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MARITIME REPORTER AND ENGINEERING NEWS

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International

Navy Edition

Spending Plans, Project Overviews for 6 Leading Navies

Legal Beat
The Jones Act Offshore 2011

Security Update
Maritime Terrorism

Vessels
Sveinung Støhle on Höegh LNG SRVs

Training & Education
Diving Deep with SeaPerch

The Electric Ship
Energized to Update Standards

Five Minutes With
Roberto Monteiro,OSX Shipbuilding

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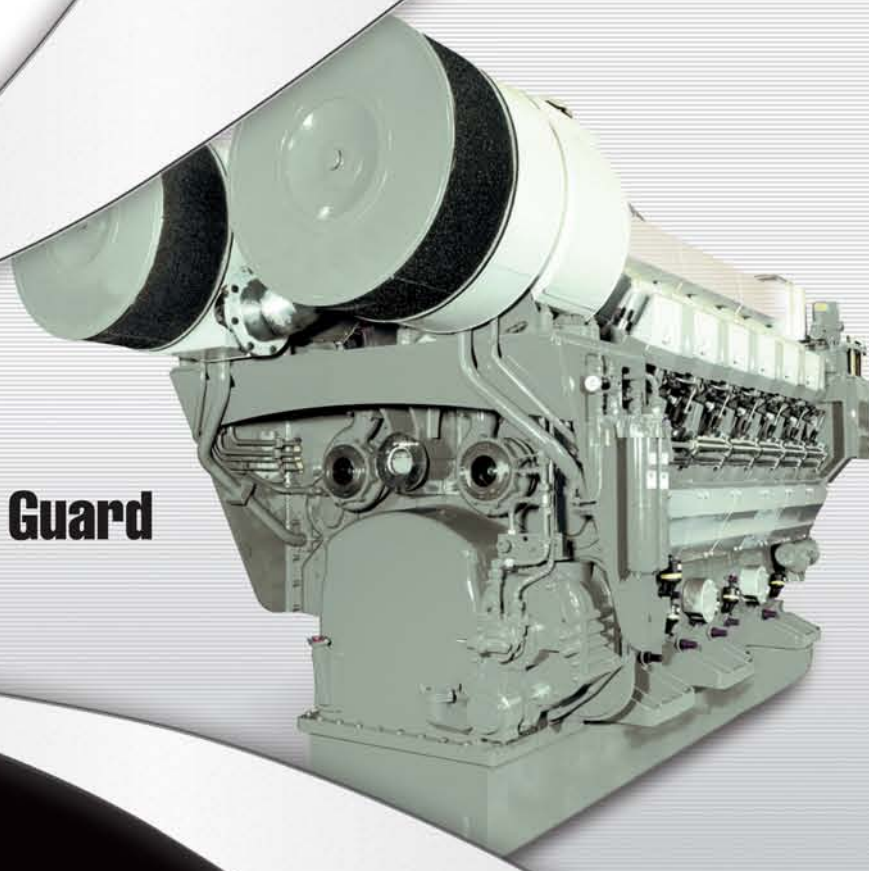

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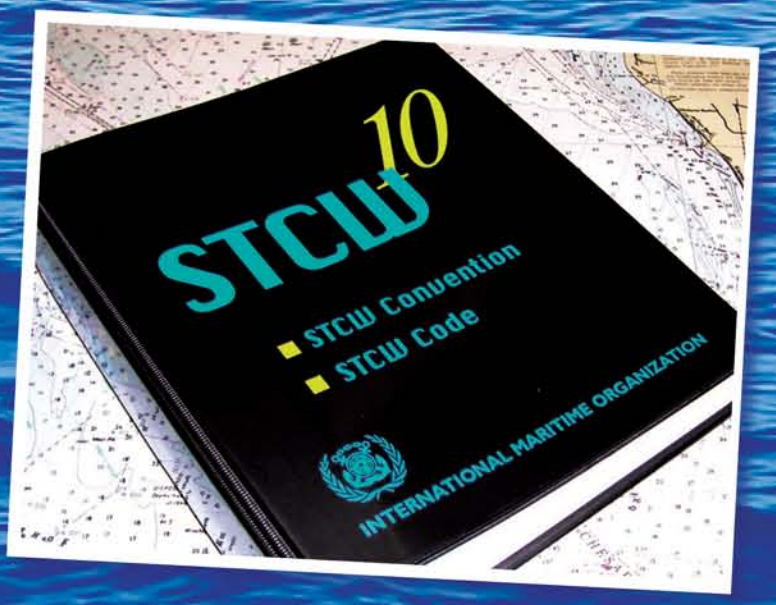

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Dockwise Delivers for Koniambo Project

There's a lot of nickel in New Caledonia. Koniambo Nickel SAS, in a joint venture between Société Minière du Sud Pacifique (SMSP), and Xstrata Nickel are constructing a metallurgical facility in the northern part of New Caledonia in the South Pacific.
***Dockwise Project Manager Frank Berrens offers his perspective** on the unique and challenging aspects of the Koniambo Project.*

What is the Koniambo Project?

Frank Berrens Dockwise was selected as the contractor of choice for the transport and logistical management of 15 onshore modules for the Koniambo Nickel Project. Once complete, the Koniambo plant will be one of the largest nickel producers in the world, and the site's facilities will include a mine, process plant, power station, water supply facilities, a port, ore and coal storage stockpiles, slag and ash stockpiles, and overland ore conveyors. Future expansion could take advantage of the large resource base, which has an estimated life of more than 50 years.

The modules for the process plant were constructed in Qingdao, China and transported to the new plant site near Vavouto New Caledonia. The fifteen modules were transported via multiple consecutive voyages onboard the Dockwise T-Class vessels the Trustee and the Transporter. The modules were then further transported inland to the Koniambo Nickel site, where they will be stacked three high into two towers and assembled to form one huge nickel processing plant.

The Koniambo plant will be one of the largest nickel producers in the world and remains on track for the first ore to be processed in mid 2012, ramping up to an annual capacity of 60,000 metric tons of nickel in ferronickel within the following two years.

What was special about the Koniambo Project?

This project was a 24/7 experience – and our chance to really showcase our engineering and logistical management expertise. Our engineering team's passion, reliability, as well as a mutual respect for the knowledge of others and of different cultures enabled us to go where no man has gone before with the Koniambo Project. An innovative aspect of the Koniambo Project was that we used our T-Class vessels the Trustee and the Transporter for the first time for a so-called side load out.

What was a challenging aspect of this project ?

We provided the innovative solutions needed for a critical aspect of this project: Resolving the ballasting challenges of keeping a large vessel level with the quayside during the load out, in which the tall modules are rolled on by means of self-propelled modular transport (SPMT) at the yard in Qingdao, China, where a considerable tidal range exists. Well, you can imagine the challenge of keeping the decks of the vessels exactly level with the quayside when we are rolling about 3,800 tons of cargo onboard in one operation. The large Koniambo modules were rolled on by means of SMPT's from the quay onto the deck to position them within millimeter accuracy. This was a unique and amazing project to be a part of.

What was another unique aspect of this project?

While every project has its unique aspects, what stands out for me was that Dockwise also provided the detailed engineering of grillages and sea fastenings to ensure the safe transport of each of the 15 modules. This was not a small job and we managed to do this within the allotted time by setting up a joint effort between our engineers in Houston, Breda, and China. This passionate team of globally located engineers, working closely with our client, enabled us to deliver time and again the high standards of quality this project demanded. The Koniambo voyages began in August 2010 and are expected to be completed in November. Dockwise operates the largest fleet of specialized vessels in the world: A versatile fleet of 19 semi-submersible, heavy transport vessels of different concepts and designs. Dockwise provides specialty services in the Heavy Marine Transport, Transport & Installation, and Logistical Management Industries. For more information, visit www.dockwise.com

Frank Berrens joined Dockwise in 2006 as a Project Manager. He is a former officer and master in the merchant Navy, who has traveled the seven seas in just about everything that floats before working in various management positions "ashore". "When I came to Dockwise, it felt great to be working on the edge of technology in the maritime world."

Frank Berrens

Resolving the ballasting challenges of keeping a large vessel level with the quayside during the load out, in which the tall modules are rolled on by means of self-propelled modular transport (SPMT) at the yard in Qingdao, China, where a considerable tidal range exists.

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With pleasure we find 2011 to be starting on much firmer footing than 2010, and I believe it time now to officially retire the phrase "global economic meltdown" from our lexicon. Undoubtedly in the coming year there will be some financial or political disturbance – at the least an untimely casualty or disaster, man-made or natural – that will shake the foundation upon which we sit. But at the moment, most signs point to a positive – though always challenging – business environment in 2011 and beyond.

The focus of this edition is navies, and in this regard I am pleased to offer here some unique insights on five global navies, including: Australia, Colombia, Italy, Japan and Turkey. **Jurrien Noot**, a former naval intelligence officer for the Royal Netherlands Navy is the author that again provides MR readers with intelligence on the budgets, fleets, projects and plans of some navies of which you may not be intimately familiar.

Edward Lundquist delivers his usual complete package of insights on the plight and plans of the U.S. Navy, and I think the headline: "**Reaching 313-Ship Goal is Not Smooth Sailing**" neatly summarizes this effort. As most of you well know, the U.S. Navy continues its historic transformation, redefining its stable of physical assets to ensure that it is adequately outfitted and armed to carry out its missions today and tomorrow. In the summer of 2010 I had the honor of spending a few hours with United States Navy Chief of Naval Operations, **Admiral Gary Roughead**. The premise of the dinner at the Admiral's residence at the Washington Navy Yard was a discussion on unmanned underwater systems, and it was here that it became crystal clear of his intentions to move forward quickly the use of robotics and unmanned systems in tomorrow's Navy. In this regard, I am pleased to announce that Admiral Roughead has accepted from us the 2011 "Seamaster Award" – an annual award presented by *MR* sister-publication *Marine Technology Reporter*, which will be personally presented at a reception in his honor at the OceanTech Expo, May 17-19 in Newport, RI.

Beyond navies, there are numerous business opportunities to explore in 2011 and beyond. As documented on the previous page, Dockwise's delivery for the Koniambo Project shows there will always be the need for engineered solutions to unique maritime problems. In our interview with **Roberto Monteiro**, CFO of OSX Shipbuilding in Brazil, you can read how $1.7 billion will be invested to create, from the ground-up, what is intended to be the most modern and efficient shipbuilding facility in this hemisphere. And as the offshore oil and gas business comes back to life, IMA reports that the floating production sector looks "very promising" (see story, page 12).

ON THE COVER

Pictured on this month's cover ...

is the aircraft carrier USS Abraham Lincoln (CVN 72) is underway in the Arabian Sea in support of Operation Enduring Freedom. Abraham Lincoln is deployed to the U.S. 5th Fleet area of responsibility supporting maritime security operations and theater security cooperation efforts in the region.

(U.S. Navy photo by Chief Mass Communication Specialist Eric S. Powell/Released)

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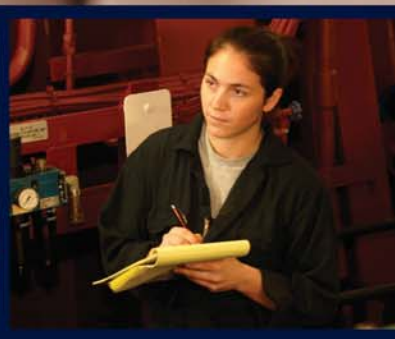

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Roberto Monteiro

CFO, OSX Shipbuilding, Chartering & Offshore Services

by Claudio Paschoa

OSX is an EBX Group company that provides equipment and services to the offshore O&G industry and is active in three different segments: shipbuilding, chartering of E&P units, and operation and maintenance services. OSX Brasil S.A raised $1.4 billion in its IPO. EBX Group is owned by Eike Batista, who according to *Forbes* is the eighth richest man in the world. OSX was launched to supply the demand for integrated service solutions to the O&G market. Roberto Monteiro CFO of OSX spoke to *Maritime Reporter* about the shipyard´s plans and expectations for the future.

(Photo C Paschoa)

Roberto Monteiro, CFO, left, and Luiz Eduardo Carneiro, CEO, right.

What is your background?

I come from a railway background at ALL, America Latina Logística (1999-2009). There, I worked in the financial area, then spent some years in Argentina, finally as CEO of ALL Argentina. After that I returned to Brazil as Director of Operations up to 2009, when I accepted the challenge to start-up OSX. I have been here, at OSX, since the very beginning of the IPO and worked throughout the whole IPO process.

OSX is a new company; tell us about its history and the relationship with OGX Petróleo e Gás.

OSX is a service company for the O&G industry. We were born because of a conjunction of factors; a very heated O&G market. Because of OGX´s strong demand, in this scenario OGX won concessions for exploratory blocks, shallow water blocks, not pre-salt or deepwater. OGX estimated its potential reserves in September 2009 to be 6.6 billion boe, but the company has been more successful in its exploration than anyone imagined. These 6.6 billion boe have a great chance to turn out to be a much larger figure. Therefore, this demand from OGX is part of this heated market.

Secondly, **we have the pre-salt, which transformed Brazil from a country with around 13 billion boe in reserves, to a country with something around 100 billion boe.** It is something that changes the whole market, the whole dynamics. Another factor in this conjunction is the local content policy established by the ANP. It is a policy that we understand to be directed at recovering the shipbuilding industry. The local content policy means that all production equipment must carry a high local content, including the shipyards that build them, clearly a policy to recover the shipbuilding industry. Brazil had a shipbuilding industry that had been at its peak in the late 70´s, early 80´s, when it was the second largest in the world, behind Japan, after that it just stopped in time. The shipbuilding industry in Brazil is still very shy for the size of the market demand. So when you align this high demand with the bottleneck created by the national content policy, which was purposefully made by the government to recover the industry, it appeared to us to be a very important and interesting opportunity to create a company. So we created OSX and signed a long term contract with OGX, our main client. We call this a reciprocal priority contract. This means that if OGX has a demand for FPSOs or production platforms, OSX gets priority for the order and if OSX has a free slot in its shipyard, OGX has priority to use the slot. So this long term contract is good for all of OGX´s demand and for all the slots OSX may have. This gives OSX a very large order book, since for OGX to produce the 6.6 billion boe, you´re talking about 48 production units, this adds up to an order book of $30b for OSX.

What is the investment figure for the OSX shipyard?

This $30b orderbook allows OSX to build a shipyard with Korean standards and size. **It will be a $1.7b investment in a shipyard, something never seen before in Brazil.** It will be the largest shipyard of the Americas, where we will bring all of Hyundai´s technology, a highly efficient, state of the art shipyard, all thanks to this order book. Undoubtedly, it will be the most efficient shipyard in Brazil.

(Photo OSX)

FPSO OSX 1

How does the HHI partnership work?

Hyundai is our partner at the shipbuilding unit, where they have a 10% stake and this 10% allowed us to sign another contract for technology transfer. Today, as we are seeking the environmental license for the shipyard, we are also detailing the shipyard specifications, working with an engineering company called EPC from the state of Minas Gerais. Along with the OSX design team working with EPC, there are six Koreans from Hyundai supervising the design, determining layout specifications and the flow of material through the production line, to maintain Hyundai standards.

Both possible sites for the shipyard, Biguaçu in Santa Catarina and Açú in Rio de Janeiro, have been approved by Hyundai.

During the operational phase, actually during construction phase, we begin training the workforce. We have an agreement that up to 50 Koreans will come over to train Brazilians for key positions in the shipyard and we may send 40 Brazilian to Korea to practice at the operational Hyundai production line.

For our workforce we are creating the ITN (Naval Technological Institute), which is a series of OSX sponsored courses to be inserted in selected technical schools and universities. The most basic courses are welders, boiler makers and helpers, which are always in demand.

What kind of ships will the yard focus on building?

We will have the level of a Korean or Japanese shipyard, with a large amount of automation, laser cutters, automated panel assembly lines, a lot of CADCAM use. We will also have a high lift capacity, which is vital. So we will be capable of building any kind of ship. We could build drill ships or even build LNG carriers. Or focus now is on the OGX orders, as they are our first client. We are also participating indirectly in Petrobras tenders. **The shipyard will also have a 1,600 ton Goliath transport crane for the dry dock. It´s the largest in the world.**

Where is the yard going to be located?

The final location for the OSX shipyard was announced on November 16, 2010 and will be in northeast Rio de Janeiro, adjacent to the Açu Port and Industrial

Complex. The forecast is for the foundations to be laid and construction work to begin in May 2011 and the shipyard should be in full operation by the first quarter of 2013. The final decision was made due to strategic factors such as the possibility of increasing the quay length by around 70% and also that the Açu location in Rio de Janeiro has a centralized geographic position between the three star oil basins in Brazil (Campos, Santos and Espirito Santo) and the synergy that the shipyard will have with other infrastructure projects being implemented in Açu, such as steel mills.

How long until the shipyard is operational?

The whole construction process take a little over two years, but there are partial deliveries, so that within a little more than one year we will receive the whole industrial area and fitting area, that is warehouses, with industrial production lines, where we can begin cutting and welding panels and begin to build the top side modules. While this goes on we continue working on the dry dock and the quay. After the second year we receive the finished dry dock and part of the quay, so the shipyard is working and ready to integrate the modules. A few months later we receive the rest of the quay. So within a little over one year of initial construction the yard is partially operational and within a little over two years it is fully operational.

Have you already received the new FPSO, OSX 1?

Yes, the basic FPSO was delivered to us by the Samsung Shipyard in late January. It originally belonged to a company called Nexus but they went bankrupt, so we were able to buy it at a very advantageous price. Since the FPSO was originally designed to work in the North Sea and Samsung delivered only a basic FPSO version, we have sent it over to the Keppel shipyard in Singapore for final outfitting and customization. They are adapting it for operations here at the Campos Basin. Including this first FPSO, we already have four orders from OGX. We will be receiving the quotes for the second FPSO by mid of October. We will be examining the proposals and negotiating with them to decide with which company we will place the order by year end. We also have orders for two wellhead platform jackets, we are working on the conceptual design for these now, and once that is done we will be quoting companies interested in building them, hopefully by the end of the year. For the FPSO we should have all the financing sorted by the first quarter of 2011 and for the Jackets for the second or third quarter of 2011.

