, and retaining the best in the industry." This accomplishment is significant considering the risk involved with

Simon Duncan, SPT President and CEO, congratulates Captain Mike Dobson and his crew for achieving one year without a single lost time injury.

the products that SPT transfer and transport on a daily basis. The achievement is also on the heels of continued global expansion over the past three years. During this growth phase the one driving goal has been to conduct each and every operation without incident and without injury to a single team member. "A safety culture permeates all aspects of SPT's daily activities whether it is on board our LSVs, an STS operation, one of our operating bases, in our offices, or at home," said Duncan.

www.sptmts.com.

KVH to Acquire Virtek Communications

KVH Industries and Virtek Communications entered into an agreement for KVH to acquire the software company. Virtek specializes in the development and deployment of software known as "middleware" that helps commercial fleets and vessel owners manage the data transmitted to and from their vessels over different satellite communications services, such as KVH's own mini-VSAT Broadband or Inmarsat FleetBroadband.

"Virtek, its talented team of software engineers, and its proven middleware applications are an excellent fit with KVH and our rapidly expanding satellite communication business, most notably in the commercial marine market," said Martin Kits van Heyningen, KVH's CEO. "The capabilities offered by Virtek's CommBox technology complement and expand the comprehensive satellite communication concept that is at the heart of the TracPhone V7 and mini-VSAT Broadband solution. The integration of this powerful middleware technology will strengthen our competitive position in the maritime broadband marketplace, enable us to offer a wide range of value-added functionality to customers, and provide a path to enhance the efficiency and versatility of our mini-VSAT Broadband data communications network." Founded in 2000, Norway-based Virtek has sold its CommBox system to more than 700 vessels owned by 50 different shipping companies primarily based in Scandinavia and Northern Europe. Currently, Virtek anticipates 2010 revenues to be in the range of $2 to $3 million.

Resolve Refloats Cruise Ship

Resolve Marine Group refloated the Clipper Adventurer cruise ship . The vessel had run aground in Coronation Gulf, in Canada's Northwest Passage on August 27. Resolve deployed four tugs at high tide, to free the stranded vessel. The Clipper had sustained several breeches to the hull when it ran aground the rocks last month, with passengers onboard. The Canadian Coast Guard evacuated the passengers without incident before the salvage operations began.

www.resolvemarine

Resolve Opens New Orleans Ops

Hahne

Resolve Marine Group opened a New Orleans base of operations at 643 Magazine Street, Suite 304. The marine salvage, firefighting and emergency response company is headquartered in Fort Lauderdale, FL and maintains operations in Theodore, Alabama, as well as London, UK and in Singapore. Heading Resolve's New Orleans base is former Coast Guardsmen Matthew Hahne. Hahne joins the company as Director of Regulatory Affairs and will focus on OPA-90 implementation, offshore immediate response regulations, and tank barge response.

Gibdock Completes Offshore Vessel Upgrade

Gibraltar's Gibdock shipyard has completed a maintenance and upgrade program on the 6430-bhp DP2 class ROV/Subsea Service and Platform Support vessel, Toisa Vigilant. The 2005-built, 3426-dwt vessel spent more than three weeks at the yard in July and August this year for a diverse package of works. Unique was the fact that the project was two-in-one, carried out for the owner, Sealion, and the charter, WesternGeco. For Sealion, Gibdock undertook a series of conventional docking works, including the extensive overhaul of the MAK 8L26 main engines, the two bow thrusters and two stern thrusters. In addition the yard refurbished and repaired other parts of the vessel, including the sea valves, cranes and lifeboats, while also painting the underwater areas of the hull. Charterer WesternGeco contracted Gibdock to replace equipment onboard used as part of experimental seabed scanning systems.

GL-Class LNG Powered Vessel

The 25,000 dwt product tanker Bit Viking will be converted to run on LNG. It will then be the first ship with GL class using gas as fuel. Sea trials are planned for May 2011. With two 500 cu.m. tanks the vessel will have a range of 12 days. It is owned by Tarbit Shipping and operated by Statoil along the Norwegian coastline. The conversion will enable the vessel to qualify for lower NOX emission taxes under the Norwegian government's NOX fund scheme. Bit Viking has twin screw propulsion, with each screw currently powered by a 6-cylinder in-line Wärtsilä 46 engine running on heavy fuel oil (HFO). The conversion involves changing these to six-cylinder in-line Wärtsilä 50DF dual-fuel engines that will operate on LNG.

Point Eight Power Enters Licensing Agreement

Point Eight Power signed an exclusive licensing agreement with PACS Industries, Inc. to offer patented arc resistant switchgear to the oil and gas, marine and pipeline industries. Point Eight Power has licensed this technology from PACS Industries, a pioneer in arc resistant switchgear designs for heavy industry and railroad transportation, in response to growing demand from its client base.

FleetWeather Opens In Singapore

FleetWeather Ocean Services, a global provider of weather forecasting, routing, vessel performance monitoring and optimization services for the commercial shipping industry, announced the opening of a new office in Singapore:

FleetWeather Ocean Services
Centennial Tower – Level 21
3 Temasek Ave., Singapore 039190
Phone: +65 65497230

U.S. Navy Begins VVOS Trial

Jeppesen won a contract with the U.S. Navy for a six-month trial of its Vessel and Voyage Optimization Solution (VVOS). Jeppesen's VVOS technology combines ocean weather forecasts, advanced computer modeling of ship performance, and sophisticated, proprietary route optimization algorithms to potentially improve the efficiency of ship navigation by reducing fuel consumption and carbon emissions, improving ETAs and providing valuable data that can be used to help extend the life of a vessel. VVOS will be evaluated by Commander, Naval Meteorology and Oceanography Command – CNMOC - at the Naval Maritime Forecast Centers in Norfolk, Virginia and Pearl Harbor, Hawaii.

Tognum, Norinco JV Opens China

Tognum and China North Industries Group Corporation (Norinco) held a ceremony in the Chinese city of Datong to mark the opening of a joint undertaking involving the assembly of large, high-speed MTU diesel engines and emergency standby gensets. Datong is located around 300 km west of Beijing in Shanxi Province.

MAN Diesel & Turbo Signs Deal

MAN Diesel & Turbo has signed a four-stroke license agreement with Rong An Power Machinery, a Chinese marine engine manufacturer. Dr. Stephan Timmermann, Executive Board Member MAN Diesel & Turbo, and David Deng, President Rong An, signed the new agreement on behalf of their respective companies on September 7, 2010 in a ceremony at MAN Diesel & Turbo's stand at the SMM international marine trade fair in Hamburg. Rong An previously signed a two-stroke license agreement with MAN Diesel & Turbo in September 2008.