$30B Orderbook

This $30borderbook allows OSX to build a shipyard with Korean standards and size. It will be a $1.7b investment in a shipyard, something never seen before in Brazil. It will be the largest shipyard of the Americas, where we will bring all of Hyundai´s technology, a highly efficient, state of the art shipyard, all thanks to this order book. Undoubtedly, it will be the most efficient shipyard in Brazil.

Did the $420m loan you signed with DVB and international banks have anything to do with this?

Yes it did. We acquired OSX1 using a bridge loan structure. The facility signed with DVB is the long term debt that will replace this bridge loan.

What are your views about the growth of the Brazilian shipbuilding industry?

Besides OGX demand, one of the triggers of this development, looking through an industry point of view, is that the recent Petrobras share offer and the funds it brought in were vital, as it guarantees that all the investments that were planned will go through. With this investment, there will be demand for everything related to the O&G industry, such as, fixed platforms, FPSOs, drill ships, support vessels and tankers. So we see that with this recent successful fund raising operation by Petrobras, the oil industry and the shipbuilding industry are confident that these investments will happen. About the bulk carriers segment we can see that Brazil is increasing its ties with countries such as China, so this will bring a big demand for all kinds of ships, mostly transports ships for products such as iron ore, grains and other commodities. As we all know Brazil doesn´t produce only oil, it has a thriving agricultural and mining industry and all this will be in demand and will require more ships for transport.

(Photo OSX)

Açu Superport: the OSX shipyard may be built on far left.

Green Focus for Höegh LNG SRVs

With maritime regulations necessitating the move to more environmentally friendly operations and a greater focus on safety measures, Höegh LNG's award-SRVs are helping to set the standard for green shipping.

Höegh LNG (together with its partner Mitsui OSK Lines), has proven its sound environmental credentials with two new shuttle and regasification vessels (SRVs) for GDF Suez. The vessels have many technological characteristics that set them apart from other vessels of their type.

Höegh LNG's President and Chief Executive Officer, Sveinung Støhle, said that the SRVs the GDF Suez Cape Ann and GDF Suez Neptune demonstrate the company's approach to sustainable shipping. "In our view, it is not enough merely to comply with applicable regulations and the demands of the charterer - we have an obligation to take a more proactive approach to utilize the best available proven technology to improve our environmental and safety performance," he said. Höegh LNG has been responsible for the development of the unique SRV system, an offshore natural gas terminal concept, since 2001. The SRVs are equipped to store, transport and vaporize LNG, and to send out natural gas via the turret buoy which is connected to a subsea pipeline by means of a flexible riser.

GDF Suez Cape Ann and GDF Suez Neptune recently won a noted Asia 'Ship of the Year' award. According to **Höegh LNG's Chief Operations Officer, Stephan Tschudi-Madsen** the SRVs exceeds the demands of the charterer and international and local environmental regulations. "The design of these vessels is representation of the pride we take in our crew safety and environmental performance aboard our vessels," he said.

The SRVs measure 283 x 43m, with a beam of 43.4m and a depth to upper deck of 26m. The vessels have a gross tonnage of 96,153gt each. They were built by Samsung Heavy Industries in Geoje Island, Korea and are jointly owned by Höegh LNG and Mitsui OSK Lines and are managed by Höegh LNG for GDF Suez under 20-year time charter agreements. The vessels will discharge natural gas under high pressure directly into the designated US Environmental Protection Agency- permitted GDF Suez Neptune LNG Deep Water Port, offshore Massachusetts, but can also operate world-wide as a conventional LNG carrier.

The vessels operate on a closed loop regasification system with an intermediate loop, which complies with US requirements and entails a minimal impact on the environment. Closed loop systems have no intake/discharge of seawater in the regasification process, which means that they do not harm the marine ecosystem by either taking in marine life into the plant or discharging cold water affecting the existing life. Also, this system ensures no risk of pollution from potential leaks in the seawater pumps and regasification system reaching the marine habitat. Both vessels have been classed with DNV's Clean notation and also have the classification society's Green Passport, covering all environmental issues throughout the vessels' lifecycle from construction to recycling.

Dual Fuel Concept

Another characteristic that sets these high-tech vessels apart from other vessels of their type is the fuel system. The SRVs are both tri-fuel. This concept means that they are capable of being fuelled by marine diesel oil (MDO), heavy fuel oil (HFO) or natural gas. Dual fuel engines when running on natural gas are more environmentally friendly than engines that run on HFO as they eliminate sulfur oxide (SOx) and particulate matter (PM) emissions.

Emissions Reduction

The regasification boilers onboard the SRVs are gas-fired and have low nitrogen oxide (NOx) burners and both vessels are equipped with selective catalytic reduction (SCR), keeping emission below 5ppm. The SCR units fitted on the power generators reduce the NOx emissions of the vessels and by a very healthy margin – 0.2g/kWh while the current IMO requirement is around 13g/kWh. The oxidation catalysts installed on the power generators reduce the CO emissions to below 0.165g/kWh. By comparison, the current EU requirement for diesel engines (road traffic) is 4g/kWh.

Höegh LNG also invested in an advanced biocide-free silicone-based antifouling system, developed by International Paint, an environmentally friendly coating solution which helps reduce fuel costs and reduces carbon output. Although the LNG industry prides itself on its impressive safety record, safety remains an important concern for any ship owner. One of the safety features of the SRVs are the closed loop system with an intermediate water/glycol loop, which both prevents the risk of freezing in the heat exchangers, as well as drastically reducing the likelihood of natural gas leakage into the steam system/vessel's systems. Building the vessels to meet DNV's Comfort class contributes to improved conditions for work and rest, thereby reducing the risk of fatigue-related accidents impacting the environment. The DP Class I contributes to enhanced operational safety when the SRVs on are the buoy, reducing the likelihood of accidents impacting the environment.

Strengthened Tanks

LNG vessels are typically classified by their cargo containment designs and Höegh LNG has chosen what are believed to be the 'strongest membrane tanks ever built' - reinforced GTT MkIII containment tank design with a capacity of 145,000m3.

Top: Sveinung Støhle, Höegh LNG's President and Chief Executive Officer.

Left: Höegh LNG's new shuttle and regasification vessels (SRVs).

The GDF Suez Cape Ann and GDF Suez Neptune are fitted with state-of-the-art regasification skids by Hamworthy for a total maximum output capacity of approximately 21 million standard cubic meters of natural gas per day. The vessels are also capable of operating as standard LNG carriers.

Both of the vessels underwent an extensive regas commissioning at Neptune Deep Water Port and the results were very positive. Vice President and Head of Fleet Management at Höegh LNG, Pål Gunnulfsen, says: "The approach and connection to the buoy is a sophisticated operation, but thanks to extensive advanced training, the experience of our onboard personnel and strong technical back-up during the operation, it all went very well. Commissioning of the regas plant has been completed for both vessels and we have successfully discharged natural gas directly from the vessel into the gas grid in Massachusetts through the deepwater buoy."

Gunnulfsen went on to add: "Contractors being present during commissioning have stated that these commissioning operations have been among the most effective and successful that they have experienced."

These high-technology vessels clearly demonstrate what can be achieved in the LNG transportation market to reduce emissions and protect the environment while retaining optimum operability and efficiency. Støhle says that the company will continue to take a proactive approach to environmental challenges as the company develops specialized tonnage to serve more areas of the LNG supply chain.

Donjon Shipbuilding Floats Tug in Presque Isle Bay

Late last year Donjon Shipbuilding and Repair floated the 135-ft., 10,500-hp tugboat Ken Boothe Sr. in Presque Isle Bay.

The vessel was moved from Donjon Shipbuilding's 1250-ft. graving dock to a wet berth within the facility where final construction and outfitting of the vessel will be completed in mid-February 2011. The vessel is named for Mr. Kenneth Boothe, Sr., former President of Donjon Shipbuilding and Repair, who passed away suddenly last June.

Shaver Shipdocking Tug

Capilano Maritime Design completed the design of an 80−ft. Columbia Class ASD Ship−Docking Tug for Shaver Transportation Company. The tug is being built by Diversified Marine Inc., and will be the most powerful in Shaver's fleet when delivered in 2011. Power will be provided by two high−speed MTU/Detroit Diesel 16V4000 M61 main engines, each rated 2,680 bhp at 1,800 rpm. Each engine drives a Schottel SRP1215 360 degree azimuthing thruster with 94.5-in. diameter fixed pitch propeller. Ship−docking will be performed by a heavy duty Hawser winch from Markey Machinery.

New Wind Farm Support Catamarans

BMT Nigel Gee Ltd signed a design and development contract for the construction of an initial batch of four Wind Farm Support Catamarans to be built by VeKa Shipbuilding BV at its yard in Jongert for operation by SeaZip Offshore Service BV. SeaZip Offshore Service BV is a Dutch company founded in 2010 by the shipping entrepreneurs J.R. Arends and S. D. Schakelaar to focus on the development and operation of specialized vessels for the Offshore Renewable Industry in European waters. SeaZip has identified the need for a new design of Wind Farms Support vessel to service their target market and selected BMT as the world's leading independent designer of catamarans to undertake the design in conjunction with VeKa. The 19.5 x 7 m catamarans will be powered by two 720kW MTU diesel engines via waterjets to achieve a service speed of 24 knots and a range of 300 nm. The design has been specifically configured to meet SeaZip's requirement to carry 12 passengers and enable the vessels to carry a combination of up to three standard 10-ft. ISO containers, one aft & two forward.

SAIC Wins Navy AUSV Deal

Science Applications International Corporation (SAIC) [NYSE: SAI] won a prime contract by the U.S. Defense Advanced Research Projects Agency (DARPA) to design a concept for a new autonomous unmanned surface vessel to help counter the modern threat submarine. The contract has a six month period of performance and a total value of $2 million. SAIC is one of six companies selected for Phase I of the DARPA Program.

Officially named the Anti-Submarine Warfare (ASW) Continuous Trail Unmanned Vessel (ACTUV) Phase I, the program involves a broad range of activities which include: concept exploration; technology surveys; wargaming; risk assessment; and production of a concept design, construction plan and preliminary performance specification.

New Energy Saving Bow Design

Japan's Shin-Kurushima Dockyard and Hiroshima University have jointly developed a bow form that they claim will help to increase propulsion performance. Dubbed the Shin-kurushima Knuckled-shape bow, or simply the SK-Bow, the design is built to decrease resistance in waves. The team started development on the project in 2007. The SK-Bow is designed to decrease the added wave resistance in regular waves by 30% at the maximum, a figure verified by tank testing.

Nissan's New "Eco-Ship"

Nissan unveiled a new environmentally-friendly ship to transport its all-new Leaf electric vehicle across Europe. Thanks to its unusual design, the ship dubbed The City of St. Petersburg is expected to curb fuel consumption by 800 tons — the equivalent of 2,500 tons a year of CO2 emissions.

"You can say that the ship's spherical prow design is the world's first. Thanks to this aerodynamic design we expect to see a substantial reduction in the ship's fuel consumption," said Satoshi Yako, Senior Mgr., Supply Chain Management, Nissan Motors. The City of St. Petersburg can accommodate 2,000 cars. According to Nissan, its design allows it to cut air resistance by nearly 50 percent.

"Seamaster of 2011" Named by MTR

Admiral Gary Roughead

To be honored at Ocean Tech Expo, Newport, RI, May 2011

United States Navy Chief of Naval Operations Admiral Gary Roughead has been named "Seamaster of the Year" by *Marine Technology Reporter (MTR)*, the world's leading b2b magazine and information authority serving the subsea technology industry. *Marine Technology Reporter* is sister-publication to *Maritime Reporter & Engineering News*.

"Admiral Roughead is driving a transformation of the way in which the U.S. Navy conducts its business, and he has signaled his dedication to the rapid advancement of subsea vehicle technology," said Greg Trauthwein, Editor and Associate Publisher of Marine Technology Reporter. Admiral Roughead will be accept the Seamaster Award at a special reception in his honor at the Fourth Annual OceanTech Expo (**www.oceantechexpo.com**), scheduled to be held May 17-19, 2011 in at the Newport Yachting Center in Newport, Rhode Island.

For more information on Marine Technology Reporter, visit:
www.SeaDiscovery.com
For more information on OceanTech Expo, visit:
www.oceantechexpo.com

Floating Production

Sector Looks "Very Promising"

The number of floating production systems continues to grow – 250 floating production units are now in service or available worldwide. Five years ago there were 177 units, ten years ago 119 units. In the current inventory are 155 floating production storage offloading vessels (FPSO), 42 production semis, 22 tension leg platforms, 18 production spars, 8 production barges and five floating storage regasification vessels (FSRU).

Current order backlog consists of 49 production floaters. In the backlog are 35 FPSOs, 6 production semis, 1 tension leg platform, 3 FSRUs and 4 floating gas liquefaction vessels (FLNG). Brazil continues to dominate orders for production floaters. Of the 49 production floaters on order, 19 units are being built for use offshore Brazil – about 40 percent of the order backlog. Seven units on order do not have field destinations at this time. They include 4 FLNGs, 1 FPSO in liquidation and 2 FPSOs where work has been slowed. Eleven production floaters are off field and looking for work as of mid-November (see exhibit). Not all of these units will likely find new employment. Some are candidates for scrapping. But among the available units are at least a half dozen FPSOs that appear capable of being modified and competitively redeployed. In addition, the three FPSOs and four FLNGs that were speculatively ordered are available for field deployment.

Brazil dominate orders for production floaters. Of the 49 on order, 19 are being built for use offshore Brazil – about 40% of the order backlog

The number of available units will likely grow over the next several years. A significant number of FPSOs are reaching end of field life. Three FPSOs have been on field for more than 20 years, 8 for more than 15 years and 27 for more than ten years. At least half of these units look like redeploy candidates, particularly 15 units that have been operating in the North Sea more than ten years and 2 units that have been operating more than ten years off Australia. According to Jim McCaul, head of Houston/Washington based offshore industry market analysts, "the fundamentals driving the floating production market look very strong." McCaul says "IMA is now tracking 196 offshore projects at various stages of design or planning that potentially require a floating production or storage system."

New safety and permitting regulations imposed as a result of the Macondo spill will slow drilling starts in the short term and add cost to future offshore development. But McCaul said the regulations are unlikely to have major long term impact on project development in the GOM.

"There will be added burden to obtaining permits and higher cost for equipment such as upgraded BOPs. But the burden will be insignificant in the context of the revenue potential of a large producing well." According to McCaul, development in the GOM has not stood still over the past six months. "While the drill moratorium was in place, several major deepwater projects in the GOM moved to the development stage. A contract for a production semi on Tubular Bells was awarded and contracts for production floaters on three other projects (Olympus TLP, Jack/St. Malo production semi and Bigfoot TLP) moved to the contract-imminent stage." The Macondo spill generated a flurry of proposals to suspend drilling in other deepwater areas. But according to McCaul, "the proposal by the European Commission to impose a moratorium on deepwater drilling offshore Europe was rejected. Canadian authorities decided no drilling ban offshore Canada was necessary. In Brazil, the most important floater region, deepwater is business as usual." McCaul says, "at the end of the day, the world needs oil and deepwater is a major source of future production."

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Azipod C for Wind Farm Installation Vessel

ABB won a contract to supply an integrated electrical power and propulsion system for the first wind-farm installation vessel to be ordered by Swire Blue Ocean. ABB's brief specifies that the shallow draft vessel can maximize maneuverability in depths up to 75m. The Knud E.Hansen designed vessel, which is under construction at Samsung Heavy Industries for Swire Pacific Offshore acquisition Blue Ocean, is due to be delivered in June 2012. The vessel, which is expected to be deployed in European waters, will feature an integrated electrical drive system working in tandem with four Azipod C units, fitted aft. This is ABB's new generation compact Azipod propulsion solution, which has been designed for construction simplicity, and for both bollard pull and transit requirements. The four Azipod COunits, to be delivered by ABB Marine's Shanghai factory in the second and third quarter of 2011, will each be rated at 3400kW.

Designed for installation of wind turbines and foundations, the vessel will offer a significantly improved operating weather window compared to existing ships, with crane capability of 1,200 tons, DP2 station keeping, a transit speed in excess of 13 knots and single cabin accommodation for 111 people.

Signal Completes Mobile Yard Renovations

Signal International recently completed a $9m yard and drydock renovation on its ship repair facility in Mobile, Alabama. Signal Ship Repair, SSR, the company's most recent acquisition, is the flagship vessel repair and new construction division for ships, workboats, and tugs in the Signal family of yards. The facility upgrade project was completed ahead of schedule and ready for the Transocean Deepwater Navigator. The drillship has been at Signal's Pascagoula yard for repairs and recently arrived at SSR's Panamax drydock, for hull and tank repairs, thruster removal and repair, servicing of the main propulsion system and lower hull painting. The newly refurbished Panamax floating drydock has been certified for a lift capacity of 21,500 tons. According to Bob Beckmann, senior vice president and general manager of Signal Ship Repair, "we completely overhauled the drydock." Over 500 tons of steel were replaced on the well deck supporting structure and the wing wall plating with attached internal structure. The west end well deck apron was also renewed in its entirety and all exterior wing wall coatings were redone. The south wing wall crane had two new engines installed, all the steel cables on both cranes were replaced and both cranes were inspected, tested and annual certifications renewed.

Disney Dream Delivered

(Photo of www.disneycruisenews.com)

Disney Cruise Line took possession of its newest ship – Disney Dream – from the Meyer Werft shipyard in Bremerhaven, Germany. "It gives me great pride to deliver the **Disney Dream, which is the largest ship that Meyer Werft has ever built**," said Bernard Meyer, managing partner of Meyer Werft. Meyer Werft and Disney first signed a contract to build two new ships in April of 2007. Captain Tom Forberg will officially take the helm of the Disney Dream for Disney Cruise Line.

Proposed ASTM Standard to Cover Use of Doublers in Repair

Many ship owners and operators repair ship structures with temporary steel patches known as doublers. The U.S. Coast Guard and Navy, as well as other maritime authorities, usually allow such patches until the ship's next inspection period, which can be as long as three to five years from the date of repair. Despite this situation, there is not currently a standard for repairing steel hull ships with doublers. Subcommittee F25.01 on Structures is now working on a proposed new standard that will cover doublers: ASTM WK30649, Guide for Steel Ship Structure Repair Doubler Plate Design. The subcommittee is part of ASTM International Committee F25 on Ships and Marine Technology. All interested parties, particularly ship owners and operators, are invited to participate in the development of ASTM WK30649. According to Chao H. Lin, naval architect, Maritime Administration, U.S. Department of Transportation, and chairman of F25.01, the standard will be based on a research paper written by Pradeep Sensahrma, U.S. Coast Guard. Sensahrma will be helping F25.01 to convert the paper into ASTM WK30649. ASTM International welcomes and encourages participation in the development of its standards. For more information on becoming an ASTM member, visit www.astm.org/JOIN.