Alfa Laval Celebrates 125th

During 2010, Alfa Laval has been celebrating a milestone – creating better everyday conditions for people in over 20 industries with a broad product portfolio focused on three key technologies: heat transfer, separation and fluid handling.

The De Laval Separator Company was established in the USA in 1885. A factory to make the separators was built in Poughkeepsie, N.Y. and sales skyrock-

eted by the early 1900's. Soon the De Laval name became iconic in farming communities across America, and the separator was as common on farms as the cows. The Poughkeepsie factory remained operational until 1990. Today, Alfa Laval is known for product names that include Sharples, Contherm, Packniox, Toftejorg, Merco, Standard Refrigeration and Champ.

Ellicott Dredges 125th

Ellicott Dredges, founded in 1885, celebrated its 125th anniversary by taking a dinner cruise around the Port of Baltimore aboard the "turn of the century" paddlewheel riverboat "The Black-Eyed Susan."

Almost 150 people celebrated Ellicott's 125th anniversary including employees, customers, board members, investors, and government officials. Johansson noted that Ellicott's founding coincided with the arrival of the Statue of Liberty from France as well as the founding of AT&T.

Drew Marine Christens New HQ

Drew Marine celebrated its first year under J.F. Lehman's private equity ownership on September 13 and held a ribbon-cutting ceremony to celebrate its new corporate headquarters. Whippany Mayor, John Sheridan, Chairman and Founding Partner of J.F. Lehman & Company and former Secretary of the Navy, John Lehman, and J.F. Lehman & Company Partner and Chairman of Drew Marine's Board of Directors, Louis Mintz, joined the celebration with Drew Marine President and CEO, Len Gelosa, and the entire Drew Marine Whippany staff. Drew Marine was acquired by J.F. Lehman & Company in 2009 from Ashland, Inc.

Jo-Kell Ranked Among Fastest Growing Companies

Jo-Kell Inc., an electrical distribution and engineering company, has earned a position on the 2010 Inc. 5000 annual ranking of the fastest-growing private companies in America.

Cal Maritime Installs Ship Propeller Display

Late this summer Cal Maritime received and installed a massive 18-ton, 18-ft wide brass ship's propeller which for many years was a landmark of San Francisco's downtown business district. For several decades, the entrance to the San Francisco office building at 100 Spear Street has been graced by an eye-catching display … a highly-polished brass ship propeller. This 18-ton piece of "commercial art" was a natural, as the building was home to many offices of ocean carriers serving the West Coast. With industry consolidation, the number of maritime-related offices in the building dwindled. The owners are preparing for a major remodeling to attract a new clientele and those plans called for removal of the propeller. They began looking for a new home for it and Cal Maritime was approached as a potential recipient. After detailed discussions, Cal Maritime agreed to accept the gift, but then had to determine a location and construct a base capable of supporting its massive weight. Because of its dimensions, the propeller had to be trucked to campus via the southern end of San Francisco Bay and then back north to Vallejo. The Carquinez Bridge next to campus is the only span in the Bay area with sufficient clearance for the wide load. The unit (donated by the 100 Spear Street Owners Corp. as an asset under advisory control of ING Clarion Partners) was moved into place by Sheedy Rigging of San Francisco and placed on a specially-reinforced pad adjacent to the Technology Center, making it visible to visitors on Maritime Academy Drive.

MARTEK Helps Fight Black Smoke Vigilantes

Stringent rules against ships exhausting black smoke within sight of shore – notably in regions such as Alaska and Hawaii, where cruise ships and tankers are particularly vulnerable – are backed up by 'spotters' employed by authorities to report any infringements. Martek Marine's Vigilant calibrated funnel smoke monitoring system offers a valuable source of scientific evidence against any such erroneous allegations.

Many boilers have funnel smoke monitoring facilities installed at the newbuilding stage by the boiler OEM. Less than 1% of new tonnage, however, is currently estimated to have installations covering the main and auxiliary engines although the number is expected to rise steadily. Both newbuilding and retrofit markets will be driven by intensifying local legislation as well as pressure from charterers for owners to adopt best environmental practice (and hence avoid involvement in legal disputes).

A funnel smoke monitoring system measures the density of smoke using opacity monitoring techniques based on a transmitter and receiver installed on either side of the funnel. The transmitter sends a beam of light towards the receiver and the obscuration - the amount of light that reaches the receiver - is measured. The thicker and darker the smoke, the less light received by the transmitter: very dark smoke will result in a very low amount of light or even no light received by the receiver. The readings are sent via serial communications protocol and cabling to the Vigilant control system, where the software converts the signaled values to representation in terms of the Ringelmann Scale, which grades densities of smoke. Readings can be stored by the system for defense in the event of accusations made by authorities that the ship was exhausting black smoke in contravention of local or international regulations.

www.martek-marine.com

PPG Debuts PSX 700SG

PPG Industries' protective and marine coatings (PMC) business introduced PSX 700SG for use by United States Navy vessels and other federal marine coatings applications. The new product is a semi-gloss version of PPG's patented PSX 700 epoxy polysiloxane coating and has been engineered to meet and exceed marine coating requirements established by the U.S. government. PSX 700SG is approved on the U.S. Navy Qualified Product List (QPL) for topside and freeboard applications and meets the U.S. Navy Federal Standard Color standards for Haze Gray.

www.ppgpmc.com/northamerica

Introducing ArcticSuperStores

ArcticSuperStores combine the financial benefits of containers with the market demand for larger and more flexible storage space. SuperStores are a purpose designed and built container based solution. All standard features like internal lighting and personnel alarms are included and there are many additional advantages including: improved internal hygiene with stainless steel walls and non-slip flat aluminium flooring, floors structure that permits use of fork lift trucks and all forms of pallet lifters, 50 tons/42 UK pallet capacity in 40' Super 2 model, low power/high effect refrigeration provides reliable and accurate temperature control from -30oC to +30oC in ambient temperatures from +50oC to -30oC, high insulation values, easy to operate doors including internal opening and fire retardant properties including all steel construction and self extinguishing ISO 3582 PU insulation.

www.ArcticStore.co.uk

Pneumatic Impact Wrenches

CS Unitec has a line of explosion-proof, pneumatic impact wrenches for tightening and removing up to 2-1/8" (M56) bolts. Suitable for zones with the potential for flammable gas, mist, vapor or dust. ATEX certification for use in these hazardous atmospheres makes them safer. Five models are ATEX certified Ex II 2 GcT6 for working in hot zones and hazardous atmospheres. Two additional subsea models are designed for underwater use. With high torque and an ideal power-to-weight ratio, these impact wrenches offer torque ranges from 450 ft-lbs. to 3240 ft-lbs. **Email info@csunitec.come**