Shifting Risk

To the Parties at Fault

All of us have probably had the experience as a kid of being blamed for something that was not our fault – and then feeling indignant over being punished for something we did not do. As an adult, indignation might turn to outrage if the punishment involved a million-dollar legal judgment.

That's exactly what can happen to businesses that do not take adequate precautions when it comes to managing third-party relationships. Protecting a company from liability for others' actions requires putting a process in place for transferring risk and then being vigilant about following the process. With foresight and planning, unpleasant and expensive surprises can be avoided.

Real-World Consequences

Here are just a few examples of what can happen when risk transfer is not adequately addressed before an issue occurs:

- A mom-and-pop marina buys fuel from a supplier and sells it to a customer. The fuel, which turns out to be contaminated, damages the customer's vessel. Both the fuel supplier and the marina are named in the ensuing lawsuit. Without a contractual agreement in place spelling out defense and indemnity obligations, the marina at a minimum would need to defend itself in court and may be held liable for damages caused by someone else in the supply chain.

- The scaffolding a painting contractor has erected collapses, resulting in injury to a pedestrian who just happens to be walking by. The port that hired the painting contractor finds out after the fact that the contractor has no liability insurance. Even though the painting contractor is the party who erected the scaffolding in a faulty manner, the premises owner may also be brought into the dispute.

- A boat dealer decides to improve the street appeal of the showroom and hires a company to erect new awnings. At the dealer's insistence, the company provides proof of insurance. A worker falls from a ladder and is injured. By taking the extra steps of being named as an additional insured, addressing defense and indemnification and having liability waived, the boat dealer can decrease the risk of being exposed to costs and damages associated with the accident by way of increasing the protection afforded by the awning company and its insurer.

- A cabinet installer is hired to work on a yacht being refurbished in a shipyard. While screwing long anchor bolts into a bulkhead, the installer inadvertently punctures a fuel line, causing thousands of dollars in damages. The cabinet installer has a general liability policy, but does not have ship repairer's legal liability insurance. If adequate risk transfer measures were not taken, the shipyard may be embroiled in litigation and could share liability for damage to the yacht.

The bottom line is that when the liability aspect of a contractual relationship has not been established ahead of time, the decision of who will pay defense costs and damages moves into the legal arena. Lawsuits not only create uncertainty and expense, but also often adversely impact businesses by consuming management's focus as well as potentially harming the business's reputation with customers and potential customers.

Protection through Risk Transfer

Every marine business has vendors of one type or another. A shipyard may hire painters, carpenters, electricians and mechanics.

A marina may sell goods it purchases from a supplier. Vessel owners, tug boat captains, terminal operators – they all depend on third parties to provide their goods and services to customers.

No business, big or small, wants to be financially vulnerable to damages or claims due to the acts or errors of a third party. Although the elements of transferring risk can be complex, both the agent and the insurance company's risk control representative can work with a business to establish an effective process by offering guidance, templates and case-by-case recommendations when necessary.

As a maritime business works with its agent and insurance company, there are a few common steps to help address risk transfer:

1. On the premises. Don't let contractors or subcontractors on the premises without first making sure they have liability insurance. Require a certificate of insurance as proof. Check it to make sure there is coverage for general liability, workers compensation for the contractor's employees, and commercial auto liability (because they drive to your facility). How much liability insurance to look for depends on the circumstances, but $1 million coverage is usually a reasonable minimum for small jobs, rising to $10 million or more for large contracts.

2. Name and waive. Your vendor contract should require the contractor to add your company as an additional insured on all of its potentially applicable policies. Next, your contract should contain appropriate waiver, defense and indemnification provisions, which place the liability for the contractor's actions on the contractor. Depending upon the facts, circumstances and governing law, it may be extremely difficult if not impossible to protect against all liability for the acts of others, but by being thoughtful and thorough, you can help insulate your company from avoidable exposure.

3. Establish a central point of control. A company should have a person who is in charge of the process of managing third-party risks. This person should review certificates of insurance, document the "name and waive" completion, and follow through on certificates that lapse (most insurance renews annually, so certificates should be updated each year). This person also should be the authority with the final say when a contractor shows up at the front gate without an insurance certificate and insists that "the boss" said he does not need one "this time."

4. Set a deadline. No one should expect contractors to comply with a new risk-transfer program overnight. Set a deadline one or two months into the future, inform all contractors and vendors about your expectations (in-

cluding that they will not be allowed on the premises without a certificate of insurance), and then follow through. Requiring proof of insurance and risk transfer is a well-established protocol throughout the business world. If a contractor or vendor refuses to comply or complains, it may be time to look for an alternative contractor or vendor. Since you are their source of revenue, they should be willing to take these steps to maintain the business relationship.

The real benefit of effectively managing third-party risk assessment and transfer will come when something happens or when a lawsuit is filed – and your company may be able to redirect the impact of the legal battle to where it belongs: the contractor who actually caused the problem.

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Maritime Terrorism

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Just after midnight on July 28, 2010, the supertanker M Star was transiting the Strait of Hormuz carrying 270,204 tonnes of crude oil from the United Arab Emirates to Japan. The master reported an explosion off the tanker's starboard quarter that slightly injured one crewmember. The ship diverted to the Port of Fujairah for examination. Investigation revealed a large rectangular dent in the hull starting at the waterline and running up to the main deck. The lifeboat and its launching mechanism were blown away. Moderate damage was experienced in the machinery spaces and the living quarters on the starboard side. **Initial speculation was that the damage was caused by a freak wave or a collision. Further investigation indicated that a more likely cause was an explosion exterior to the vessel.** This was buttressed by the announcement on an Islamic website by the Abdullah Azzam Brigades that one of its members had died in a suicide attack against the tanker. The U.S. Navy would only say that its investigation is ongoing, while the Government of Oman reported that residue of explosives was found on the hull and that radar analysis indicated that a small boat approached the tanker in the minutes before the explosion. The US Maritime Administration (MARAD) later issued an Advisory cautioning all vessels transiting the Strait of Hormuz, particularly at night, to exercise increased vigilance and caution, with increased monitoring of small boat activity. Finally, on November 19, 2010, MARAD issued a second advisory confirming that the claim of the Abdullah Azzam Brigades was valid and that the M Star had been unsuccessfully attacked by a suicide bomber in a small vessel.

The scenario with the M Star is strikingly similar to that surrounding the October 6, 2002 attack against the supertanker Limburg off Yemen. There, a speedboat packed with explosives was rammed into the side of the tanker as it approached the Port of Al Mukalla. In addition to the operators of the speedboat, a Bulgarian sailor on the tanker died in the attack, which set the tanker on fire and spilled approximately 50,000 barrels of crude oil. The Aden-Abyan Islamic Army, a terrorist group linked to Al Qaeda, claimed responsibility.

Recently, Islamic terrorists issued a press release stating that they are undertaking a series of low level, inexpensive attacks on their enemies. All these attacks are viewed by them as successful, not because they necessarily destroy the primary target, but because the attacks require their enemies to expend extraordinary resources in defensive measures.

It is only a matter of time before Islamic terrorists again strike a maritime target.

The question is whether the attack will be successful (like the 2002 attack on the Limburg) or unsuccessful (like the 2010 attack on the M Star). The difference in outcome will be partially dependent upon luck – the 2010 suicide bomber was particularly inexperienced. It will also be heavily dependent upon whether effective counter-measures have been taken. Like the situation with the Somali pirates, the counter-measures are a shared responsibility between governments and the owners and operators of ships.

[Image Courtesy of Google Earth]

The Strait of Hormuz, where on July 28, 2010, the supertanker M Star was transiting carrying 270,204 tons of crude oil when the master reported an explosion off the tanker's starboard quarter.

Unlike the current problem presented by Somali pirates, which is largely confined geographically, the problem of maritime terrorism has no geographical limits.

Modern maritime terrorism appeared on the scene years prior to the Limburg attack off the coast of Yemen.

In 1961, a Portuguese rebel group captured the Portuguese cruise ship Santa Maria in the Caribbean Sea off the coast of Venezuela. The ship's third mate was killed in the assault. The goal of the rebels was to protest the brutal dictatorship of Portugal's Antonio Salazar. The rebels were eventually granted asylum in Brazil, but not before the US Navy tracked down and surrounded the ship.

The second significant act of maritime terrorism did not end peacefully either. On October 7, 1985, four individuals associated with the Palestine Liberation Front ("PLF") terrorist group seized control of the Italian cruise ship Achille Lauro as it sailed waters of the eastern Mediterranean Sea. When the Israeli government refused the terrorist's demands to release 50 Palestinian prisoners, the terrorists shot a disabled American passenger and threw him and his wheelchair overboard. Egyptian President Hosni Mubarak persuaded the terrorists to surrender and allowed them to board an airplane bound for Tunisia, the location of the PLF headquarters. U.S. Navy fighter planes forced the aircraft to land in Italy, where the terrorists were arrested. Several terrorists, including the leader Mohammed "Abul" Abbas, managed to escape or otherwise avoid justice.

Suspected members of the Liberation Tigers of Tamil Eelam ("LTTE") sank an inter-island ferry in Trincomalee harbor, Sri Lanka on July 25, 1999. LTTE divers planted a bomb under the vessel, killing one crew member and injuring another. The LTTE, designated as a terrorist group by the United States, utilizes guerilla warfare and terrorism in its attempt to establish a separate Tamil state in northern Sri Lanka.

On September 25, 1999, LTTE guerillas attacked a freighter as it passed 50 miles off the coast of Sri Lanka. They fired rocket-propelled grenades, injuring a crew member and holing the vessel, and briefly occupied the freighter before the Sri Lankan Navy intervened. Four LTTE boats were destroyed.

On February 25, 2000, suspected Moro Islamic Liberation Front guerillas placed bombs on buses that exploded while the buses were on a Philippine inter-island ferry. In the resulting fire, 39 people died and 41 were injured.

On October 12, 2000, guerillas affiliated with the Al Qaeda terrorist organization staged a suicide attack against the U.S. Navy destroyer USS Cole while it was in the port of Aden, Yemen. The attack resulted in the deaths of 17 U.S. sailors and the injury of 38 others. The destroyer was severely damaged and almost lost.

On May 26, 2001, suspected Abu Sayyaf guerillas hijacked an inter-island ferry in the Philippines after boarding it from several power-boats. After being robbed, the 38 passengers were released.

On February 27, 2004, the Philippine ferry Superferry 14 suffered a large explosion while carrying approximately 800 passengers from Manila to Bacolod. More than 100 passengers died in the explosion and ensuing fire. The ferry burned and sank, but was subsequently salvaged. The terrorist group Abu Sayyaf claimed responsibility for the attack. Security on other Philippine ferries has since been increased.

At the Israeli port of Ashod on March 13, 2004, two young Palestinian terrorists set off explosives strapped to their bodies, killing themselves and 10 Israelis, most of whom were port employees. The terrorists were smuggled into the highly secure port area inside a shipping container. The militant Islamic group Hamas and an offshoot of the PLO claimed joint responsibility for the attack. The fuel tanks in the port may have been the planned target. Security at the port has been tightened since the attack.

On April 24, 2004, a dhow approached the Khawr al Amaya crude oil loading terminal in the Arabian Gulf off the Iraqi port of Basra.

As a U.S. Navy small boat pulled up alongside to investigate, persons on the dhow set off a powerful bomb, destroying the dhow, damaging the Navy boat, and killing two U.S. Navy sailors and one U.S. Coast Guard sailor. A short time later, a speedboat approached the oil terminal, but rapidly departed when it was challenged. The oil terminal suffered minimal damage and the nearby terminal at al Basra was untouched, but both were closed for a short period as a precautionary measure. U.S. forces then established a two-nautical mile exclusion zone around the terminals.

On May 4, 2004, a car bomb attack in the Pakistani port city of Gwadar killed three Chinese engineers. The engineers were in Gwadar, located on the coast approximately 200 kilometers west of Karachi, to assist in the construction of a deepwater port facility. The terrorists who detonated the car bomb were apparently attempting to stop construction of the new port facility. Immediately after the incident, the Pakistani government significantly increased security at the port.

A powerful parcel bomb exploded at the Port of Karachi East Wharf on May 26, 2004. The bomb had been delivered to the Karachi port authority building just before it exploded. The attack killed one Pakistani laborer and injured three others. There has been no claim of responsibility, but Karachi is a center of activity for extremist groups.

The above list is representative, not all inclusive. It shows the continuing prevalence of maritime terrorism, the variety of its methods and targets, and (most importantly) its wide geographic scope.

Piracy and armed robbery at sea are wide-spread problems, but in their most virulent form are limited to waters in the vicinity of Somalia.

From the perspective of the merchant mariner, the major difference between piracy and maritime terrorism is that the pirate wants very much to protect the ship, its crew, and its cargo so as to maximize the ransom. The terrorist, on the other hand, generally seeks to destroy the ship and its cargo and kill the crew so as to make a political statement, albeit twisted.

As with piracy, the approach to countering maritime terrorism requires a joint effort on the part of government and the maritime community. Governments must not only increase their usual security efforts – maritime patrols, etc. – they must also enhance their intel efforts – intercepting suspicious, clandestine communications and infiltrating terrorist groups. These are difficult tasks with no easy measure of success, but they are necessary. The maritime community must enhance efforts to protect itself. The Best Management Practices, developed to counter piracy, can be equally valuable in countering terrorists. The difference is that these practices must be utilized worldwide, not just in the Indian Ocean. Continual vigilance must be exercised. Lookouts must be alert for suspicious activity, not just in the Gulf of Aden, but in the Gulf of Mexico and the Port of Hamburg.

We live in a dangerous world – and must act accordingly!

The Jones Act

Offshore 2011

About the Author

Jonathan K. Waldron, a partner at Blank Rome LLP, concentrates his practice in maritime, international, and environmental law and counsels clients in areas such as: citizenship and manning issues, coastwise trade, vessel/facility operations, and legislative and regulatory affairs. Mr. Waldron is ranked by

The last two years have proven to be tumultuous with regard to planning for and conducting deepwater Outer Continental Shelf (OCS) operations offshore. These operations require sophisticated vessels and equipment to work at great depths. Depending on the type of work actually being performed in support of such deepwater operations, there are not sufficient coastwise-qualified U.S.-flag vessels that are both capable and available to conduct such work. In the aftermath of the tragic Deepwater Horizon incident in 2010, including the implementation of more prescriptive regulatory and environmental requirements, as well as the deepwater drilling moratorium, as we look over the horizon, it is essential that industry do everything possible to ensure that no additional impediments arise that will further stall the important recovery of offshore energy development in 2011. This article will review the various agency administrative and legislative actions implicating the Jones Act that could adversely affect offshore operations in 2011.

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Customs and Border Protection (CBP) Actions

On July 17, 2009, CBP proposed modifying or revoking 20 rulings issued over a span of more than 30 years, in which CBP had made determinations as to whether certain equipment would be considered vessel equipment or merchandise, and hence whether the item could be carried and used aboard non-coastwise-qualified vessels between coastwise points. CBP reasoned that it had made errors in issuing the interpretive rulings and therefore needed to provide more consistency and clarity to the offshore industry. This proposal came shortly after CBP's revocation of a ruling earlier in 2009 in which it determined that multi-function well head assemblies called "Christmas trees" could be considered vessel equipment and therefore could be transported between coastwise points and installed by foreign-flag vessels. In its revocation notice, CBP stated that withdrawal of the "Christmas tree" ruling was necessary pending further clarification of the definition of vessel equipment and review of past rulings in which CBP determined certain items carried aboard a vessel were equipment and not merchandise. On September 15, 2009, CBP withdrew its July 17, 2009 proposed modification and revocation notice amid criticism from interested parties and industry groups regarding, among other things, an expedited process by which CBP was seeking to modify the rules regarding coastwise transportation of vessel equipment which would have become effective 60 days after issuance of the final decision, despite the broad ranging and significant implications of the policy changes.

As suggested by many facets of industry, CBP initiated a rulemaking proposal utilizing the Notice and Comment procedures under the Administrative Procedure Act by submitting the proposal to the Office of Management and Budget for review in March 2010. However, the rulemaking was withdrawn by CBP and the Department of Homeland Security on November 15, 2010 amid concerns from various federal agencies that, among other things, the proposal could have serious foreign trade implications.

It is noteworthy, given the controversy surrounding whether a particular item is vessel equipment or merchandise since the revocation of the 2009 "Christmas tree" ruling, CBP has not issued any rulings involving the transportation of equipment or merchandise to points on the OCS since then, leaving the offshore industry in a state of uncertainty with regard to operations offshore. This is because although this would appear to mean that most of CBP's OCS-related rulings issued over the last 30 years remain valid as precedent, subject to CBP review on a case-by-case basis, CBP is now reviewing its policy with regard to the issuance of Jones Act rulings offshore and it is unclear at this time what that policy will be.

Congressional Action

Following the Deepwater Horizon incident, Congress was extremely busy with proposed spill legislation during the summer of 2010. In this regard, the House passed H.R. 3534, the Consolidated Land, Energy, and Aquatic Resources Act of 2009 (the "CLEAR Act"). Among other things, this bill would repeal limits of liability, increase the minimum level of financial responsibility for an offshore facility to $1.5 billion, authorize recovery for non-pecuniary damages and human health injuries, and substantially revise the oil spill response planning and safety regimes for vessels and facilities. It also has numerous provisions related to oil and gas activities offshore, including proposed legislation that would have the practical effect of stopping most deepwater projects offshore if enacted due to restrictions imposed on offshore workers and foreign-flag vessels as follows:

- **Section 220: Manning and Buy and Build American Requirements**

This provision would preempt the current regime and apply U.S. immigration laws offshore, which would have the practical effect of requiring foreign workers to obtain H2-B visas in order to work offshore. Not only do H2-B visas have a cap of 66,000 per year that is reached very quickly, but the process to obtain the visa is also lengthy. As a result, there would not be enough qualified personnel to operate vessels offshore.