Hatteland 26" Widescreen

Hatteland expanded its widescreen range with a new 26-in. display that features the benefits of the recent Series 1 redesign. "Having analyzed product trends and received new information from the LCD manufacturers regarding long term availability of LCD panels for 26-inch displays, we have decided to release a 26-inch widescreen in a 16:10 format," said Lars Skjelbred-Eriksen, VP Sales & Marketing, Hatteland Display. Can be delivered as ECDIS compliant display. **www.hatteland-display.com**

Sailor 6300 MF/HF

In line with the introduction of the all new SAILOR 6000 GMDSS Series, Thrane & Thrane unveiled a new MF/HF radio at SMM 2010. The SAILOR 6300 MF/HF builds on previous MF/HF systems designed by Thrane & Thrane to meet GMDSS requirements and offers several enhancements including the implementation of the all new ThraneLINK solution. The SAILOR 6300 MF/HF features a highly efficient power amplifier with control hardware to ensure high performance and reliable communication in the marine bands from 1.6 to 30 MHz in TX mode, and ensures constant and full

output power on all ITU channels. It is available in 150W, 250W and 500W versions. The SAILOR 6300 MF/HF is also reported to be the first MF/HF ever to feature message replay functionality. It also features the unique new ThraneLINK solution: a uniform communication protocol that connects all the SAILOR products in a network.

www.thrane.com

Biodegradable Gear Oil for Thrusters, Rudder Propellers

Klüberbio EG 2-150 is a readily biodegradable gear oil launched by Klüber Lubrication especially for use in thrusters and rudder propellers. With this synthetic ester oil, Klüber has developed an eco-compatible alternative to mineral oil which at the same time offers the reliability required for these gears with their taxing lubrication requirements. A leading global manufacturer of propeller shaft seals subjected Klüberbio EG 2-150 to a dynamic endurance test, which it passed successfully. Oil loss via the water-side propeller shaft seals as well as oil leakage due to normal wear, accidents or operating errors are becoming a growing threat to the environment as marine traffic is increasing. The biodegradability of Klüberbio EG 2-150 is at least 60 per cent after 28 days (tested acc. to OECD 301 F), and it is not toxic to marine organisms (OECD 201, 202 and 203 tests). Klüberbio EG 2-150 has a high scuffing resistance, protecting gear teeth reliably against fretting damage even at high peak loads.

www.kluberna.com

AVEVA www.aveva.com


AVEVA's New 64-bit visualization.

AVEVA's marine engineering solutions have been developed over many years in partnership with many of the world's leading shipbuilders. Of the world's top 50 commercial shipbuilders, 43 use AVEVA software. Many of these companies have also built naval vessels, using AVEVA products for both design and production output. Today, all Indian and Korean Navy vessels are built using AVEVA software. AVEVA is also used for naval engineering in Japan, Russia, Thailand, Singapore, UK, Germany, Sweden and in the USA at NASSCO. Vessels designed with AVEVA's products include submarines, aircraft carriers, frigates and the latest stealth ships in composite materials.

BETA CAE Systems USA
SNAME Booth 207
www.ansa-usa.com

The flexibility of ANSA fits well into the unique CAE requirements of Marine engineers. The 64-bit version of ANSA is a refreshing remedy for the many issues encountered when creating highly accurate and complex marine vessel models.

CD Adapco
SNAME Booth 407
www.cd-adapco.com

CD-adapco is the leading global provider of full-spectrum engineering simulation (CAE) solutions for fluid flow, heat transfer and stress. STAR-CCM+ and STAR-CD provide the world's most comprehensive Computational Fluid Dynamics (CFD) solutions, with the STAR-CAD Series as an easy-to-use, CAD-embedded front door to the full spectrum of CD-adapco solutions, backed by more than 30 years of extensive experience in CAE consulting.

Dassault Systemes
www.3ds.com

Thanks to its PLM Online for All platform, Dassault Systèmes delivers integrated PLM Solutions to accelerate the development of innovative products that have higher chances of market success. DS' Shipbuilding PLM or Ship Life Cycle Management Solutions integrate business process management with cutting-edge tools for design, engineering and manufacturing planning.

Creative Systems
SNAME Booth 14• www.ghsport.com

Marine software - Naval architecture software - Ship stability software - Trim and stability software - Longitudinal Strength software - Marine salvage software - Onboard load calculator - Ground reaction - Oil spill - Tank soundings - Sounding tables - Ullage tables - Grain stability - Offshore platform stability - Probabilistic damage stability - Water on deck - Cargo vessels - Oil tankers - Fishing vessel safety - Tugboats - Integrated tug and barge - Dry docks - Naval ships - Submarines - Drilling units - Passenger vessels - Naval architects - Yacht designers - Salvage engineers

Faro www.faro.com

FARO Technologies design, develop, and market portable, computerized measurement devices like measuring arms, laser scanner and laser tracker and software. FARO's products allow manufacturers to perform 3-D inspections of parts and assemblies on the shop floor.

Genoa Design
SNAME Booth 302
www.genoadesign.com

Genoa Design International Ltd. is a marine production design company based in St. John's, Newfoundland and Labrador, Canada. Genoa provides production lofting and detail design services to marine and offshore industries around the world. Established in 1995 as a one-person operation, Many of Genoa's employees are graduates of the Marine Institute, a recognized world leader in naval architecture and marine systems technology training.

Herbert Engineering
SNAME Booth 312
www.herbertsoftware.com

One product offered by HSSI is Cargo-Max, which for 25 years has set the standard for shipboard stability and load management software. This proven system combines rigorously tested algorithms with a user friendly interface to provide quick and consistent results; ensuring the safety of the vessel is maintained at all times.

HydroComp, Inc.
www.hydrocompinc.com

HydroComp, Inc. was established in 1984 to provide powering analysis services to naval architects and shipbuilders. Best known for our award-winning NavCad™ software, HydroComp is regarded as the premier source for performance prediction software, consulting and knowledge.

Intergraph
www.intergraph.com

SmartMarine 3D is Intergraph's rule-based, automated design and fabrication component of its SmartMarine Enterprise software portfolio that enables offshore engineering companies, fabricators and shipbuilders to significantly increase their productivity, and to reduce the amount of design and fabrication errors compared to traditional systems.

NEi Software
SNAME Booth 102
www.neisoftware.com

NEi Nastran Finite Element Analysis (FEA) stress simulation software, along with Femap, reduce product development costs and improve time-to-market. Simulate real world structural, thermal, fluid flow, and aero-elastic behavior.