- **Section 709: Americanization of Offshore Operations in the Exclusive Economic Zone**

This provision would require that all vessels involved in oil and gas projects out to 200 miles to be U.S.-flagged (and thus U.S.-crewed) and 75 % U.S.-owned. These include Mobile Offshore Drilling Units ("MODUs"), pipelay vessels, construction and specialty vessels that are essential to OCS operations and mostly foreign flagged and foreign crewed today. It would also require that a vessel engaged in any "other activities" be U.S.-flagged (and thus U.S.-crewed) and 75% U.S.-owned. Broadly interpreted, this requirement would make many offshore activities and projects—including alternative energy projects, lightering operations, freight carriage, or cruise lines economically impractical and operationally impossible.

- **Section 725: Build-America Requirement for Offshore Facilities**

These provisions would require, absent obtaining a waiver from the Coast Guard, any offshore facility (including a MODU) to be built in the United States, including construction of any major component of the hull or superstructure of the facility. Currently, few MODUs are built in the United States.

Although the Senate failed to pass a bill, it consolidated proposed oil spill legislation into S. 3663, the Clean Energy Jobs and Oil Spill Accountability Plan, which was introduced by Senator Reid on July 28, 2010. However, this legislation generated too much controversy and no further action has been taken on S. 3663 since then.

Guidance for 2011

With regard to considering potential future offshore activities involving the use of non-coastwise-qualified vessels and the transportation of merchandise and/or carriage of equipment, owners, operators, charterers and other parties should confer with counsel and CBP with regard to seeking offshore Jones Act rulings before committing to future projects.

With regard to potential oil spill legislation, Congress failed to pass any such legislation during the so-called lame-duck session. If the Exxon Valdez spill in 1989 is instructive, it took Congress approximately 18 months to enact legislation following that incident. Hopefully, it will take Congress at least that long to implement legislation after the Deepwater Horizon incident to give it time to reflect on the actions taken by the industry and the Administration to implement changes based on lessons learned to prevent enacting legislation that overreacts to this incident. It is difficult, however, to predict what Congress will do and how quickly it will act in 2011 with regard to oil spill legislation. Accordingly, it is incumbent on industry to be ready at the beginning of the year to act quickly to advance its position and not miss any opportunities.

Emerson Bearing Delivers for Guam Shipyard

For more than five years, Emerson Bearing has received weekly, sometimes daily, telephone calls and emails from Guam Shipyard, located in Santa Rita, Guam, regarding bearings and related products. Joseph Palomo, Planner & Estimator for Guam Shipyard, a large industrial contractor for the U.S. Navy, is in charge of ordering all parts and equipment for a variety of vessels that sail into their port. After obtaining a repair contract for a vessel, both Palomo and Emerson Bearing are aware of the time constraints of the job and penalties that will be incurred if the vessel is not ready to sail by a certain date. It's imperative that all the parts have arrived and are ready for the vessel's maintenance or repair as soon as it pulls into port.

From vessels such as the USS Frank Cable to USCG Vessels to USNS T-AKE's, T-AOE's, T-AFS's, T-AE's, T-AKE's, T-ARS, T-AGOS's, YC's, YON's, GSY Dry Dock AFDB-8, miscellaneous U.S. Subs and numerous other private vessels, Emerson Bearing meets the maintenance and repair needs.

(Photo Credit © W. Marc Bernsau Boston Business Journal)

Emerson Bearing's products, quick turnaround on RFQ's and its overall reliability in having the right product in stock coupled with their ability to get it to Guam quickly are some of the reasons that Guam Shipyard has chosen Emerson Bearing. "We are halfway around the world and Guam Shipyard knows they can count on us," said to Mary Ann Quintal, who is in charge of the Guam account. "They have placed their confidence in us and we deliver, whether it's a large job or a small repair where they may just need oil seals."

Cost per order range from $30 to $12,000, depending on what the vessel in Guam's port needs. Small parts are sent by mail; large, steel-mounted parts are sent via ship. Guam Shipyard very rarely needs parts expedited, but when it does, honesty with regard to delivery dates is paramount. "We never overpromise," said Quintal. "Timing is everything for Guam Shipyard. The vessels are scheduled to arrive in port at a certain time and once they pull in, the clock starts. Everything runs on a schedule and there are repercussions for any delays." According to Palomo, what really sets Emerson apart from its competitors is their dependability. They've never had to worry about lead time delivery and wrong materials received. In fact, Palermo can cite many instances where Emerson Bearing has gone "above and beyond" to serve them. Guam Shipyard required miscellaneous bearings and mechanical seals for several jobs (i.e. T-AFS's Ship's unrep equipment, USS Frank Cable 30 ton crane bearings and seals and many other jobs) that were dependent on the right bearings and seals. "When you're talking to someone halfway around the world, you need good communication and realistic timeframes," said Quintal.

Email: info@emersonbearing.com

Colombia

"Plan Orion" Drives Navy Newbuild Program

By Jurrien Noot

Primary guidance document for developments in the Colombian defense sector between 2007 and 2010 is a policy paper published on 26 February 2007 by the 'Consejo Nacional de Política Económica y Social' (COMPES) entitled 'Política de Consolidación de la Seguridad Democrática: Fortalecimiento de las Capacidades del Sector Defensa y Seguridad' which lays out in some detail the program priorities and defense spending for the period. The document specifies that the Ministry of defense requires an overall level of spending on the order of COP57.9 billion for the four years.

Plan Orion

Plan Orion is the designation of a plan for the development of the Colombian Navy over a period of 20 years. Plan Orion also includes a mid life modernization of the four FS 1500 type frigates and the two Type 209/1200 submarines with contracts awarded to COTECMAR in December 2007.

Proyecto Faro

Proyecto Faro is a concept development study conducted by the Navy and COTECMAR for the construction of a medium surface combatant type vessel in the 2025 timeframe. It is believed to be a projected replacement for the FS 1500 class frigates.

Patrullero de Zona Economica Exclusiva and Patrullero de Costa programme

COTECMAR was awarded a contract during 2007 to acquire the licenses for two OPV designs for the construction at COTECMAR of two different OPV type vessels. The design selected for the Patrullero de Zona Economica is the 80.6 m Fassmer OPV 80 while the Patrullero de Costa will apparently be based on the Damen Stan Patrol 4207. A funding scheme has been formulated which foresees a total expenditure of COP16,250 million in 2007, COP21,547 million in 2008, COP75,179 million in 2009 and COP28,421 million in 2010. Main armament will consist of a 40 mm gun. The Colombian Navy has formulated a requirement for four Patrullero de Zona Economica and eight Patrullro de Costa but funding levels will only allow three of the first and six of the second. Under the 2007-2010 funding scheme one Patrullero de Zona Economica and two Patrullero de Costa will be constructed. The construction contract was to be awarded in 2009. The Fassmer OPV 80 vessel was launched on 25 July 2010 as the 20 de Julio.


(Photo: Cotecmar)
Nodriza PAFP III undergoing trials.

Nodriza Londono PAFP Heavy River Patrol Boat

COTECMAR was awarded a contract in 2007 by the Colombia Navy for the construction of two Nodriza Londone class river patrol boats (units 7 and 8) at a cost of COP35,643,960,000. The two units were delivered on 25 March 2009 as the TECIM Freddy Alexander Pérez Rodríguez and TECIM Edic Cristian Reyes Holguín. These represent the third variant of the design of which two units were already completed between 2005 and 2007.

32 m PAFL Light River Patrol Boat Program

COTECMAR was awarded a contract in 2007 by the Colombia Navy for the construction of two 32 m Patrulleras de Apoyo Fluvial Livianas at a cost of COP35,520,981,830. Both are under construction. Available information indicates that four units are planned.

EMAF Riverine Support Mobile Station Program

A contract was awarded on 17 October 2007 for the construction and delivery of four EMAF at a total cost of COP10.242.800.000. A contract for an additional one may have been placed earlier during 2008. Available information indicates that 12 units are planned. The stations will each support a marine platoon and four riverine patrol craft.

Midnight Express Interceptor Craft Program

Plan Orion calls for the acquisition of ten 12 m Midnight Express interceptor craft. It appears that this is a continuation of an existing program under which 14 have already been delivered.

Colombia Defense Budget

(Amounts in COP)

Item	2007	2008	2009	2010
Operating budget	6069263579252	7076266000000	n/a	8321421475708
Investment budget	1007394100000	2954184000000	n/a	1642369489233
Total	7076657679252	10030450000000	n/a	9963790964941

Konrad Enjoys Overseas Success with Stern Drives

Stern Drive System manufacturer Konrad Marine of Hudson, Wis., has enjoyed global success supplying a number of foreign navies and security forces, from the Hellenic Navy to the Norwegian Police to the Canadian Coast Guard. Two recent example of success includes installations of a Konrad 540 on a Hong Kong Police vessel, and a Konrad 520 on a Panama Patrol boat. On the former, the Hong Kong Police Cougartek 1500 police boat is a 47.8 x 9.5 ft., 17,172 pound vessel boasting three Konrad 540 Stern drives powered each by a 550 hp gas engine through Huber HM1200 marine gears. The interceptor carries a crew of five plus three passengers to speeds of 60 knots. On the latter, Konrad supplied its Konrad 520 for a Panama Canal Authority patrol vessels, a 29 x 10 ft. boat able to carry 15 passengers and designed for 2,000 hours of service per year. The 8,500 pound boat is powered by a pair of 260-hp Yanmar diesel engines driving the two Konrad 520 units through HM 925 gears to 40 knots.

www.konradmarine.com

Stern Drive System manufacturer Konrad Marine of Hudson, Wis., has enjoyed global success supplying a number of foreign navies and security forces, including the Hong Kong Police (above).

Comark's Victory-HD Large Screen Displays

Comark announced the availability of the Victory-HD Series of large screen displays in 37 and 47-in. sizes. The Victory-HD line is designed to meet a variety of commercial and military marine specifications, including IEC 60945, MIL-STD 901D, MIL-STD 167- class 1, type A; MIL-STD-810F; and MIL-STD-461E. The displays are ECDIS and ECDIS-N compliant.

The Victory-HD line of large screen displays all feature machined aluminum bezels, conformal coating on all electronics and are available with an integrated computer and touchscreen option. The large screen displays are serviceable from the front and can be either wall or panel mounted.

www.comarkcorp.com

(Photo: Fincatieri)

Horizon (Andrea Doria) class Caio Duilio (D554) fitting out.

Italy

Budgets Rising Steadily

By Jurrien Noot

The structure of the Italian Armed Forces is guided by the 2002 Defence White Paper which is the last such document published. As reflected in the 'Linee Guida del Capo di Stato Maggiore della Marina Militare – Anno 2010', the Italian Navy expected during 2010 to witness the completion, integration and acceptance of the combat systems of the aircraft carrier Cavour and the Horizon class destroyers. During the year studies were carried out to determine the operational requirements for new classes to be introduced: a logistic support ship (LSS) class, an amphibious assault ship (LHD), a hydrographic survey vessel, a submarine rescue vessel (ARS/NAI) and a submarine support ship (LRSS).

Procurement programs

All Contracting is handled through the Direzione Generale degli Armamenti Navali (NAVARM).

Nuova portaerei (Cavour) program

On 22 November 2000, a contract was signed between Fincantieri and the Italian Ministry of Defense to construct an aircraft carrier, then known as a 'new major vessel' (Nuova Unità Maggiore NUM). Projected cost is estimated at EUR1,390 million. First steel of the new vessel, initially known as Andrea Doria but then renamed as Cavour, was cut at Fincantieri Riva Trigoso Shipyard on 31 July 2001. She conducted first trials in December 2006. The ship was to be delivered in 2008 but this has been postponed to 2013. This unit was, in the early stages of planning, referred to as the Luigi Einaudi.

Type 212A submarine program

The construction of Type 212A submarines follows a Memorandum of Understanding signed between Germany and Italy on 22 April 1996. An order for two Type 212A submarines was reportedly placed in March 1998. Both have been delivered. Two additional Type 212A units were authorized by the Parliamentary Defense Committee in March 2008. The second batch is expected to be delivered by 2016. Projected overall cost is EUR1,885 million split in EUR970 million for the first batch and EUR915 million for the second batch.

Orizzonte air defense frigates

The Orizzonte air defence frigate program is executed in cooperation with France through the Horizon SAS joint venture, a 50:50 joint venture between French and Italian contractors, with Thales and Direction des Constructions Navales (DCN) representing France and the Orizzonte consortium made up of Finmecanica and Fincantieri representing Italy. The program currently involves the construction of two (of a total of four) units. Overall cost of the program is circa EUR1,500 million. The two units are expected to be completed by 2013. No decision appears to have been taken on the two additional frigates; they do not show in recent budget documents.

Fregate di nuova generazione/European Multi-Mission Frigate (FREMM)

On 10 April 2002, a 10-unit frigate program to replace the Lupo and Maestrale class frigates was approved by the Italian senate and house parliamentary defense committees to replace four Lupo class frigates already withdrawn from service and eight Maestrale class frigates. The cost of the program was estimated at EUR5,680 million. There will be two variants: four anti submarine warfare (ASW) ships and six for general purpose/land attack. On 7 November 2002, agreement was reached for a combined 27-ship collaborative programme with France, called the European MultiMission Frigate (FREMM) program. The MoU for this program was signed by the French and Italian Defence Ministers on 13 June 2003. By February 2004, agreement had been reached on a common 5,600 ton platform powered by gas turbines with a speed of 27.5 kts. The French and Italian Defence Ministers signed a joint procurement agreement on 25 October 2004 for 27 frigates, 17 for the French Navy and 10 for the Italian Navy. The Italian part of the program is currently expected to be completed by 2019. Funding for these units is outside the regular annual budget submissions. Continuity of the program has been guaranteed by a special financial law (No 266 dated 23 December 2005). The first two units were ordered on 9 May 2006. The second batch of four units was ordered on 30 January 2008. First steel was cut for the lead unit at Fincantieri Riva Trigoso Shipyard on 4 February 2008. The six units presently on order or under construction comprise two of the general purpose (GP) and four of the anti-submarine (A/S) version.

OPV project

During 2009 references were made to a OPV pro-

Italian Defense Budget 2005-2010

(Amounts in EURO Millions)

	2005	2006	2007	2008	2009	2010	2011
Overall	19021.7	17782.2	20194.8	21132.4	20294.3	20364.4	20494.6
Defence function	13638.6	12106.7	14448.8	15408.3	14339.5	14295	14327.6
Defence function: investment	2588	1,1511.5	3272	3635	2885.3	3187.4	3453.7
Navy: total	2668.6	2202	2706.6	2769.2	2725	2725.7	2801.3
Navy: investment	719	297.8	803.3	856	773	770.3	866.1

gram to eventually replace the eight units of the Minerva and the four units of the Cassiopea class from 2020.

Amphibious Assault Ship (LHD)

Three LHD type units were projected in January 2008 to enter service in 2018, 2022 and 2028 respectively, to replace the three San Giorgio/San Giusto class LPD. Construction is unlikely to commence prior to 2013. There is a size indication of 20,000 ton displacement. The 2011 budget submission indicated that the program will be started under a special economic support package. A contract for a risk reduction study was awarded to Fincantieri in Nov. 2010.

Landing Platform Dock (LPD)

The acquisition of a fourth Landing Platform Dock (LPD) was postponed in 2006 for budgetary reasons and appears to have been cancelled in 2008.

Mine countermeasures vessels

The 2002 Defense White paper calls for the acquisition of nine new generation mine countermeasures vessels to enter service beyond 2015. The cost was estimated at EUR1.36 billion. No progress has been reported on this program and it appears that alternatives are being investigated, possibly associated with the OPV project.

Logistic support ship (LSS)

The 2002 Defense White Paper included the requirement to replace the replenishment ships Stromboli and Vesuvio with two new logistic support ships. The 2011 budget submission indicated that the program will be started under a special economic support package. A contract for a risk reduction study was awarded on 2 November 2010.

Mine countermeasures support ship

The 2002 Defense White paper calls for the acquisition of a new Mine Countermeasures Command & Support Ship/Long Range Submarine Support (MCCS/LRSS), to enter service by 2009. The unit would replace the Alpino. The cost was estimated at EUR0.17 million. The program was postponed in 2006 for budgetary reasons and no longer shows in appears to have been dropped from budget submissions since 2008.

Auxiliary Rescue Ship/Nucleo Appoggio Incursori (ARS/NAI) project

Following the requirement specified in the 2002 White Paper for a new submarine rescue vessel, the 2010 budget submission includes a project for the acquisition of an auxiliary rescue ship (ARS) to replace the Anteo (A 5309) which was delivered in 1980. The vessel is to be based on a commercial design. The estimated cost is EUR120 million. Available information indicates that construction is to start in 2011 with funding spread over the 2010-2015 period. Delivery of the vessel is expected by 2017.

Hydrographic survey vessel project

The 2010 budget submission indicated that a project will be initiated for a new hydrographic survey ship to replace the Ammiraglio Magnaghi (A 5303).

The 2011 budget submission indicated that the program will be started under a special economic support package. Contract for risk reduction studies were awarded on 2 November 2010 to RINA Spa, to the Universities of Genua, Trieste, and Napels, and to the Centro per gli Studi di Tecnica Navale.

United States

Reaching 313-Ship Goal is *not* Smooth Sailing

By Edward Lundquist

America's Navy, now in its 235th year of service, continues to serve afloat and ashore at home and abroad to be "a global force for good."

Today's Navy now operates 288 ships and submarines, more than 3700 aircraft and employs almost 600,000 active and Reserve Sailors and Navy civilians, and is carrying out its mission at this very minute, deterring aggression, keeping the sea lanes open for free trade, and projecting power.

The continuous forward presence of carrier strike groups and expeditionary strike Groups; strategic deterrent submarines and attack submarines; amphibious ships; surface combatants; aviation squadrons, construction battalions; are ready right now to respond to a wide range of missions, from major combat operations to disaster response and humanitarian assistance.

The Navy continues to operate at a high tempo as the combatant commanders demand Navy capabilities and presence in their areas of responsibilities (AORs) at a very high level. The truth is, there just isn't enough Navy to go around.

Chief of Naval Operations Adm. Gary Roughead says we need a 313-ship Navy. "313 is the floor," he's said many times, and he still stands by that number. True, new ships are being built, but while the newer ships are usually more capable than the ships being decommissioned, the numbers just aren't there. 313 seems unattainable.

As the Navy and particularly the Marine Corps is providing significant support in Afghanistan, the need to recapitalize the current force becomes even more pronounced.