Autoship Systems Corp.
www.autoship.com

Autoship Systems Corporation (ASC) provides leading-edge software solutions for vessel design and construction and cargo management. Its full line of marine CAD/CAM software assists naval architects and builders in the design and construction of vessels from yachts and pleasure craft to large ships.

NUPAS-CADMATIC
www.cadmatic.com

Nupas-Cadmatic V6 is full of improvements that ease the work of designers and administrators. The software also comes with a new and improved user interface. Some of the most significant new features of V6 are highlighted below:

SENER
www.sener.es

From the first stage of the conceptual design, through the initial and classification designs to the detail engineering, FORAN is a fundamental tool to reduce costs and to improve the productivity in the design and construction of vessels.

Tecplot Inc.
SNAME Booth 212
www.tecplot.com

Tecplot, Inc. delivers visualization software for engineers and scientists to analyze, discover, and communicate results.

ShipConstuctor SNAME Booth 203 • www.shipconstructor.com

ShipConstructor is an AutoCAD based shipbuilding CAD/CAM software suite that provides detail design and modeling tools for production engineering of marine structures. ShipConstructor captures all information relevant to the 3D design, manufacturing, maintenance, repair and refit of complex marine projects inside of a Marine Information Model (MIM). At the heart of the model is a single relational database residing on a Microsoft SQL Server that can be integrated with related business processes and applications. ShipConstructor's unique software architecture and AutoCAD foundation provide significant competitive advantages.

SNAME 2010 Annual Meeting and Expo

November 3-5, 2010

Hyatt Regency Bellevue, Bellevue, Wash.

The Society of Naval Architects & Marine Engineers is putting the finishing touches on what it expects to be another high-level meeting of marine industry leaders from around the world. Scheduled for November 3-5, 2010, at the Hyatt Regency Bellevue, Bellevue, Wash., the SNAME Annual Meeting is the only industry event that includes all the diverse technical interests and professional specialties in naval architecture, marine engineering and marine sciences.

On tap for attendees at this year's event is the traditional mix of technical paper presentations, high-level panel discussions, an exhibition featuring some of the industry's leading vessel builders, product and system suppliers, as well as a full-roster of social and networking events to facilitate a positive atmosphere to foster serious business and long-lasting relationships. Full details of the technical program can be found on www.sname.org; select events are highlighted below.

Panel Sessions

The SNAME Annual Meeting will again feature four cutting-edge Special Panel Sessions responding to member and industry need for information on new shipbuilding technologies. 2010 Annual Meeting Panel Discussion sessions are titled:

• *Panel 1 (Thursday, 8:30 to 10:30)*

Arctic Shipping, Security and Logistics

Co-Chairs: Dan McGreer & Peter Noble

This panel will focus on marine transportation, logistics and security in the Arctic regions with a particular emphasis on current and planned Arctic shipping activities.

Panelists:

Mikko Niini – President, Aker Arctic Technology, Finland

Jim Sandkvist – Vice President, SSPA, Sweden

Cdr. David Soule – Project Director, AOPS PMO, Canada

• *Panel 2 (Thursday, 8:30 to 10:30)*

How do we improve performance in shipyards irrespective of numbers and types of ships being built?

Co-Chairs:

Bruce Rosenblatt & Joe Comer

Panelists:

Rene Leonard - Vice President of Engineering, Bollinger Shipyards, Inc.

Mike Hoard - Director of Engineering, Marinette Marine Corp., a subsidiary of Fincantieri Marine Group

Randy Nixie - Director of Engineering, VT Halter Marine, Inc.

Tom Perrine - Sr. Director of New Construction, Todd Pacific Shipyards Corporation

• *Panel 3 (Friday, 2:30 to 4:30)*

The Future of Public Sector Ship Acquisitions

Co-Chairs: RADM Thomas Eccles, USN & CAPT Paul Roden, USCG

As government ship acquisition programs continue to face declining budgets and increasing oversight, the imperative for affordable acquisitions is more critical than ever. The members of this panel session will share best practices and lessons learned based on their extensive experience with ship acquisitions in the public sector and the moderators will then lead a discussion on this very important topic based on questions from the audience.

Panelists:

Dub Summerall, USN, Executive Director Combatants Office, PEO Ships

RDML John H. Korn, USCG, Program Executive Officer (PEO) and Director of Acquisition Programs

RADM Jonathan Bailey, NOAA , Director, NOAA Office of Marine and Aviation Operations

Captain Trafford Taylor, Past Executive Vice President, British Columbia Ferry Services, Inc.

• Panel 4 (Friday, 2:30 to 4:30)

Waterborne Commuter Transportation

Co-Chairs: John Waterhouse, Elliott Bay Design Group & Mike Anderson, KPFF

Innovations in the Ferry Market. Panelists will present innovations that their organization have applied to improve ferry operations, the customer experience, or the design process. Innovations may include new analytic methods for fire modeling, HVAC control systems that reduce energy consumption, or engine exhaust systems that significantly reduce emissions with minimal impact on weight or performance. Panelists will describe objectives, present the steps taken, and provide quantified costs and benefits. The objective of the panel is to identify technology solutions that might be applicable to other waterborne transportation services.

Panelists:

Bruce Patterson, BC Ferries

James A. Towers, Kvichak Marine

Doug Russell, Washington State Ferries

www.sname.org

Expo Hours

Exhibitor Move-In

Tuesday: 11 am – 5 pm

Show Hours

Wednesday: 1 pm – 5pm

Thursday: 10 am – 5 pm

Friday: 9 am – 12 pm

Exhibitor Move-Out

Friday 11 am – 1:30 pm

Exhibitor List

Company	Booth(s)	Web Site
ABS	304	www.eagle.org
Alaris Companies	215	www.alariscompanies.com
Allied Systems Company	303	www.alliedsystems.com
Altair Engineering	509	www.altair.com
Appleton Marine, Inc	307	www.appletonmarine.com
BETA CAE Systems USA, Inc.	207	www.ansa-usa.com
CD Adapco	407	www.cd-adapco.com
Circular 677 Diagnostics	503	www.circ677.com
Creative Systems	140	www.ghsport.com
DBC Marine Safety Systems	103	www.dbcmarine.com
Deansteel	504	www.deansteel.com
Det Norske Veritas	108	www.dnv.com
Diesel & Gas Turbine Worldwide	117	www.dieselpub.com
Dometic Corporation	512	www.dometicusa.com
DRS Defense Solutions, LLC	102	www.orca3d.com
Electro-Motive Diesel, Inc	513	www.emdiesels.com
Electronic Marine Systems	214	www.emsmarcon.com
Flow Science Inc	505	www.flow3d.com
Fluoron, Inc.	107	www.fluoron.com
FormSys	308,310	www.formsys.com
General Dynamics	409,411,413	www.gdeb.com
Genoa Design	302	www.genoadesign.com
Germanischer Lloyd	Cyber Cafe	www.gl-group.com
Glosten Associates	105	www.glosten.com
GTA Marine	403	www.gtamarine.com
Guido Perla & Associates, Inc.	120	www.gpai.com
Herbert Engineering Corp., HSSI	312	www.herbertsoftware.com
Herbert S. Hiller Corporation	118	www.hillercompanies.com
Hilman Rollers	506	www.hilmanrollers.com
Hyde Marine Inc	314	www.hydemarine.com
Insultech	113	http://www.insultech.com
JMS Naval Architects & Salvage Engineers	507	www.jmsnet.com
John Deere	514	www.johndeere.com/marine
Kittiwake Americas	508	www.kittiwake.com
Knowledge Based Systems Inc.	511	www.kbsi.com
Liferaft Systems Australia	106	www.liferaftsystems.com.au
Lloyd's Register	115	www.lr.org
MAN Diesel North America	311	www.mandieselturbo.com
MARIN	402	www.marin.nl
Maritime Reporter	213	www.marinelink.com
Microtherm	408	www.microthermgroup.com
MMC International	204	www.mmcinto.com
National Shipbuilding Research Program "NSRP"	315	www.nsrp.org
Naval Sea Systems Command (NAVSEA)	510	http://navsea.navy.mil
NEi Software	102	www.neisoftware.com
Northern Lights	313	www.northern-lights.com
Northrop Grumman	404,406	www.ngc.com
Oceanic Consulting Corporation	305	www.oceaniccorp.com
Oil Filtration Systems, Inc.	111	www.oilfiltrationsystems.com
Point Eight Power	412	www.pointeightpower.com
QinetiQ North America Inc.	309	www.QinetiQ-NA.com
Quantum Marine	112	www.quantumhydraulic.com
Robert Allan Ltd.	205	www.ral.ca
Robert McNeel & Assoc.	102	www.rhino3d.com
Roxul Inc.	209	www.roxul.com
Scan Pacific Northwest, LLC	211	WWW.SCANPACIFICNW.COM
Schottel Inc.	210	www.schottel.com
Scienco/FAST Div, Bio-Microbic Inc	306	www.marinefast.com
ShipConstuctor	203	www.shipconstructor.com
Skagit Valley College - Marine Technology	208	www.skagit.edu
SNAME	114,116	www.sname.org
SOUND PROPELLER SERVICES INC.	119	www.Soundprop.com
Strand 7	502	www.strand7.com
STX Canada Marine	104	www.stxmarine.net
Techsol Marine	415	www.techsolmarine.com
Tecplot Inc.	212	www.tecplot.com
W&O	405	www.wosupply.com
Wärtsilä	202	www.wartsila.com
Welin Lambie Ltd	414	www.welin-lambie.co.uk
Western Fire & Safety Inc	109	www.westernfireandsafety.com

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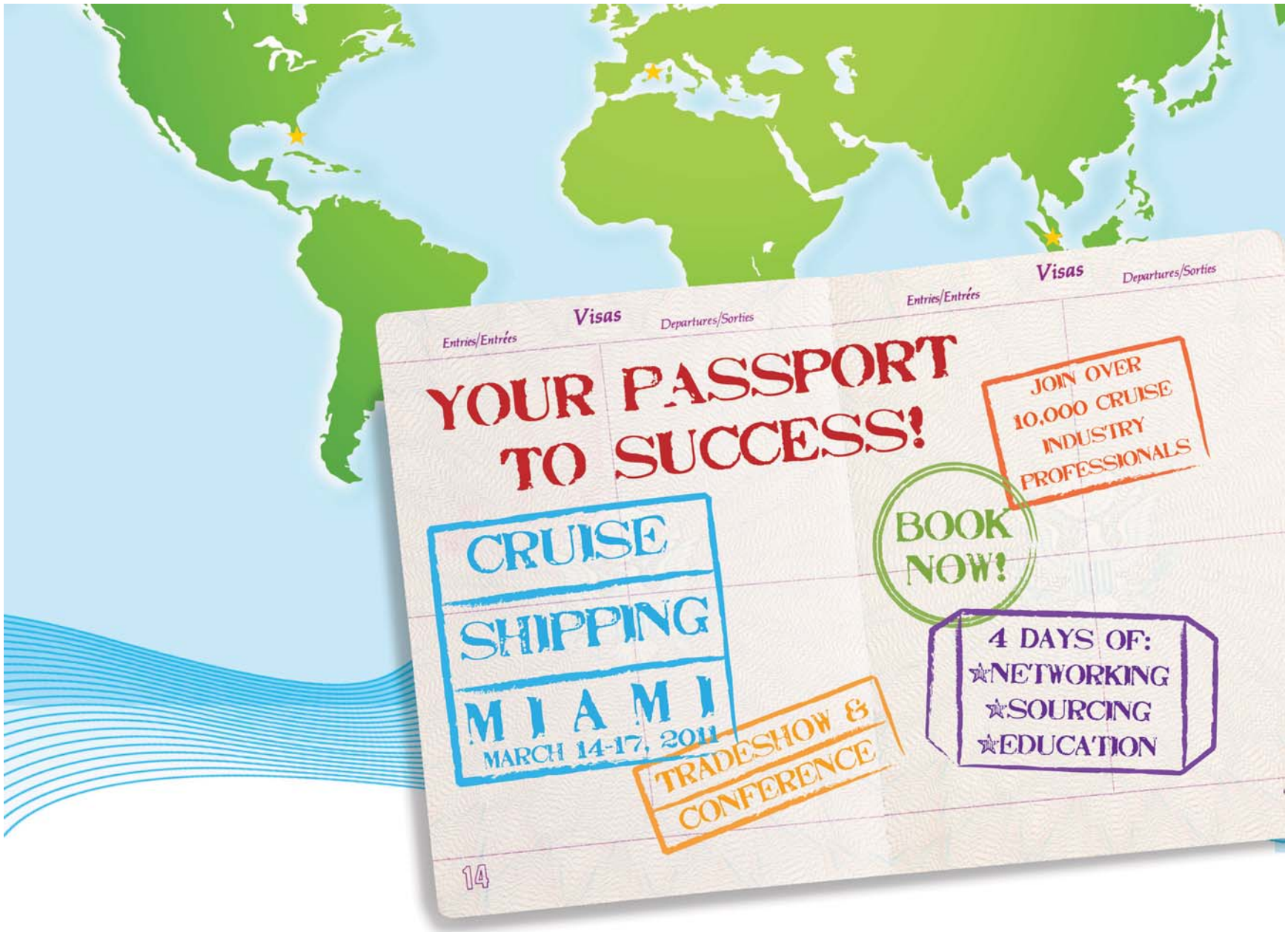

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GATEWAY TO TOMORROW'S MARKETPLACE
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BUYER'S DIRECTORY

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

AUTOMATION AND COMMUNICATION SYSTEMS

L-3 Maritime Systems, 9 Malcolm Hoyt Drive, Newburyport, MA 34232, USA

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

BOAT BUILDING AND DESIGN

Textron Systems, 1010 Gause Blvd., Slidell, LA , tel:985 661-3621, fax:985 661-3631, dmirelez@tmls.textron.com contact: Daniel Mirelez, www.textron.com

BOATBUILDER

Washburn Doughty, P.O. Box 296, E. Boothbay, ME 04544, USA

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

BRAKE SYSTEMS

Hilliard Corporation, 100 West 4th Street Elmira, New York 14901-2148, NY , tel:607 733-7121, fax:607 732-8979, rdoud@hilliardcorp.com contact: Rob Doud, www,hilliardcorp.com

BRONZE VALVES

William E.Williams Valve, Inc., 3852 Review Avenue, L.I.C., NY , tel:718 392-1660, fax:718 729-5106, sales@williamsvalve.com contact: Kevin Cole, www.williamsvalve.com

CAD/CAM SYSTEMS

Autoship Systems Corp.,, 409 Granville Street Suite 1451, Vancouver, BC V6A 1E1, Canada

CENTRIFUGES

Westfalia Separator, Inc., 100 Fairway Ct., Northvale, NJ , tel:201 784-4395, fax:201 767-3416, Francis.Kennedy@geagroup.com contact: Frank Kennedy, www.wsus.com

CONTROL SYSTEM-MONITORING/STEERING

Omega Engineering, One Omega Dr., Stamford, CT 06907, USA , tel:203 359-1660, fax:203 968-7192, kkwait@omega.com contact: Dan Jackson, www.omega.com

CORDAGE

Yale Cordage, 77 Industrial Park Road, Saco, ME , tel:207 282-3396, fax:207 282 4620, info@yalecordage.com contact: Dick Hildebrand, www.yalecordage.com

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

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

DIESEL ENGINE- SPARE PARTS & REPAIR

Goltens Worldwide, PO Box 1176, Marion, MA , tel:508 728-3128, fax:508 536 6025

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

DOOR LOCKS

The Brass Works Inc., P.O. Box 566, Deland, FL , tel:386-943-8857, fax:386-943-8810, info@marinedoorandcabinethardward.com

DOORS- MARINE & INDUSTRIAL

Advanced Structures Corporation, 235 W. Industry Court, Deer Park, NY , tel:631 667-5000, fax:631 667-5015, advstrcorp@aol.com contact: Paul Eisenberg, www.AdvancedStructuresCorp.com

Walz & Krenzer, Inc, 91 Willenbrook Rd.Unit B4, Oxford, CT , tel:203 267-5712, fax:203 267-5716, sales@wkdoors.com contact: Melissa Shepstone, www.wkdoors.com

ELECTRIC PROPULSION

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

ELECTRONICS/NAVIGATION COMMUNICATIONS SERVICE AND

Mackay Marine, 921 Seaco Avenue, Deer Park, TX 27616-1851, USA , tel:281 478-6245, fax:212 500-0013

EPIRB

Whiffletree Corporation Inc., PO Box 27, Bridgton, ME , tel:207 647-3300, fax:207 647-3700, glcl@bellatlantic.net

FENDERING SYSTEMS/ BUOYS - DOCK & VESSEL

Schuyler Rubber Co., 16901 Woodred Rd.NE, Woodinville, WA 98072, USA , tel:425 488-2255, fax:425 488-2424, Greg@schuylerrubber.com contact: Greg Armfield, www.schuylerrubber.com

FILTRATION

Boll Filter, 9822 General Drive. Ste. 180, Plymouth, MI 48170, USA , tel:734 451-4680, fax:734 451-4681, Latorre@bollfilterusa.com contact: Michele Latorre, www.bollfilterusa.com

FURNITURE

Wright Computer Products Inc., PO Box 565, Woodbury, NJ

GALLEY EQUIPMENT

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

Maritime Associates International, 3832-010 Baymeadows Rd. #407, Jacksonville, FL 32217, USA

US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

GANGWAYS

Ravens Marine, 3295 South Orange Avenue Kissimmee, FL 34744, FL , tel:407-935-9799, fax:(407) 935-9436, matt@ravensmarine.com

HATCHES & DOORS

Maritime Associates International, 3832-010 Baymeadows Rd. #407, Jacksonville, FL 32217, USA

US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

HORNS/WHISTLES

Kahlenberg Brothers Co., P.O. Box 358, Two Rivers, WI 54241, USA , tel:920-793-4507, fax:920-793-1346, EKahlen@Kahlenberg.com contact: Erick Kahlenberg, www.Kahlenberg.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

INTEGRATED BRIDGE SYSTEMS

L-3 Maritime Systems, 9 Malcolm Hoyt Drive, Newburyport, MA 34232, USA , tel:978 462-2400, fax:978 462-4497, Jon.Miller@L-3com.com contact: Jon Miller, www.L-3com.com/MPS

INTERIORS

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

Maritime Associates International, 3832-010 Baymeadows Rd. #407, Jacksonville, FL 32217, 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

US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

JOINER PANELS/FURNITURE

Maritime Associates International, 3832-010 Baymeadows Rd. #407, Jacksonville, FL 32217, USA

US Outfitters, 10752 Deerwood Park Boulevard South Waterview II Suite 100 Jacksonville, FL 32256, Jacksonville, FL

LIFEBOATS/RAFTS

DBC Marine Safety Systems, 101-3760 Jacombs Rd., Richmond, BC V6V 6T3, Canada

LIFESAVING EQUIPMENT

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

LIGHTING SYSTEMS/ EQUIPMENT

Maritime Associates, P.O. BOX 1788, Crystal Bay, NV 89402, USA

LUBRICANTS

Kobelco Eagle Marine, Inc., 366 Fifth Avenue, Suite 712, NY, NY 10017, USA

MARINE & OFFSHORE SIGNAGE

Maritime Associates, P.O. BOX 1788, Crystal Bay, NV 89402, USA

MARINE FLOORING & ACCESSORIES (IMO CERTIFIED)

Tuflex Rubber Products, LLC Marine Division, 1101 Channelside Drive Suite 244, Tampa, FL , tel:1 800-770-6008, fax:813 875-2312, marine@tuflex.com contact: Kristy Nash, www.tuflex.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