The Navy is decommissioning frigates without replacements. The San Antonio-class of amphibious ships has not met expectations (actually the littoral combat ships, which are different than frigates, will be their replacement in terms of force structure). The DDG 1000 Zumwalt-class has been truncated at just three ships, and many observers doubt all three will be built.

Even the diminutive Patrol Coastal (PC) boats that have been guarding the oil platforms in the Northern Arabian Gulf have been overworked and suffer from significant structural damage, with frame buckling and corrosion.

"A good Navy is not a provocation to war.
It is the surest guaranty of peace."

President Theodore Roosevelt, December 2, 1902

(U.S. Navy photo courtesy of Lockheed Martin/Released)

(PCU) Fort Worth (LCS 3) is launched into the Menominee River during a christening ceremony for the navy's third littoral combat ship.

The ships of the fleet have different capabilities, and bring different attributes to the fight. But what matters a lot for a lot of the time is a visible, credible presence in a lot of places.

Despite these woes, the Navy is still meeting commitments. The fleet may be spread thin, but there is still 30 of the Oliver Hazard Perry frigates, 22 guided missile cruisers and 58 of the DDG 51s in the fleet.

The newest Navy combatant is USS Gravely (DDG 107), commissioned in Wilmington, N.C., on Nov. 20. The ship is named for the late Vice Adm. Samuel Lee Gravely, Jr., who was the first African American to command a warship (USS Theodore E. Chandler (DD 717)); to command a warship in combat (USS Taussig (DD 746)); to command a major warship (USS Jouett (DLG 29)); to attain flag rank; to become a vice admiral; and to command a numbered fleet (3rd Fleet).

The DDG 51 class was to be completed with DDG 112, but that production line will be kept open and more Arleigh Burke-class DDGs built.

In fact the CG(X) cruiser will in effect be built as a DDG 51 Flight III ship, featuring the AMDR (air and missile defense radar) sometime around 2020.

The 22 remaining 27 Aegis guided missile cruisers still providing the backbone of the fleet's air defense capability (the first five, which didn't have the vertical launch system, were retired) will be modernized to remain capable against current threats.

The Cruiser Modernization program provides both combat systems and hull, mechanical and electrical (HM&E) upgrades. And now that the first DDG 51s are reaching their mid-life milestone, the Navy has an ambitious plan to modernize them, too.

Some of the Aegis ships have been modified to conduct ballistic missile defense, a relatively new mission for the Navy and apparently a job the sea service is well suited for.

The littoral combat ship (LCS) program continues to bounce along. When the Navy selected two prototypes instead of one in 2004 I was surprised. Lockheed Martin and General Dynamics were each selected to build a sea frame. One of each design was built and commissioned, but the second of each design was cancelled due to cost overruns. Eventually, one more of each design was ordered and is under construction now at Marinette Marine in Wisconsin and Austal USA in Alabama.

In September of last year the Navy announced it would "down select" between the two Littoral Combat Ship (LCS) designs in fiscal 2010. The Navy had said that the decision would be based on price. "Both ships meet our operational requirements and we need LCS now to meet the warfighters' needs," said Adm. Gary Roughead, chief of naval operations said at the time. "Down selecting now will improve affordability and will allow us to build LCS at a realistic cost and not compromise critical warfighting capabilities."

But immediately after the November election, and shortly before the winner was to have been announced and a contract awarded for ten ships, the Navy said that, as a result of the competitive bidding process, the price of both bids warranted awarding contracts to buy ten of each design.

As this edition was going to press, the Navy awarded both Lockheed Martin Corp. and Austal USA each a fixed-price incentive contract for the design and construction of a 10 ship block-buy, for a total of 20 LCS.

America's 11 active nuclear aircraft carriers are capable of reaching 80 percent of the world's population from combat power to a helping hand.

The next generation carrier, which will follow the highly successful Nimitz class, is the Gerald R. Ford (CVN 78) class, scheduled to join the fleet in 2015. This new class of carrier will feature a new type of air wing which will rely heavily upon both manned and unmanned combat aircraft.

There is already an effort to consider the next generation of landing ship docks, called the LSD(X), to replace the Whidbey Island (LSD 41) class. There is some concern that military vehicles are becoming much heavier, and smaller amphibious ships might have a problem with the larger vehicles.

The RG-31 Mine Resistant Ambush Protected (MRAP) vehicle, for example, has a combat weight of about 18,500 lbs., about three times that of a High Mobility Multipurpose Wheeled Vehicle (HMMWV or Humvee).

Currently an amphibious strike group deploys with three ships, including a large deck amphibious ship, either an LHD or LHA assault landing ship; an LPD and an LSD. It may be that the next generation LSD will be more like the larger landing platform dock (LPD). One member of that team said that whatever the mix is, a Marine Expeditionary Unit and its 2,200 Marines, with their vehicles and aircraft, will still need to fit into those three ships.

The Navy has two command ships which are nearing the end of their services lives. Many alternatives have been looked at, including not having flagships at all. My guess is they will continue to study this as they continue to do just enough upgrades to keep the current ships going and defer making a real decision for the foreseeable future.

The Virginia-class of attack submarines, which is to replace the 62-ship class of Los Angeles SSNs, continues with seven ships built out of a planned 30-ship program.

The four Ohio-class SSGN conversions are now operating with the fleet, leaving the remaining 14 boats to serve in the strategic deterrent role. The first of the Ohio SSBNs is expected to retire in 2029, and a replacement for the SSBNs is currently under review.

The Military Sealift Command High Speed Vessel is building the Joint High Speed Vessel and the T-AKE underway replenishment ships, to name a few of the MSC acquisition programs. Fabrication of the future USNS Vigilant (JHSV 2), the first joint high speed vessel (JHSV) to be operated by the Navy, began Sept. 13 at the Austal USA shipyard in Mobile, Ala.

The naval shipbuilding and ship repair industry has been tumultuous, and some of the big players have been in play. Northrop Grumman Shipbuilding is for sale. Italian Fincantieri now owns Marinette Marine, and the U.S. subsidiary of UK-based BAE Systems now operates several ship repair yards around the country.

There continues to be uncertainty about the Navy's 30-year shipbuilding plan. No one can be sure what the Navy will actually build, or who will build it. But an official at General Dynamics Bath Iron Works told me, "I don't care what the Navy builds, as long as they build it here."

Status of the Navy

(as of December 1, 2010)

Navy Personnel	
Total Active Component	328,42
Total Reserve Component	64,981
DoN Civilians	202,821
Ships, Submarines & Aircraft	
Total deployable ships/subs	28
Ships underway	148 (51%
Attack subs underway	25(46%
Ships deployed	108 (38%
Subs deployed	20 (37%
Expeditionary forces on mission	85 (45%)
Total operational aircraft	3,700

(Source: U.S. Navy)

Navy Energetically Pursuing Efficiencies

The USS Makin Island (LHD 8) Auxiliary Propulsion System (APS), designed for fuel efficiency, uses induction-type motors powered from the ship's electrical grid instead of main propulsion engines at low speeds. The APS can be used approximately 75 percent of the time. "The USS Makin Island is ground-breaking for the Navy," said **Rear Adm. Philip Cullom, the Director, Fleet Energy and Environmental Readiness Division** on the Chief of Naval Operations Staff (OPNAV N45). "The performance of the Makin Island Auxiliary Propulsion System (APS) demonstrates a viable alternative to using a ship's gas turbines, which are less efficient at lower speeds." A Hybrid Electric Drive (HED) is being developed for Arleigh Burke class (DDG 51) destroyers, with a proof-of-concept system scheduled to be installed on USS Truxtun (DDG 103) for demonstration at sea in 2012. The Navy says HED will save 8,500 barrels of fuel each year per DDG. "The Hybrid DDG 51 design will initially incorporate an electric drive for low speed (under 14 knots) operation, improving overall system efficiency of its gas turbine generators. This effort lays the foundation for future improvements that can incorporate use of the drive motor as a generator at higher speeds and as technology advances, the use of battery storage," Cullom said. "It is transformational in that it is the first step in a radically new design focused on maximizing overall combat capability, taking into consideration the operational spectrum of a ship, and not just maximizing speed or endurance alone," Cullom said. At the same time, the Navy has been investing in alternative fuels to reduce demand for non-renewable fossil fuels. **The Navy is currently testing a camelina-based biofuel blend of JP5 jet fuel and an algae-based biofuel blend of F76 for ships.**

The Secretary of the Navy has established the goal of deploying a "Green Strike Group." Cullom says the goal has two parts. "First, by 2012, we will demonstrate in local operations the ability to use biofuel to support the various elements of a Carrier Strike Group. Simultaneously, we will demonstrate energy efficiency initiatives that have been incorporated into those platforms. By 2016, the Navy will sail a Carrier Strike Group fully loaded with biofuel. We are working closely with the Defense Logistics Agency Energy to provide our demand signals to industry, which includes the long-term goal of substituting biofuel for 8 million barrels of petroleum by 2020." Other energy saving technologies being tested include:

- **New hull coatings** on USS Port Royal and USS Cole;
- **Propeller coatings** on USS Gunston Hall;
- **Stern flaps** on USS Kearsarge and USS Whidbey Island;
- **Solid state lighting** (LED) on USS Iwo Jima and USS Wayne E. Meyer; and
- **Smart Voyage Planning Decision Aid** at Naval Maritime Forecast Centers.

Australia

Planning Self-Reliance Through 2030

By Jurrien Noot

The Australian Government published a new Defense White Paper in May 2009. The White Paper provides an outlook of the planned development of Australia's defense capabilities through 2030. The Australian Government has decided that Australia's defense policy should continue to be founded on the principle of self-reliance in the direct defense of Australia and in relation to its unique strategic interests, but with a capacity to do more when required, consistent with those strategic interests that it might share with others, and within the limits of its resources. This posture entails the maintenance of alliances and international defense relationships that enhance its own security and allows it to work with others when we need to pool our resources. The principle of self-reliance means for Australia to have the capacity and willingness to employ military power when required to deter and defeat armed attack on Australia without relying on foreign combat or combat support forces. It therefore has to have the ability to conduct independent military operations in the defense of Australia by way of controlling the air and sea approaches to Australia, and denying an adversary the ability to operate, without disruption, in its immediate neighborhood, to the extent required to ensure the security of its territory and people. The judgements of in the White Paper will lead to a more potent Australian Defense Force (ADF) in the future, particularly with regard to undersea warfare and anti-submarine warfare (ASW), surface maritime warfare (including air defence at sea), air superiority, strategic strike, special forces, ISR and cyber warfare. In term of future naval capabilities the Government has decided to double the size of the submarine force by initiating a project to acquire 12 submarines which will eventually replace the six units of the Collins class, replace the current Anzac class frigate with a more capable Future Frigate optimized for ASW; and enhance other capability for offshore maritime warfare, border protection and mine countermeasures.

Defence Budget

The 2010-11 Defense Budget totals AUD26.9 billion in Departmental funding, compared to the AUD24.3 estimated actual spending over 2009-2010. The Budget builds on both the strategic and financial foundations that have been laid in the 2009 Defense White Paper and the 2009 Defense Capability Plan. The Government has provided Defense with additional funding of AUD1.6 billion over the decade to 2019-20.

Major projects to be considered for first pass approval in 2010-11 include:

- **SEA 1000 Phase 1A Future Submarine - Concept Design;**
- **SEA 1439 Phase 3.1 Collins Obsolescence Management;**
- **SEA 1439 Phase 6 Collins Sonar Replacement;**
- **SEA 1448 Phase 4A ANZAC Elec Support System Improvements**

(Image: Navantia/Tenix)

Rendering of the Navantia design for JP 2048 Phase 4A/B.

New Construction Projects for the Royal Australian Navy through 2030

Project SEA 1000 Future Submarine

As per the 2009 Defense White Paper, the Australian Government has decided to acquire 12 new Future Submarines, to be assembled in South Australia. This will be a major design and construction program spanning three decades, and will be Australia's largest ever single defense project. The Future Submarine will have greater range, longer endurance on patrol, and expanded capabilities compared to the current Collins class submarine. It will also be equipped with very secure real-time communications and be able to carry different mission payloads such as uninhabited underwater vehicles. The Future Submarine will be capable of a range of tasks such as anti-ship and anti-submarine warfare; strategic strike; mine detection and mine-laying operations; intelligence collection; supporting special forces (including infiltration and exfiltration missions); and gathering battlespace data in support of operations. The 2009 Defense Capability Plan (DCP) indicates that the Initial Definition Phase was to be completed by December 2009, to be followed by concept, preliminary, and detailed design phases through 2016. Construction is to commence around 2016. The acquisition cost is estimated to be AUD 1,500 million.

Project SEA 4000 Air Warfare Destroyer (AWD) Program

Project SEA 4000 is to deliver at least three Air Warfare Destroyers to the Royal Australian Navy between 2013-2015. This project replaced a 1994 Project SEA 1400, which was a Perth class missile destroyer replacement (cancelled in 1999). Australia reached an agreement with the US for the development of this destroyer on 26 February 2004, which also provides access to the US Aegis system technology. The estimated construction cost was reported as AUD8 billion as of June 2007. Raytheon Australia was selected in April 2005 as the preferred bidder for the combat system design. On 31 May 2005 ASC Pty Ltd was selected as the preferred shipbuilder. On 16 August 2005 it was announced that the US company Gibbs & Cox had been chosen as the preferred designer for the Project 4000 Air Warfare Destroyers. Procurement of the Aegis Combat System was approved in December 2005. The production contract was awarded to Lockheed Maritime Systems and Sensors on 26 March 2006 through Foreign Military Sales with the United States Government. The Australian Department of Defense announced on 20 June 2007 its selection for the Navantia F100 design as the basis for the AWD. Navantia teams with the AWD Alliance (Defense Materiel Organization, ASC and Raytheon Australia). Adelaide based ASC will conduct the final assembly of the AWDs, but around 70 per cent of the ship modules will be built at other shipbuilding sites around Australia. The first unit will be delivered in December 2014, followed by the second and third ships in March 2016 and June 2017 respectively. The 2009 Defense White Paper and the 2009 DCP indicate that these vessels will be eventually equipped with the Standard Missile 6 (SM-6) long-range anti-aircraft missile and with an enhanced sea based long range strike capability. These projected SEA 4000 phases will be up for government consideration beyond 2019. The three units will be named Hobart, Brisbane and Sydney. A fourth unit is under consideration.

Project SEA 5000 Future Frigate

As per the 2009 Defense White Paper, the Australian Government has decided to acquire a fleet of eight new Future Frigates, which will be larger than the Anzac class vessels. The Future Frigate will be designed and equipped with a strong emphasis on submarine detection and response operations. They will be equipped with an integrated sonar suite that includes a long-range active towed-array sonar, and be able to embark a combination of naval combat helicopters and maritime Unmanned Aerial Vehicles

Expenditure for Proejcts Indicated in '10-'11 Budget

(Amounts in AUD Millions)

Designation	Project Number	Approved Project Expenditure	Estimated Cumulative Expenditure to June 30. 2010	2010–11 Budget Estimate
Anzac Ship Anti-Ship Missile Defense	SEA 1448 Phase 2B	459	242	76
Standard Missile Replacement	SEA 1390 Phase 4B	620	277	49
Guided Missile Frigate Upgrade Implementation	SEA 1390 Phase 2.1	1,530	1,339	36
Air Warfare Destroyer Build	SEA 4000 Phase 3	7,740	2,142	1,146
Amphibious Deployment and Sustainment	JP 2048 Phase 4A/4B	3,161	1,056	553
Evolved Sea Sparrow Missiles	SEA 1428 Phase 4	87	69	10
Anzac Ship Project	SEA 1348 Phase 2	5,380	5,361	11
Armidale Class Patrol Boat	SEA 1444 Phase 1	537	481	3
Collins Replacement Combat System	SEA 1439 Phase 4A	458	425	7
New Heavyweight Torpedo	SEA 1429 Phase 2	442	269	26
Collins Class Submarine Reliability and Sustainability	SEA 1439 Phase 3	408	301	21
Anzac Ship Anti-Ship Missile Defense	SEA 1448 Phase 2A	377	196	34
Ships Self Defense Capability	SEA 1779 Phase 1	53	47	5

(UAV). A sea based long range strategic strike capability is also to be included. They will eventually replace the eight Anzac class frigates. Project details have not been included in the latest (2009) version of the DCP.

Project SEA 1180 Future Offshore Combatant Vessel

As per the 2009 Defense White Paper, the Australian Government has decided that Defense will develop proposals to combine the Navy's patrol boat, mine counter measures, hydrographic and oceanographic forces into a single modular multirole class of around 20 Offshore Combatant Vessels replacing four existing classes of vessels. This has the potential to provide significant operational efficiencies and potential savings. The new vessels will be larger than the current Armidale class patrol boats, with an anticipated displacement of up to 2,000 tons. The concept relies on the use of modular unmanned underwater systems for both mine countermeasures and hydrographic tasks. These systems are to be containerized and portable modules. The vessels are projected in the 2009 DCP to enter service beyond 2019 as replacements for the current Armidale class patrol boats, Huon class mine hunters and the Hydrographic Survey Fleet as these vessels reach the end of their useful life. The acquisition cost is expected to be on the order of AUD 1,200 million.

Project JP 2048 Phase 5 Landing Craft Heavy Replacement

As per the 2009 Defense White Paper, the Australian Government has decided that Defense will introduce six new heavy landing craft with improved ocean-going capabilities, able to transport armoured vehicles, trucks, stores and people in intra-theatre lift tasks to augment the larger amphibious vessels. According to the 2009 DCP, initial operating capability is expected beyond 2019.

Project JP 2048 Phase 4C Strategic Sealift Ship

As per the 2009 Defense White Paper, the Australian Government has decided to acquire a large strategic sealift ship to move stores, equipment and personnel. Based on a proven design, the new ship will have a displacement of 10,000 - 15,000 tons, with landing spots for a number of helicopters and an ability to land vehicles and other cargo without requiring port infrastructure. The new ship will provide ongoing sustainment support for deployed forces, allowing the LHD ships to remain in areas of operations in direct support of the land force ashore. The 2006 DCP projected an in-service date between 2016 to 2018, with an estimated acquisition cost of AUD 150-200 million. According to the 2009 DCP this project will be up for government consideration beyond 2019.

Project JP 2048 Phase 4A/B Amphibious Ships (Canberra class LHD)

Project JP 2048 Phase 4 is to provide three amphibious ships between 2010 and 2016 to replace Kanimbla, Manoora and Tobruk. This project includes what was formerly Project JP 2027 Phase 4. The first two replacement ships will be of the LHD type (JP 2048 Phase 4A and 4B) while the third replacement will provide bulk strategic lift capability (Project JP 2048 Phase 4C). According to a speech by the Australian Minister of Defense in February 2004, Projects JP 2048 4A and 4B will need to be able to embark, sustain and transport, by sea, an amphibious combined arms battle group together with their equipment and supplies. The force needs to be able to train and rest while en route to operations. The ships will need the capability to carry and tactically deploy several hundred vehicles, including armour, plus trailers. They will also need the ability to airlift simultaneously an air- mobile combat team from 12 helicopter launch spots between the two ships. They will each have hangar space for at least 12 helicopters and at least four conventional landing craft that are capable of carrying tanks. The ships must also be capable of providing the necessary command, control and communications to direct the battle group's amphibious landing and follow-on forces. Designs currently under evaluation are those from Navantia and Amaris (DCN). The estimated construction cost for the two LHDs is AUD1,500 - 2,000 million. Requests for Tender for JP 2048 Phase 4A and 4B were released on 2 May 2006. The Australian companies ADI teamed with the French designer Armaris, and Tenix teamed with the Spanish designer Navantia competed for the contract. The Tenix-Navantia team proposed a variant of the Navantia 27,000 ton design. ADI-Armaris proposed a variant of the Armaris 22,000 ton Mistral class. Tenix Defense Pty Ltd (now BAE Systems Australia Ltd) was selected as the preferred bidder on 20 June 2007. The hulls of the vessels (from keel to flight deck) will be constructed at NAVANTIA Ferrol Shipyard. They will then be brought to the Williamstown Shipyard where the locally built superstructure will be consolidated. All combat systems design and integration work with tests and trials will be conducted in Australia. The ships will be delivered by BAE Systems Australia Ltd in January 2014 and August 2015. The contract for construction and delivery were signed with Tenix Defence Pty Ltd and Navantia on 9 October 2007. The two ships will be named Canberra and Adelaide. Construction of the Canberra and Adelaide commenced in Ferrol on 23 September 2008 and 10 February 2010 respectively.

JP2048 Phase 3 Amphibious Watercraft Replacement

JP2048 Phase 3 seeks to acquire craft tol replace the existing capability inherent in the RAN's current LCH and LCVP and the Australian Army's LCM-8, LPA Watercraft (LCM2000), LARC-V and NLE. The Phase 3 craft is to be a key element of the future Amphibious Deployment and Sustainment (ADAS) capability.

Project SEA 1654 Phase 2B Maritime Operations Support Capability

Project SEA 1654 Phase 2B refers to the replacement of the commercial acquisition under Project SEA 1654 Phase 2A with a new construction unit by 2018-20 as it reaches the end of its operational life. The estimated acquisition cost is AUD150- 200 million.

Project SEA 1654 Phase 3 Maritime Operations Support Capability

Project SEA 1654 Phase 3 refers to the replacement of replenishment oiler HMAS Success when she reaches the end of her operational life in around 2015. The estimated cost is AUD350 450 million.

Turkey

Modernization Underway

(Photo: Turkish Defence Products Guide 2009 (SSM))

Heybeliada (F511) launched on 27 September 2008.

By Jurrien Noot

Funding for the modernization of the Turkish Armed Forces is channelled through Defense Industry Development and Support Fund, the resources from the national budget and the Public Firm Loans, which are paid back by the Treasury. Projects financed through the Treasury have decreased and are continuing to decrease. The fund established in 1985 meets one third of the modernization. The budget for the Ministry of Defense has been reported as TRY13.27b for 2008, TRY14.53b for 2009 and TRY14.7b for 2010 and TRY17b proposed for 2011. The additional amounts provided through the other two channels are unknown but have been reported as $1 billion in 2003 from the Defense Industry Development and Support Fund. The August and November 1999 earthquakes had a major impact on Turkish naval programs, both in terms of damage sustained by installations and in delays in program execution. All contracting is executed through the Undersecretariat for Defense Industries (SSM) of the Turkish Ministry of Defense.

New Type Submarine Project

In April 2004, it was reported that the Naval Forces Command had indicated a requirement for up to four new submarines fitted with air independent propulsion (AIP). The New Type Submarine Project for the acquisition of six submarines was subsequently authorized on 22 June 2005. On 31 March 2006, the Undersecretariat for Defense Industries issued a Request for Information (RfI) for four submarines. The Undersecretariat for Defense Industries announced on 1 February 2007 that the following companies had responded to the Request For Proposals (RfP) for the New Type Submarine Project: Armaris (France), Fincantieri Cantieri Navali Italiani SpA (Italy), HDW/MFI (Germany), Lockheed Martin Maritime Systems & Sensors (US) and Navantia SA (Spain). It was also stated that the submarines would be constructed at the Golcuk Naval Shipyard with delivery by 2016. Turkish defense minister Vecdi Gonul announced in July 2008 that Turkey would order six HDW Type-214 submarines. On 2 July 2009, a contract was signed by Howaldtswerke-Deutsche Werft GmbH (HDW), Kiel, a company of ThyssenKrupp Technologies, and MarineForce International LLP (MFI), London, for the delivery of six material packages for the construction of Class 214 submarines to Turkey. The value of the contract is estimated as 2.5 billion. There is 80% offset agreement .

TF 2000 Project

The Turkish Frigate 2000 (TF 2000) Project provides for the construction of frigates with an area air defense capability. Studies have been underway since 1996. The estimated cost of this programme was between $2b and $3b, circa 1999. The project has been dormant nut was revived in January 2010 with a Request for Information seeking responses from companies for planning purposes

MILGEM Patrol and Antisubmarine Warfare Ship

The MILGEM project was started in 2000 and has an Executive Committee decision date of February 2000. Studies have been underway since 1996. It provides for the acquisition of eight, plus four optional, patrol and anti submarine warfare ships. The MILGEM Project Office was established at Istanbul Naval Shipyard on 12 March 2004. Requests for Proposal for the propulsion system and for combat system subsystems were issued on 14 December 2005 and 25 April 2006 respectively. Contracts were awarded to MTU Motor Türbin San. ve Tic. A. and an ASELSAN A. -HAVELSAN A. Consortium in May 2007. STM Savunma Teknolojileri Mühendislik ve Ticaret A. . is the prime contractor for design services and platform construction. Construction of the lead unit Heybeliada commenced at Istanbul Naval Shipyard/Pendik-Istanbul on 26 July 2005. She was launched on 27 September 2008 and commenced sea trials on 2 November 2010. The second unit started construction on 27 September 2008.

Kilic II FAC(M) Program

Four units were ordered on 19 June 2000 with an option for two more. The lead unit was constructed by Fr Lürssen (Vegesack, Germany) and the remainder by the Taskizak Naval Shipyard in Istanbul.

MHV 54-014 Mine Hunter Program

The German Mine Hunter Consortium, consisting of the shipyards Abeking & Rasmussen and Fr Lürssen, was awarded a contract by the Turkish Ministry of Defense on 30 July 1999 to design and build six minehunters for the Turkish Navy. The first of class was constructed by Abeking & Rasmussen in Lemwerder and the remainder at Istanbul Naval Shipyard (now Pendik Naval Shipyard) Turkey. The project includes a shore based training simulator. All units were delivered by the end of 2009.

Patrol Boat (Yeni Tip Karakol Botu YTKB) project

The Undersecretariat for Defense Industries issued an RFP to the Turkish local industry for a 16-ship, 400-ton patrol boat program in August 2005. By late September 2005, 11 companies had indicated interest. The vessels are to have a maximum continuous speed of 22 knots, a maximum speed of 25 knots, and a range of 1,000 nm. Proposals were submitted on 27 April 2006 by five companies. The construction contract was awarded to Dearsan Gemi n aat Sanayii A. on 23 August 2007. The lead unit was launched on 9 April 2010.

Special Operations Boat Project

Yonca-Onuk JV was awarded a contract by the Undersecretariat for Defense Industries on 31 October 2009 for the delivery of two special operations boats (SAT boats). These are understood to be based on the MRTP22 design.

MRTP 20/U Enhanced fast patrol boat

Yonca-Onuk JV was awarded a contract on 2 March 2007 by he Undersecretariat for Defense Industries for the construction and delivery of two MRTP 20/U enhanced fast patrol boats for the Turkish Navy. The first boat was scheduled for delivery within 13 months of the contract date, the second within 15 months of the contract date.

(Continued on page 36)

Self Defense Force

By Jurrien Noot

The FY 2005- 2009 Mid- Term Defense Program was based on the National Defense Program Guideline for FY 2005 and After, which was approved by the Security Council and the Cabinet on 10 December 2004. Under the program, the number of escort divisions was to be brought to eight and the number of submarine divisions to five. The capabilities of Aegis destroyers were to be improved to enable them to respond to ballistic missile attacks. Joint Japanese- US research in this area was to be supported. There was to be less emphasis on the provision of capabilities to counter full scale invasion threats, although destroyers, submarines and minesweepers would continue to be acquired. There would be efforts to curb the life cycle cost of equipment and a general procurement reform was to be promoted. Cooperation with the Coast Guard was to be strengthened. The total amount of defense expenditure for the period was estimated at JPY24.24 trillion at FY 2005 price levels. In case of need, an extra JPY100 billion might be provided. Naval vessels to be procured under the program included a total of five destroyers, four submarines and 11 other ships with an aggregate weight of 59,000 tons. Three Aegis destroyers would undergo capability improvements under the program. In February 2010, the Japanese Government initiated a review of the 2004 National Defense Program Guideline through the "Council on the Future of National Security and Defense Capabilities in the New Era." A report was submitted in August 2010. Since a new Mid- Term Defense Program had not yet been formulated, the policy on the compilation of the FY2010 budget was decided on the basis of of the 2004 National Defense Program Guideline.

FY 1010 Budget

The defense budget request for FY 2010 is JPY4,682.6 billion, compared to JPY4,702.8 billion in 2009. Material expenses amount to JPY2,597.5B in FY 2010 compared to JPY2,625.5Bin 2009. A major item included in the FY 2010 budget is the provision for the new 19,500 ton DDH (22DDH) to replace a Shirane class destroyer.

New Construction Projects
2,900-ton SS (16SS Soryu)

The lead unit of a new 2,900 tonne submarine class was first budgeted in the FY 2004 program. Units are being authorized at a rate of one per year since, with the exception of FY 2009. This class i has a V4 275R Mk II auxiliary Air Independent Propulsion (AIP) system. Preliminary characteristics published indicate a surface speed of 13 kt and a submerged speed of 20 kt, as in the Oyashio class. There will be six 533 mm torpedo tubes. The stern planes are in an 'X' configuration. Experiments with the AIP system had been carried out on the submarine Asashio. Construction alternates between the Kawasaki Kobe Shipyard and the Mitsubishi Kobe Shipyard. The lead unit was delivered on 30 March 2009 as the Soryu. The fourth unit was launched on 15 November 2010.

2,700-ton submarine (05SS Oyashio)

The Oyashio class units were alternately constructed between the Kawasaki Kobe Shipyard and the Mitsubishi Kobe Shipyard at an overall rate of one per year. The final unit of the class was programmed under the FY 2003 budget. She was launched on 8 November 2006 as the Mochishio (Job Nr 8115) and iwas delivered on 6 March 2008. A network enabled command and control system known as MOF was fitted from unit 8 Yaeshio.

(Source: MOD Japan)

19DD hull 1 pennant 115 launched (2244) on 13 October 2010 at Mitsubishi Nagasaki Shipyard.

19,500-ton DDH (22DDH)

The lead unit of a new 19,500 ton 22DDH through- deck helicopter cruiser was inserted in the FY 2010 program to replace the DDH Shirane, which will be withdrawn from service in FY2014. The 22DDH is larger than the 16DDH and is able to carry an increased number of helicopters. The 22DDH can serve multiple purposes and can stay at sea for an extended period of time, The 22DDH design concept includes the conduct of overseas missions into the primary missions, the transition to an integrated management of the Self-Defense Forces, and other trends. In addition to capabilities for command, control and communications, and helicopter operations, its larger hull can serve a broad range of functions including international peace keeping activities, large-scale disaster response, transportation of Japanese nationals overseas, and other missions, including transport functions for vehicles and cargo, and medical care for the injured or sick. Construction cost of the lead unit is reported as approximately JPY 1,181 billion.

(Continued on page 36)

Via SeaPerch, Students Dive into Science

By Edward Lundquist

Two naval officers and little build-it-yourself underwater robot are helping create a new generation of scientists and engineers. Ensigns Natalya Aoki and Patrick Cooper, recent graduates of the United States Naval Academy in Annapolis, Md., say the "SeaPerch" remotely operated underwater vehicle (ROV) can teach valuable lessons—from grade school to grad school.

Aoki, from Seattle, Wash., graduated with a degree in astronautical engineering, a track of the aerospace engineering program, with a minor in Russian. She will be going to the Navy's Flight School for training. Cooper graduated with a degree in ocean engineering. The Portage, Mich., native will be going to the Navy's Nuclear Power School for training and eventually serve in the Submarine Force. As part of the "Science Technology Engineering and Mathematics," or STEM, outreach program at the Naval Academy, Aoki and Cooper helped train teachers—and even made an instructional video—to build and incorporate SeaPerch ROVs in their classrooms.

"SeaPerch is an underwater robot made of everyday materials such as PVC pipes, DC motors, propellers and shaft adapters, wires, film canisters and toilet bowl wax. The three motors allow it to maneuver up and down, and left and right," says Aoki. "We use it as a teaching tool to convey principles such as buoyancy, stability, electricity, and electrical and mechanical engineering." Aoki and Cooper teamed with students at Lafayette College in Easton, Pa, who were taking a course called "Envisioning Environmental Science," taught Prof. Arthur Kney, associate professor of civil and environmental engineering and Prof. David Husic, professor of chemistry, to teach science fundamentals to elementary school students.

According to Kney, "the course is focused on arming students with academically sound tools that will prepare them to better understand our globally-connected environment, to prepare them to be better stewards of the environment, and to develop the necessary knowledge base to assess and respond to the impact of the global environmental issues that accompany a 21st century lifestyle."

Envisioning Environmental Science was an interdisciplinary examination of environmental science by exploring New Zealand. The 22 Lafayette college students shared what they learned with the elementary school students from Martinsburg, Pa. Through webcasts, the Lafayette students could explain such topics as wetland and water quality, climate change, green building, and Maori culture to the elementary school students back in Pennsylvania. "SeaPerch was a part of the connection between the elementary school in Pennsylvania and the class at Lafayette College," says Cooper. "Natalya and I went to the elementary school and held a workshop with high-school students and teachers so that they would be prepared to build the SeaPerch with the elementary kids." Lafayette students who were taking the interim course joined with the Martinsburg students, as well as students from several Easton middle schools, in learning to build and operate SeaPerch underwater robots at the Naval Academy in Annapolis.

"By using SeaPerch, we had a central education piece that all of the students worked on. We the used this common SeaPerch experience to thread together the various science and engineering activities to teach science as well as demonstrate engineering applications that tie to the science," says Kney.

Because of their involvement in helping the Lafayette students with SeaPerch, the two naval officers were invited to accompany them to New Zealand.

According to Aoki, the premise of the trip was for the students of the Envisioning Environmental Engineering course to get hands on experience with what they were learning and share it via real time video chats back to the 3rd graders they were working with in Pennsylvania.

Learning by teaching

"I like to use the idea of students teaching students," says Kney. "You don't really learn something until you teach it. Teaching to younger kids is fun for college students because of the interest level, excitement and wonder they bring to the table. It is a win-win-win situation. Our college kids get a new perspective with regard to what they are learning and it helps them better understand what it is they are learning. In the end we can help teachers with science and engineering."

The college students in New Zealand communicated to elementary school students back home through blogs and emails. "We went to a geothermal park, climbed a glacier, stayed with the Maori people for a few days and learned about their culture, swam with Hector's dolphins, hiked and learned about the rivers and pollution." Aoki says.

The Lafayette students were in different focus groups, and we incorporated SeaPerch in their scientific activities. For example, the Water Quality group conducted water testing using one of the SeaPerch ROVs that the elementary school students built, with multimedia elements sent back to the elementary school," says Cooper.

"Whenever we got the chance, we put a SeaPerch in the water and took video to send back to the elementary students," Aoki says. She says the most gratifying aspect of SeaPerch is seeing young students build a SeaPerch from just everyday parts and end up with an underwater robot that they can take complete ownership of. Aoki enjoys soldering the parts of the SeaPerch control box. "The hardest aspect is washing toilet bowl wax off of your hands or fixing a switch that has not been soldered properly. But," she says, "There is endless fun in just playing with the SeaPerch in the water." Cooper agrees. "The most difficult aspect of SeaPerch is putting down the controller so that other people can play with it."

More than a toy

Cooper says SeaPerch is more than a toy. He enjoys watching the children having fun with something that they actually built with their own hands. "They

Ens. Natalya Aoki (left) discusses the SeaPerch underwater robot with Ens. Patrick Cooper and Prof. Angie Moran at the U.S. Naval Academy. The photo was taken when Aoki and Cooper were attending the academy are participating in an educational outreach program for young people in science, technology, engineering and math.

may have thought they couldn't do something so complicated on their own."

"The most fun part is helping student's think of a name for their Perch," Cooper says. "It is always good to be reminded of the creativity and imagination that children have."

Where young students may at first see their robot as a final product, they soon realize it can do many other things. SeaPerch can be adapted to be faster or more maneuverable, or equipped to retrieve objects or collect samples. It becomes a learning aid for problem solving.

According to Traci L. Shoemaker, a reading specialist at the Martinsburg elementary school, students have different abilities and interests, so it's a challenge to reach every student. The SeaPerch project, which teamed her elementary school students with the local high school mentors, the Lafayette College students, and the Naval Academy Midshipmen, connected with them on a variety of levels. "For many of my girls, they loved having the undivided attention of 'cool' older students, and seeing them involved in a project that required the use of power tools and wiring made them realize that this kind of science projects is something they really can do. For boys, the power tools themselves were an allure. Any chance they had to use the drill, the soldering iron, or screw driver, showed them that maybe everything you learn in school is not centered around writing and reading, the subjects that come a little harder for them. My top students realized all the answers weren't in black and white. They needed to think through problems, like why their motor wasn't working. Sometimes they would find the problem was a weak wire connection to the motor; or maybe they didn't follow directions as well as they thought they did. In the end, the look on the young faces when the motors worked and the SeaPerch was able to move through the water was priceless," Shoemaker says.