PARTS LOCATOR SERVICE

Inventory Locator Service, 8001 Centerview Parkway Suite 400, Memphis, TN 38018, USA

PARTS/SERVICE AND REPAIR

Westfalia Separator, Inc., 100 Fairway Court, Northvale, NJ 07647, USA , tel:(201) 784-4335, fax:(201) 784-4399, Klaus.Brinkrode@geagroup.com contact: Klaus Brinkrode, www.wsus.com

PROPELLERS

Kahlenberg Brothers Co., P.O. Box 358, Two Rivers, WI 54241, USA , tel:920-793-4507, fax:920-793-1346, EKahlen@Kahlenberg.com contact: Erick Kahlenberg, www.Kahlenberg.com

PROPULSION EQUIPMENT

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

PROPULSION EQUIPMENT AND SERVICES

Sound Propeller Systems, LLC, 9130 15th Pl.S Suite A, Seattle, WA , tel:206 392-0021, fax:206 392-0026, nhansen@soundpropsys.com contact: Norm Hansen, www.soundpropellersystems.com

PROPULSION ORDER TELEGRAPHS

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

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

Wing Inflatables, P.O. Box 279, 1132 Samoa Blvd., Arcata, CA 99521, USA

SATELLITE COMMUNICATIONS

Intellian Technologies, 9261 Irvine Blvd., Irvine, CA , tel:949 916-4411, fax:949 271-4183, sales@intelliantech.com contact: John Minetola, www,intelliantech.com

SEALS

Kobelco Eagle Marine, Inc., 366 Fifth Avenue, Suite 712, NY, NY 10017, USA , tel:212-967-5575, fax:212-967-6966, hawkins@kobelco-eagle.com contact: David Hawkins, www.kobelco-eagle.com

SEATING

H.O. Bostrom, 818 Progress Ave., Waukesha, WI 53186, USA , tel:262.542.0222, fax:262.542.3784, sales@hobostrom.com contact: Mike Oemichen, www.hobostrom.com

SHAFT HORSEPOWER SYSTEMS

Hillhouse Industrial Marine, 296 Knox Mountain Road, Sanbornton, NH , tel:603 566-4330, fax:603 934 5388

SHIPBOARD SURGE SUPPRESSORS

Wright Computer Products Inc., PO Box 565, Woodbury, NJ , tel:856 845 6767, fax:856 384 1145, wcpinc@verizon.net contact: David Wright Sr., www.wcp-usa.com

SURFACE PREP TOOLS

Aurand Mfg., 1210 Ellis St., Cincinnati, OH 45223, USA

TANK GAUGING AND SENSORS

Electronic Marine Systems, 800 Ferndale Pl., Rahway, NJ 07065, USA , tel:732 382-4344, fax:732 388-5111, emsmarcon@aol.com contact: Tom Priola, www.emsmarcon.com

TANK LEVELING INDICATORS

King Engineering Co, PO Box 1228, Ann Arbor, MI 48106, USA

Technical Marine Service,Inc., 6040 North Cutter Circle, Suite 302, Portland, OR 97217-3956, USA , tel:503-285-8947, fax:503-285-1379, SBrox@tms-usa,com contact: Steve Brox, www.Levelcom.net

WASTE WATER TREATMENT

Marinfloc AB, Industrivagen 10, Verekil , tel:+46 (0) 304-606 300, fax:+46 (0) 304-100 51, pl@marinfloc.com

WINCHES & FAIRLEADS

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

Skookum, P.O. Box 280, Hubbard, OR 97032, USA

Employment/Recruitment • wwwMaritimeJobs.com

Production Manager
Job Location: Bahamas, Freeport

Position Summary
Manage all aspects of Production in the shipyard and all jobs from the time it is turned over by commercial to completion. Work closely with Project Managers to ensure timely job completion and accuracy. Manage Production workers and Trade Managers to ensure the jobs are properly staffed. Overall responsibility for budget and schedule adherence.

Responsibilities of the Position:
These shall include but not be limited to the following
Plan and schedule Jobs
Manage supervisors of all skilled Labor
Ensure the review of all job specifications and Variation orders
Responsible for tracking production progress and ensuring that production schedules are adhered to and dead lines are met.
Maintain an adequate skilled workforce to meet the shipyards needs by working closely with Human Resources for the hiring and training of the labor force.
Submit to Senior Management and report on Monday, Wednesday and Friday a production report including progress on each job, percentage complete, estimated total value for each job, including estimated gross profit
Coordinate efforts with other personnel involved in production, estimating, engineering, purchasing and project management.
Reviews project proposals to ascertain time frame, funding limitations and to determine methods and procedures for accomplishment of the project.
Confers with staff to outline the project plans, designate personnel who will have responsibilities for the project, and establish scope of authority.

Required skills
Excellent interpersonal and communication skills, both oral and written
Must have excellent leadership skills and be able to motivate staff to achieve goals
Must be a self starter with the ability think independently and use good judgment in resolving issues with minimal supervision.
Must be able to function effectively in a fast-paced environment.
Must possess a positive attitude and is a Team player.
Must have a willingness to learn new skills and grow with the company.
Fluency in multiple languages is highly desirable. Demonstrated knowledge of all aspects of

the repair and refitting of ships is required.
Must be proficient in computers and have a working knowledge of standard software.
Minimum Qualifications
Minimum 15 years experience in a supervisory role in a shipyard required

Bryan Spencer
Spencer Services
P.O. Box 25187
Colorado Springs CO 80936 USA
Phone: 719-522-1077
Fax: 719-522-1095
Email: bryan@spencerservices.net
College degree preferred but not required, Technical training is required

Maritime Software Engineer
Job Location: USA, Fort Washington, PA

Summary
Join a winning software research team. CHI Systems, Inc. is expanding our Fort Washington, PA development team with a Maritime Software Engineer position and is currently seeking responsible, motivated and creative candidates.

Responsibilities of the Position
CHI Systems is seeking a candidate that has experience in the field of software engineering or computer science to assist in the development of new business including developing engineering technical solutions using systems engineering and best practices.

Skills, Education and Experience Requirements
- Bachelors or Masters degree in Computer Science or Software Engineering
- Experience with defense systems preferred, especially Naval and/or Combat systems.
- Familiar with setup, installation and administration of Linux and Windows operating systems helpful.
- Security clearance or the ability to obtain a security clearance.
- U.S. citizenship required.
- Strong writing and presentation skills
- Must be a team player, detail oriented, with the ability to meet tight deadlines.