Shoemaker appreciated the help she received from Aoki and Cooper. "I am not a mechanic and have no claim to any knowledge of how to build mechanical things, so attempting to lead a project such as this was a bit intimidating at first. Having the training from Natalya and Patrick helped me gain confidence to build a complex piece of equipment with eight and nine year olds."

"The Navy people who brought the SeaPerch kits were viewed as superheroes," Shoemaker says. "They did a great job explaining what the project was all about and also what the Naval Academy was like. The students really enjoyed the workshops they attended at the Naval Academy and loved the challenges of 'driving' their SeaPerch in the tanks."

"Kids just naturally gravitate to the Midshipmen," says Prof. Angela Moran, who teaches mechanical engineering at the Naval Academy. "Patrick and Natalya are terrific ambassadors for the SeaPerch program. They were able to convey the concepts at just the right level but impress the kids with all the possible ways ROVs are utilized."

"I think the program has served them well in return," Moran says. "They have seen the benefits of their own education and had a chance to learn through teaching." With a current shortfall of American engineers and scientists, Aoki says it's crucial to excite young students in the science, technology, engineering, and math disciplines. "SeaPerch addresses this issue quite well and also works as a great team building exercise."

STEM education is an important issue for the Navy and the nation, says Rear Adm. Nevin Carr, Chief of Naval Research. "We need to reach young students at an earlier age, get them inspired to careers in science, technology, engineering, and math, support them as they get into college and graduate school, and provide them with careers that will be there waiting for them when they come out the other end."

Captain Edward Lundquist, USN (Ret.) is a science writer with MCR.

STEM Important for Navy, Nation

The story about **Ensigns Natalya Aoki** and **Patrick Cooper** is an important story on several levels. These two officers turned a diminutive, build-it-yourself underwater robot into a powerful impact on young people. The SeaPerch remotely operated vehicle (ROV) might look like a toy, but it is being used by educators from grade school to grad school to teach some of the fundamentals of science and technology.

By working with college, high school and elementary students, they represented the U.S. Naval Academy and the Navy in setting a marvelous example, while opening up a new world of discovery for these young people. Science, technology, engineering, and math (STEM) education is an important issue for the Navy and the nation. We need to reach young students at an early age, inspire them toward careers in science, technology, engineering, and math, support them as they get into college and graduate school, and provide them with careers that will be there waiting for them when they graduate. According to the National Science Foundation, about 2.5 million high school students graduate each year. About 2 million of them go to college. Fewer than half of those—about 900,000— begin to major in science, technology, engineering, and math subjects, and fewer than half of those actually graduate with bachelor's degrees in those technical subjects. A fraction–about 186,000—actually go on to obtain advanced degrees. That's a pretty steep pyramid.

Supporting STEM is important for our country, but the Navy also has a vested interest in ensuring we can draw from a talent pool of good scientists and engineers to support the highly technical requirements of the Fleet, today and into the future. We also need the best and brightest to become science, technology and math teachers, to perpetuate the education of smart and innovative scientists and engineers.

By helping students to build their own SeaPerch underwater vehicle from kits, this program helps them learn about concepts in electricity, displacement, propulsion, buoyancy and stability, all while having fun. By adapting their SeaPerch to retrieve objects, avoid obstacles, collect samples or go faster, the students learn about problem solving. Admittedly, this effort is hard to measure. For the young students in particular, we measure success by how many young people we can we can reach. Ens. Aoki will be attending the Navy's Flight School before reporting for duty with the Navy's Air Forces. Ens. Cooper is attending Nuclear Power School and will enter the Submarine Force. Thanks to them, we are reaching young people in a meaningful and positive way.

Nevin Carr, Rear Admiral, U.S. Navy, Chief of Naval Research

SOCP at MITAGS: Mind the Gap(s)

December Meeting Highlights Regulatory Changes and Safety Issues Impacting the Maritime Industry. Ship Operations Cooperative Program now more important than ever with the apparent demise of MERPAC and the winds of change in Washington are blowing just a little harder on the domestic waterfront.

By Joseph Keefe, *excerpted from his posts on MaritimeProfessional.com*

A virtual "Who's-Who" of industry executives and regulatory heavyweights helped to launch the December meeting of the Ship Operations Cooperative Program (SOCP) on last month. Intended to highlight the coming dramatic changes to regulatory and safety issues that impact the maritime industry, the meeting also featured remarks by U.S. Maritime Administrator David Matsuda, who warmed up the crowd for keynote speaker Congressman Elijah Cumming (D – MD). Well over 100 industry and regulatory leaders were signed up and in attendance as the two day event kicked off. And, as important as the new changes to maritime training regimes will be to the waterfront, the emergence of SOCP as the leading voice of industry on these matters after the failure of DHS to renew the MERPAC charter was, perhaps, the bigger story. The order of the day was substantive panel discussions on a wide range of maritime training issues, including but not limited to industry's questions about the new STCW protocols, training school(s) concern about how and when the new regulations (signed in Manila earlier this year) will come into play and the Coast Guard's presentation of the new requirements and some "guestimates" on how that will all come about. DHS)didn't necessarily have all the answers. Industry still has questions. Nevertheless, and before all of that could commence, the usual Keynote address and housekeeping had to take place.

Marad:
A new 'moniker' ... but nothing else

Congressman Cummings was preceded at the microphone by U.S. Maritime Administrator David Matsuda. The Marad Chief's remarks were mercifully short (< 5 minutes), but he used the time to proclaim, "Now, as you know, we're (Marad) the oddball in the Department of Transportation." That's something, of course, that we already knew. What you may not know is that Marad – with personnel at this meeting in strength – is also a primary sponsor of SOCP. He went on to flesh out his remarks and explain, "We're not safety regulators, but as a promotional agency, we can help to find solutions to the many challenges before the maritime industry."

Before wrapping up and introducing Cummings, he also expressed disappointment in the "published media" attacks against the "very programs that sustain the U.S. merchant marine." He didn't elaborate and I suppose, knowing today's DOT public affairs protocols, a FOIA request will be necessary to find out just what he was referring to.

Cummings:
Fashionably late; right on the money

Next up was Keynote speaker Congressman Cummings, who, despite being late to the fifth consecutive speech that I've traveled to hear him give, provided an inspirational message, chock full of information and, as usual, doled out several good points regarding the maritime industry, the increasingly difficult atmosphere that we all operate in and what to expect down the road. As perhaps the last remaining voice with any seniority at all in the house who is also an advocate of Jones Act shipping, what he has to say now takes on increasing significance.

For his part, Cummings focused on a wider menu of topics, but he spent the most time praising the passage of the new Coast Guard Authorization bill (HR 3619). Although lacking in key components – including his proposed loan program for maritime worker education dropped from the language by Senate colleagues – the bill also accomplished, according to Cummings, a great deal. Of particular interest to the commercial sector conference attendees, the new law mandates increased (long overdue) competence metrics for U.S. Coast Guard marine inspectors and tightened safety regulations for the fishing vessel and uninspected vessel industries. Cummings talk, spanning nearly an hour, also hit many other hot-button issues, including:

- A call to continue to fund the maritime security program at current levels;
- A call to uphold cargo preference laws – and with Marad Chief Matsuda sitting conspicuously just three feet to his right – also reiterated his intention to ensure that these laws were enforced to the letter;
- A call to the DHS Secretary to renew the charter of the MERPAC advisory group;
- A brief reference to, and lamenting the loss of both Congressman Oberstar (D – MN) and Gene Taylor (D – MS), both casualties of the mid-term GOP tsunami, whose collective leadership on waterfront issues will be difficult to replace; and
- He urged continued support of the Jones Act.

Coming in February
APU/Maritime Reporter WEBCAST Series

First online installment of this unique partnership to focus on **Maritime risk**. Out in front of the premier edition of *Maritime Professional* print magazine, readers and online listeners will learn how to overcome uncertainty and meet compliance standards – by empowering their individual employees.

Maritime stakeholders continue to face complex challenges. Maintaining a healthy bottom line in the face of a myriad of regulatory, environmental and operational risks, therefore, has become Job 1. Preventing the loss of vessel and crew from acts of piracy, catastrophic accidents, natural disasters or the loss of infrastructure resulting in down time which prevents or suspends essential activities are just some of tasks confronting today's maritime professional.

As the New Year moves into full swing on February 16th, an innovative WEBCAST series will kick off at 1100 hours EST to address the scourge of Maritime Risk. This interactive discussion between maritime experts Joseph Keefe (Maritime Reporter group) and Donald McKay (American Public University) will promote dialogue, heighten awareness and present solutions to these challenges. These will include:

- STCWCompliance
- Cost-Effective Education of the entire maritime workforce
- Using technology to more effectively deliver content
- Optimizing operational efficiency while minimizing vulnerability

This webcast will also include a Q&A session and a few twists that you might not expect. Also participating, appropriately enough – as one of many online choices available to industry – is the industry's online STCW training leader, MEBA's Calhoon MEBA Engineering School (CMES). CMES and its offerings are important in that they have developed, packaged and are now delivering the maritime industry's first online, fully interactive U.S. Coast Guard approved STCW training course. Maritime Professional Managing Editor (and licensed mariner) Joseph Keefe has taken and passed both courses and will lead listeners through a discussion of what's available, how that affects your bottom line and more importantly – why it is good for the maritime industry.

From APU, Professor Donald McCay will talk about Minimizing Maritime Risk using a Knowledge Management Framework.

Online delivery of educational materials is not a new concept. Arguably, the global maritime industry lags badly in its utilization of this increasingly important tool. The new Manila Amendments to the STCW Code directly address the possibility of expanding online education, blended learning and alternative ways to deliver content. Tune in as APU and the Maritime Reporter group address Maritime Risk in an interactive forum and then present an overview of how industry is supplying tools to stakeholders that enable them to better manage maritime risk. To get an idea of the objectives and outcomes of past webinars, click on

http://www.apu.apus.edu/lp/webcast

APU: Expanding E-Learning for the Maritime Industry

APU faculty, Profs. Jennifer Batchelor and Irvin Varkonyi, Transportation and Logistics Management.

E-learning and the maritime industry is taking off. American Public University is advancing e-learning with university degrees and certificates. APU partners, such as MEBA Calhoun, focus on e-learning for mariners. Whether you seek to continue your career at sea or work in the strategic logistics divisions of maritime focused organizations, consider supplementing your professional credentials with a degree from American Public University. Online learning enables you to work in your profession while you go to school. Mariners travel the world but your classroom is only a click away when you have Internet access. APU offers more than 100 online bachelor's, master's and certificate programs, including transportation and logistics management, business administration, information technology management and more. APU offers flexible course planning, experienced faculty and the ability to transfer credit for approved courses.

Classes start monthly. Visit www.studyatapu.com/tlm for more information or attend a virtual open house.

New Navigation Training Center

Northrop Grumman's Sperry Marine business unit opened a new ship navigation training center in Charlottesville, Va., to provide a wide range of navigation courses, including computer-controlled classroom training and a full ship's bridge simulator, giving students hands-on training under realistic scenarios.

Bodin Maritime School's New Engine Room Simulator

Kongsberg Maritime's Simulation division signed a contract with Bodin Maritime School for an upgrade of its existing engine room simulator. The existing engine room simulator will be extended to include an additional full mission engine room simulator featuring Kongsberg's Big View. Bodin Maritime School will offer eight unique engine simulator models to support a wide selection of courses. The upgrade is set to be functional by August 2011.

Overhaul Energizes Houston Center

SCI's Houston Center for Maritime Education's 10-year-old simulators required updates to remain on the cutting edge of training. According to Eric K. Larsson, Ph.D., Director of the Institute's Center for Maritime Education, the major upgrades SCI has made to its Houston simulators, "supply mariners with sophisticated and adaptable simulation possibilities." New simulators in Houston incorporate the latest technology, and new geographical databases for the area surrounding the Port.

Panel charged to break new ground

Engineers Energized to Update Electric Ship Standards

By Edward Lundquist

The longstanding standard for electrical installations on ships is being brought up to date by a distinguished panel of engineers. But, says the team leader, they would like more participation in the IEEE-45 standard development panel. "We want to encourage people to help with this effort," says Moni Islam, chair of the IEEE-45 Standard Coordinating Committee.

"In the process of standards development, we are initiating fundamentals of design, changing how we will design electrical systems in ships in the future," Islam says.

The standard, last revised in 2002, is being updated, and new supporting (DOT) standards being developed to support both military and commercial ship designs.

"We want to give this information in simple terms so that everybody interested in fundamental ship design can contribute to supporting those changes," he says.

"Change is coming," Islam says. "It's going to be different than the way we've been doing things for the last 40 years."

IEEE-45 will remain as the overarching standard for electric ship design, but eight new DOT standards have been approved.

"The change is very simple," explains Islam. "The traditional 450 volt electrical system found onboard ships today is ungrounded delta for low-voltage systems; and for medium-voltage systems high resistance grounding is the common system. The fundamental change is that we will be making low and medium voltage the same. Low voltage systems will change to resistance grounding."

There will continue to be a difference between U.S. and some international systems. The U.S. uses 60 Hz, while some international systems operate at 50 Hz. But Islam says that difference is not a major difficulty.

This progressive new standard will permit new electric-ship designs with Integrated Propulsion Systems (IPS). The resistance ground detection change is proposed for new designs, not to modify existing installations. There is complete support in making this change, he says.

The IEEE-45 standard was first released in 1920. To support the new IPS designs, the 2010 update is looking at many issues that come under the standard, such as design, controls, integration, testing and others. These "dot" standards are being developed individually (see box).

There are science and technology challenges. New designs for naval ships must address power continuity, survivability, safety and reliability. Managing life cycle costs must be considered at the outset. Common architectures, common design tools and standard interfaces will permit technology upgrades and maintainability and information sharing. "This will require us to educate the engineers about these standards and how to best employ them," Islam says.

Dennis K. Neitzel, CPE, IEEE Senior Member, director emeritus of the AVO Training Institute in Dallas, says that anyone who has shipboard electrical experience should be involved with at least one of the eight IEEE 45 "dot" standards. "Input from those who know is vital to the usability of a standard. Basically, if you don't participate in the process then don't complain about what is in the standards."

Neitzel is a working group member for all of IEEE 45 and the working group chair for IEEE P45.5 Recommended Practice for Electrical Installations on Shipboard – Safety Considerations.

This effort is particularly challenging, Neitzel says. "There is so little information currently available to the public, so the development of 45.5 is essentially from scratch. It is also difficult because there are very few people resources who are willing to fully participate on the Task Group so I am doing a great deal of the initial research and development work myself. But I find it rewarding to be able to pull together information that will be helpful to all who work in a shipboard environment, military and civilian."

Islam says the team members all have a say in the proposed standard. "To adopt a change, you have to explain why you are adapting," he says. "If not, explain why you are not adapting."

Islam says that those who come forward to work with the standard development s team will join experts from the Navy, Coast Guard, American Bureau of Shipping (ABS), academia and industry. And, he says, they will be making a real contribution to the profession.

As the electric ship moves from the drawing board to the building ways, Neitzel says the new standards are an imperative. "Currently there are no overall electrical safety standards for shipboard electrical installations. I know that the Navy has several manuals available for shipboard installations but I have found them lacking a considerable amount of information and direction for electrical safety. I serve on the Defense Safety Oversight Council for the DoD Electrical Safety Special Interest Initiative and have extensively reviewed several Navy manuals. The only OSHA regulations available address Shipyard Employment (1915), Marine Terminals (1917), and Longshoring (1918). OSHA also provides a cross-reference for 1915, Shipyard Employment and 1910, General Industry in CPL 02-00-142 Shipyard Employment 'Tool Bag' Directive. These are all great regulations and standards but they do not address shipboard applications."

According to John Winbery of Winbery and Associates Consultants in Mandeville, LA, this effort is essential because it provides guidance and education for naval architects, marine engineers, equipment manufacturers and shipyards. "IEEE 45 provides the information upon which any good vessel electrical system specification should be based. In the case of switchboards, all the required components and construction features for a complete, well designed switchboard will be in IEEE 45.7. This effort is also important because IEEE 45 has no enforcement authority as is the case with the Coast Guard and ABS."

The Navy is taking a very active role in the process.

"If you are locked into an obsolete standard and you want to build a ship of the future, you have to create an entirely new standard," says Lawrence C. Schuette, Ph.D., director of innovation at the Office of Naval Research. "We want industry to look to it and say, 'Oh, that is the future. So that's where we're going to start putting our internal research and development dollars against that future. That's the marker, let's get there.' And so a standard is a great signaling device to the broader community. That this is where we want to go and we want our partners to be part of that."