Preferred Skills and Experience:
- Understanding of naval navigation, tactical or engineering systems.
- Prior military experience, naval preferred.
What CHI Has To Offer You
CHI Systems offers a competitive salary with a generous fringe benefit program including Health, Dental, Life and Disability insurance, along with 401(k), tuition reimbursement, flex time, casual dress, and a friendly, collaborative team environment with strong career growth opportunities.
If you are interest in this position, please e-mail your resume and salary requirements to hr@chisystems.com.
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CHI Systems, Inc.

Email: hr@chisystems.com
Web: http://www.CHISystems.com

SECOND MATE-SMALL SHIP CRUISE LINE
Job Location: USA, On Board A Ship

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THIS IS A FULL TIME SEASONAL POSITION
POSITION SUMMARY:
Ensure the safety and comfort of the passengers, ship, and crew as a Bridge Watch Officer, designated Safety Officer, and ships Navigation Officer.
MAJOR AREAS OF RESPONSIBILITY INCLUDE:
Safety Officer: Inspect, monitor and correct safety deficiencies in the firefighting system (hand held fire extinguishers, firefighting stations, bunker gear and related equipment), rescue equipment (life rafts, life rings, signal flares, trauma kit and First aid supplies, backboards), electronic navigation aids, navigation systems, watertight integrity, and for general safety hazards (i.e. carpet uplifted, etc.) Safety Officer may also be one of the designated Medical Responders (EMT qualified). Holds a position on the ship's Emergency Station Bill. Must perform requirements of Emergency Station Bill for both drills and actual emergencies to include fire, flooding, man overboard, abandon ship, medical, and spill response.
Navigation/bridge watch: Operate vessel during assigned watches to the highest professional and Cruise West standards, with the safety of passengers and vessel being paramount. Monitor communication equipment and keep logs and records as required by U.S. Coast Guard and Cruise West. Make use of all bridge tools and personnel, alerting the Captain as needed or as per orders. When in port will maintain a gangway security watch amongst other duties as assigned by Captain.
Navigation Officer: Ensure that all navigation charts and publications are kept up-to-date. Update according to the latest Notice to Mariners from the Coast Guard, which is published weekly. When notice is received make the updates on the navigation charts. Publications also have descriptions of the waters traveled through which can help update navigation charts as well.
Turnaround Day: Assist in the expeditious preparation of the ship for oncoming guests which includes loading ship's stores, taking on potable water, movement of luggage, movement of laundry, and other duties as assigned by the Captain.
Small boat (Zodiac, DIB, etc.) operations: At times, may be responsible for the safe operation of small boats, with or without guests, on short excursions.

QUALIFICATIONS:
Minimum education of a specialized or technical knowledge requiring formal training beyond high school is required. Minimum of either a Master's license for a 100-ton inland vessel or Mates license for 100-ton inland vessel required. Some positions require a Near Coastal endorsement or a higher tonnage (such as 500 GRT or 1600 GRT). 'STCW 95' compliance required.
License endorsement required for "Unlimited Radar Observer". Preferred endorsement with STCW-95 Basic Safety Training, Bridge Resource Management, Advanced Fire Fighting, Medical Care Provider, and in some positions ARPA and GMDSS.
Minimum of 1-3 years in the maritime industry with progressively responsible experience is required.
Communication skills require the ability to provide explanation of very complex or technical matters to people with little or no background in the area under discussion.
Writing skills require the ability to write text designed to communicate technical information.
Quantitative skills require the ability to perform algebraic, trigonometric or geometric operations.
Interpersonal skills require the ability to often deal with situations where satisfactory resolution of issues must be achieved.

HUMAN RESOURCES DEPARTMENT
CRUISE WEST CRUISE LINE
2301 Fifth Avenue Suite 401
Seattle WA 98121
Phone: 206-441-8687
Fax: 866-205-0255
Email: resume@cruisewest.com
Web: http://WWW.CRUISEWEST.COM/CAREERS

Survey Coordinator
Job Location: USA, New York

We are a company that handle cargo surveys on behalf of marine underwriters worldwide.
As a survey coordinator, you will be responsible for arranging and monitoring surveys and reporting back to clients. You will work closely with our network of surveyors in order to ensure that quality and service standards are adhered to. You will also be expected to take an active role in business development and marketing. The ideal candidate will be a service-minded and organized person with excellent communication and reporting skills. Previous experience of the insurance and/or shipping industry is meritorius.

Christian Bruze
International Surveyors & Adjusters (USA)
80 Maiden Lane
Suite 601
New York NY 10038 USA
Phone: 212-269-8220
Email: jobs@wkwebsteroverseas.com

PROJECT MANAGER-SHIPBUILDING
Job Location: Canada, Halifax, NS

Irving Shipbuilding Inc.Is sourcing applicants for
Project Manager, Shipbuilding on upcoming projects
Irving Shipbuilding Inc's primary office is located at the Halifax Shipyard with other locations in the Maritime Provinces. The company has been carrying out ship repair, building quality ships and fabricated modules for over 100 yrs. The company's commitment to Health, Safety and care for its employees and the environment is an integral part of our business.
Responsibilities include but are not limited to:
• Plan, organize, direct and control daily operations.
• Prepare and submit construction project budget estimates.
• Plan and prepare construction schedules and milestones and monitor progress.
• Prepare contracts and negotiate revisions, changes and additions to contractual agreements.
• Select trade subcontractors and co-ordinate their activities.
• Oversee analysis of data and information.
• Plan and manage budgets.
• Prepare reports.
Education Requirements – Knowledge & Skills:
• 5+ years as project manager in Marine/Industrial environment
• Completion of College / CEGEP / Vocational or Technical Training
• Applicants should have strong multi-disciplinary skills and a proven record of managing work in a safe and efficient manner
• Experience managing Naval projects an asset
Qualified applicants may forward their resume to:
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Halifax, NS
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John S. Boland
President
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2010 Update Highlights
GHS Version 12.00

Improvements and additions in Floodable Lengths, Longitudinal Strength, Multi-Body, Load Editor, Model Converter and Condition Graphics. Rewritten Tank-Soundings module with improved formatting and easy-to-use wizard. Oil Tank Outflow extensions for compliance with MARPOL Annex 1 reg 23. Volume vs. temperature extended to asphalt. Many additional new features and enhancements. Faster performance. 75 bug fixes.

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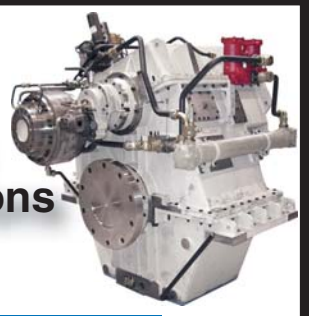

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