Individuals who would like to participate in this important effort to update IEEE-45 may contact:

Moni Islam,
Email: Moni.islam@ieee.org
Tel: 504-333-5004

THE IEEE-45 will remain as the Mother Standard. In addition, the following DOT Standards have been approved:

- IEEE-45.1 FOR POWER SYSTEM DESIGN
- IEEE-45.2 FOR CONTROLS
- IEEE-45.3 FOR SYSTEM INTEGRATION
- IEEE-45.4 FOR MARINE SECTOR AND MISSION SYSTEMS
- IEEE-45.5 FOR TESTING
- IEEE-45.6 FOR SAFETY CONSIDERATIONS
- IEEE-45.7 FOR SWITCHBOARD
- IEEE-45.8 FOR CABLE INSTALLATIONS

Strategic Alliance Puts Retlif On West Coast

Retlif Testing Laboratories, an independent EMC and Environmental testing facility since 1978, announced a strategic alliance with Acme Testing (Acme, Wash.). The arrangement brings Retlif's Electromagnetic Compatibility (EMC) and Environmental Simulation (ESS) testing as well as extensive engineering capabilities to the Pacific Northwest, specifically the Puget Sound area. The expansion in combined capacity and capabilities enables Retlif and Acme to service the rising demand from commercial maritime, commercial aviation, homeland security and defense industry sectors. "This is a great opportunity for Retlif to partner with a respected west coast laboratory," said Walter Poggi, Retlif President. "We anticipate transcontinental exchange of services that will jointly increase our market base." The Retlif-Acme alliance offers in-house EMI, Electromagnetic Pulse (EMP), power line fluctuation, and magnetic effects testing, in addition to EMC site surveys and EMC final compatibility testing. Combined ESS offerings include in-house full classic shock testing capabilities, as well as Ballistic and Pyrotechnic shock, vibration testing up to 20,000 lbf, salt fog, inclination, temperature, humidity and many more capabilities. In addition, Retlif and Acme also offer vibration site surveys and acoustic noise site surveys.

www.retlif.com

EPD, Siemens Form Solutions Partnership

Electronic Power Design, Inc. (EPD) and Siemens Industry, Inc. Drive Technologies formed a solutions partnership for Siemens ELFA R hybrid propulsion systems. Siemens recently released its newly designed ELFA hybrid propulsion system, which offers considerably enhanced fuel consumption, range, redundancy, and maneuverability. The Siemens ELFA successfully closes the gap between large merchant vessels and small recreational and commercial crafts traditionally powered by mechanical propulsion solutions. The standardized plug and operate solution further reduces the time/effort required for installation and integration into the vessel. "EPD continues to demonstrate its technological competency for Siemens products being a Solutions Partner for almost twenty-years," said John Norwood EPD's Vice President of Business Development. **www.epdltd.com**

Kittiwake Acquires Procal

Kittiwake Developments acquired Procal, a manufacturer of in-situ, multi component continuous emissions monitoring systems (CEMS). The newly-named Kittiwake Procal can supply CEMS for a very wide range of applications, spanning power generation, marine and offshore, cement, incineration, refineries, paper and pulp, steel, nitric acid and fertilizers. Complying with international standards including EN14181 and US EPA 40 cfr Parts 60 & 75 for the measurement of NO, NO2, SO2, CO, CO2, H2O, the in-situ analyzers monitor and measure emissions accurately and reliably.

STX Finland, USC Enter JV for Arctic Shipbuilding

STX Finland Oy and United Shipbuilding Corp. (USC) have formed a joint venture company, which will specialize in arctic shipbuilding technology. An agreement for the formation of the new company, Arctech Helsinki Shipyard Oy, was signed in St. Petersburg in a meeting with the Russian Prime Minister Vladimir Putin and the Finnish Prime Minister Mari Kiviniemi. According to the agreement both founding companies will hold equal shares of Arctech Helsinki Shipyard Oy. The new company will purchase the Helsinki shipyard from STX Finland. The joint venture will focus on arctic maritime technology and shipbuilding and will unify Russian and Finnish Maritime clusters.

ST Marine Scores Austalian Navy Deal

ST Marine scored a breakthrough by securing its first contract with The Royal Australian Navy (RAN) to convert its 157.2m long combat logistics vessel, HMAS Success, to be double hulled to meet the IMO standards for environmental protection against oil spills. The HMAS Success is designed to supply naval combat units with fuel, ammunition, food and stores whilst underway at sea. Capable of day and night Replenishment at Sea to ships alongside and concurrently by her embarked helicopter to other ships in company, the HMAS Success weighs 18,000 tons when fully loaded. Commissioned in 1986, HMAS Success is the largest ship built in Australia for the RAN.

Saab to Deliver for India

Saab was awarded in November a 12.2m EUR contract from the India Directorate General of Lighthouses and Lightships (DGLL) to deploy a coastal surveillance system covering the entire Indian mainland coast. The national coastal surveillance system will encompass 74 sensor locations, six regional control centers and three national control centers, most which will be connected by broadband satellite links. The contract includes options to add another 12 sensor sites in the future.

(Continued from page 28)

Turkey

Delivery was concluded with one of the boats carrying pennant number P-141.

Submarine Rescue Mother Ship

The Turkish Navy plans to acquire one Submarine Rescue Mother Ship. A RFI was issued by the Undersecretariat for Defense Industries on 25 July 2005. A total of 78 companies had responded by 30 October 2006. A Request for Proposal (RFP) was issued on 12 May 2008 to which responses were received on 29 May 2009. Subsequently, negotiations have commenced for a contract with the Istanbul Denizcilik Shipyard.

Rescue and Towing Ship (RATSHIP)

The Turkish Navy plans to acquire two Rescue and Towing Ships. An RFI was issued by the Undersecretariat for Defense Industries on 25 July 2005. A total of 78 companies had responded by 30 October 2006. A Request for Proposal (RFP) was issued on 12 May 2008 to which responses were received on 29 May 2009. Subsequently, negotiations have commenced for a contract with the Istanbul Denizcilik Shipyard.

Fleet replenishment ship project

A project for the acquisition of a new fleet replenishment ship was started in 2007. Discussions regarding the project were held with Sedef Shipyard probably during 2009. A RFP was being prepared as of May 2010.

Emergency Intervention and Divers Training Boats

A request for proposals (RFP) is under development by he Undersecretariat for Defense Industries since 2009. Two boats are required for the Sea of Marmara.

Landing Platform Dock (LPD)

The acquisition of one Landing Platform Dock (LPD) was authorized on 22 June 2005. Available information suggests there is a requirement for a vessel of some 13500 ton capable of carrying 4 x LCM or 2 x LCAC. The Undersecretariat for Defense Industries issued a Request For Information (RFI) on 6 April 2007. As of February 2010 a Request for Proposals was under consideration. The vessel is to be constructed at a private Turkish Shipyard.

Landing Ship Tank (LST) project

The acquisition of two Landing Ship Tank (LST) was authorized on 12 December 2006. The Undersecretariat for Defense Industries issued a Request for Proposals on 12 May 2008. Responses were received on 9 February 2009 and are under consideration as of February 2010. The Aidik Shipyard is reportedly involved in developing the project documentation.

Landing Craft, Air Cushion (LCAC)

The Turkish Navy has a requirement for the acquisition of an unspecified number of air cushion landing craft which will be embarked on the LPD. The Undersecretariat for Defense Industries issued a request for information (RFI) in July 2009 to which a number of companies have responded. The results of the RFI are being investigated as of Feb '10.

Seismic Research Ship project

On 3 December 2010, proposals for the construction of a seismic research vessel were submitted by two respondents to the Undersecretariat for Defence Industries. The vessel is to fulfill requirements of the General Directorate of Mineral Research and Exploration (MTA). The project was started up in 2009.

Schooner type school ships

The Undersecretariat for Defense Industriesissued a Request for Information (RFI) on 18 January 2009 for the acquisition of two schooner type school ships by the Turkish Navy. These are to be used for basic training and the practical training of naval officer candidates. As of May 2010 a Request for Proposals (RFP) was being prepared.

Landing Craft Tank (LCT) project

The acquisition of eight Landing Craft Tank (LCT) was authorized on 30 June 2006. The Undersecretariat for Defence Industries issued a request for proposals (RFP) for the construction of eight LCTs for the Turkish Naval Forces Command on 3 August 2007. The RFP called for deck of at least 300 cu. m. and a carrying capacity of at least 200 tons. Following a tender procedure, four companies had submitted bids by 30 June 2008 and a contract was awarded to the ADIK-Furtrans Joint Venture on 17 June 2009. Construction of the first unit commenced in late Januari 2010.

Japan

(Continued from page 29)

13,500-ton DDH (16DDH)

The 13,500 ton DDH is a through deck helicopter cruiser. The lead unit Hyuga was inserted in the FY 2004 program and delivered on 18 March 2009. The second unit Ise was inserted in the FY 2006 program. The Ise was launched on 21 August 2009 and is due for delivery in March 2011. The most current description indicates a vessel weighing 13,500 tons (standard) and 17,000 tons (full load), with GOGAG propulsion for a speed of 30 kt. The armament will consist of Mk 41 VLS, two Gatling CIWS systems and 12.7 mm guns. The ship will operate SH- 60K and MCH- 101 helicopters.

7,700-ton DDG (14DDG)

Improved Kongo class missile destroyers. Two units are in the program. Atago was delivered on 15 March 2007 and Asighara on 13 Narch 2008.

3,200-ton hydrographic survey ship (19AGS)

The FY 2007 budget request contains funding (JPY18,8 billion) for one 3,200 ton hydrographic survey ship. She is to be the first of a series of four units but the others have so far not been programmed. She was delivered on 17 March 2010. The hull is was constructed to merchant ship standards in order to keep the cost down.

4,900-ton ARC

A 4,900 ton ARC was programmed in the FY 2009 budget. Details are so far not available. She is scheduled to be delivered in March 2013.

5,000-ton destroyer (19DD)

The first unit of a projected class of four 5,000 ton destroyers was requested under the FY 2007 budget at a cost of JPY84.8 billion. The lead unit was launched on 13 October 2010 and delivery is due in March 2012. A stated role is to protect Aegis BMD ships.

570-ton MSC (16MSC)

Successor to the Sugashima class minehunter. Five units have so far been authorized with the lead unit completing in March 2008, the second in March 2009 and the third in February 2010. To be fitted with the S- 10 minesweeping and disposal system.

510-ton MSC (07MSC Sugashima class)

The program consists of 12 units. The final unit Kuroshima was delivered on 23 February 2007.

13,500-ton AOE (12AOE Mashu)

Two units budgeted, one each in FY 2000 and 2001. A third unit had been expected in the 2003 budget. The lead unit, Mashu, was commissioned in March 2004. The second unit was delivered in March 2005.

Next generation schnorkel submarine based power generation system

On 10 May 2009, the JMSDF initiated a research and development project for a next generation schnorkel submarine based power generation system to be included in the FY 2010 budget. The project is estimated to take some 5.5 years at a cost of JPY13 billion. Existing systems such as those based on the MTU 16V 396 SE or the SEMT Pielstick 12 PA4 200 SM do not meet the performance requirements. The project goal is to improve stealth, and to reduce size and noise. The new power generation system would be introduced from 2020.

New Head of Environment at WSS

Wilhelmsen Ships Service (WSS) appointed a new Head of Environment, Thea Corwin (right), who was formerly a Strategy Consultant for two years at Wilhelmsen Maritime Services.

Gould Appointed ABS VP

Jean Gould was appointed Vice President, External Affairs for ABS within the class society's corporate HQ in Houston. Gould replaces Stewart Wade who has retired after 14 years with ABS. Gould has more than two decades of external affairs experience and has managed public policy issues at the state, national and international levels. She comes to ABS from Coyne PR, a leading public relations agency. Prior to that, she spent 18 years with Exxon Corp.

Langeland New MD of L-3 Valmarine

L-3 Valmarine appointed Finn Inge Langeland as its managing director. He will report directly to Klaus Lorenz, vice president of European Operations for L-3 Marine & Power Systems. Langeland succeeds Ingvald Løvdal, who will manage the Marine Navigation division at L-3 Valmarine.

Alfa Laval Acquires Aalborg Industries

Alfa Laval signed an agreement to acquire Aalborg Industries Holding A/S for $729.6m. Aalborg Industries has some 2,600 employees and is expected to generate sales of about $481.5m in 2010. The closing of the transaction is subject to clearance from regulatory authorities. Over the last five years, Alfa Laval has acquired some 28 companies with total sales, at the time of the acquisitions, of about $730m.

Chemoil Acquires OceanConnect's Marine Fuel Group

Chemoil acquired OceanConnect Holding's (OCH) marine fuel business for an expected $25m. The deal includes the acquisition of OCH's marine fuel business, its independent online bunker auction portal, and a team of experienced bunker brokering and trading employees and staff in the U.S., U.K., U.A.E., South Korea, Japan and Denmark. Tom Reilly, OCH's former CEO, was appointed as Chemoil's new CEO and Director.

MRG Acquires Cook Inlet Tug & Barge

Marine Resources Group (MRG) is expanding into the Alaska harbor services business with the acquisition of the assets of Cook Inlet Tug & Barge. Based in Anchorage, Cook Inlet will operate as an independent subsidiary, effective Jan. 1, 2011. The family-owned Alaska company traces its history to 1923, has 10 employees and operates three tugs and one barge.

Automated Valve & Controls Doubles Size

Automated Valve & Controls (AVC) has doubled the size of its facility. The new 30,000 square-foot facility allows AVC to expand and better manage the larger automation projects that are increasingly demanded by its growing customer base.

Delta Wave Teams with Global Rescue

Delta Wave Communications have teamed with Global Rescue to combine their service with Delta Wave's line of satellite based global personal tracking and emergency alert products. Global Rescue is an emergency services company that provides medical, aeromedical evacuation, search and rescue and security services to individuals, corporations, travelers and expeditions worldwide. The services are also compatible with Delta Wave's line of personal asset trackers, such as the "Shout Nano" and Solara devices which offer two-way messaging and emergency alert features.

Hapag-Lloyd Orders Large Vessels

Hapag-Lloyd is investing, ordering four large vessels with a capacity for 13,200 TEU each from Hyundai Heavy Industries. It was also agreed that the six new vessels ordered in the beginning of 2008 should be upgraded to the same capacity. These ten large vessels are scheduled for delivery between mid-2012 and the end of 2013 and comply with all current environmental requirements.

Schottel Appoints Italian Sales Partner

Schottel announced the appointment of Eastproject S.r.l., based in La Spezia, as its sales partner in Italy.

Algae-X International
Fort Myers, FL 33905
www.algae-x.net
tel: 239-690-9589
email:tbrady@algae-x.net
Products: AFC-705 Fuel Additive, LG-X Inline Fuel Conditioners, Automated Fuel Polishing Systems, Mobile Tank Cleaning Units

American Chemical Technologies, Inc
Fowlerville, MI 48836
www.americanchemtech.com
tel: (270)392-1301
email:jkovanda@americanchemtech.com
Descr: Manufacturer
Products: Non-Sheening, Synthetic Biodegradable and Aquatically-friendly line of lubricants

American Clean Energy Systems
Volant, PA 16156
americancleanenergysystems.com
tel: 1.866.533.9922
jhill@americancleanenergysystems.com
Descr: World leader in fuel and oil technology
Products: Liquid engineering involves the addition of fuel or oil catalysts to engines

American Permalight, Inc.
Torrance, CA 90505
www.americanpermalight.com
tel: 310-891-0924
fax: 310-891-0996
email: info@americanpermalight.com
Products: Permalight products absorb light and glow in full darkness, when all lights are out

American Sensor Technologies
Mt. Olive, NJ 07828
www.astsensors.com
tel: 973-448-1901
email: info@astsensors.com
Descr: AST offers MEMS-based pressure sensor products; Applications include industrial OEM, fluid power, hydraulic systems, fuel cells, HVAC/R, water management and oil and gas exploration

Barwil Unitor Ships Service
Pasadena, TX 77507
www.unitor.com
tel: 281-867-2000
email: houston@unitor.com
Products: Onboard fuel test equipment, fuel additives and associated supplies

Bio Gem Servics
Clackamas, OR 97015
www.bio-gem.com
tel: 503-422-2833
email:roy.mohr@bio-gem.com
Products: Environmental Safe Cleaners & Lubricants

C.C.Jensen A/S
Svendborg, Fyn DK-5700 Denmark
www.cjc.dk
tel: +4563212014
email: filter@cjc.dk
Descr: design and manufacture of oil and fuel filters, separators and desorbers, as well as bilge water polishing filters for all kinds of marine applications
Products: Oil filters, Fuel filters, Separators, Desorbers, Bilge water treatment

Castrol Marine
www.castrol.com
Castrol Marine provides a complete lubrication service to the marine industry from the smallest fishing vessel through to the fastest container ship. The diversity and sophistication of shipboard equipment and modern operating conditions demand the highest level of lubrication technology. Castrol Marine delivers the highest quality lubricants and fluids, giving comprehensive technical back up and customised service. Castrol's headquarters are based in the UK, but Castrol Marine is a global company represented in around 80 countries servicing over 700 ports.

Chevron Global Lubricants
Louisville, KY 40222
www.chevron.com
tel: 502-420-7006, fax: 281-582-5509
email:creeder@chevron.com
Products: engine oils, gear oils, hydraulic oils

Chlor*Rid International, Inc.
Chandler, AZ 85225
www.chlor-rid.com
tel: 480-821-0039
email: kthomas@thomaspr.com
Descr: Offers products and information for soluble salt testing and soluble salt removal
Products: Chlor*Rid, Chlor*Wash, Chlor*Test, Chlor*Ion Meter

Ecorr Systems, Division of Root International, Inc
288 Cindy Lou Place
Mandeville, LA 70448-4632
www.ecorrsystems.com
tel: 813 751 2030
email:roland@rootintl.com
Products: Marine diesel fuel additives & stabilizers,

EnerTeck Chemical Corporation
Stafford, TX 77477
www.enerteck.net
tel: 281-240-1787
email: cliffk@enerteck.net
Descr: Provider of engine treatment diesel fuel additive

ELINOIL S.A.
Athens, 145 64 Greece
www.elin.gr
tel: + 30 210 6241 560
email:galang@elin.gr
Products: Cylinder oil, System oil , Trunk Piston Engine oils,

ESI Total Fuel Management
Chantilly, VA 20151
www.fuelmanagement.com
Melinda Maas
tel: 703-263-7600
email:info@fuelmanagement.com
Products: Fuel polishing systems, ESI Clean Fuel Systems, De-Bug Decontamination Units, Racor filters and filter elements, valves, fuel hose

ExxonMobil Corporation
Fairfax, VA 22037
www.exxonmobil.com
tel: 703-846-4162, fax: 703-846-5743
email:thomas.a.schiff@exxonmobil.com
Products: Lubricants, Fuels, Specialities,

FuelTrax Marine Fuel Management
Houston, TX 77060
www.fueltrax.com
tel: 1-281-209-3900
email:info@fueltrax.com
Descr: Marine Systems Design and Manufacture
Products: Marine Fuel Managment Monitoring and Accounting

Fuel Separation Technologies
Port Orchard, WA 98366
tel: 360-871-0134
email: wgbe@hotmail.com
Products: Marine lubricants, fuel water separators

Kobelco Eagle Marine, Inc.
New York, NY 10001
www.kobelco-eagle.com
David Hawkins
tel: 212-967-5575
email:hawkins@kobelco-eagle.com
Products: stern tube seals, bearings, lubricants,

Leistritz Corporation
Allendale, nj 07401
www.leistritzcorp.com
tel: 201-934-8262
email:staff@leistritzcorp.com
Descr: Manufacturer of marine pumps
Products: Fuel Oil and Lube Oil Pumps

LQM Petroleum Services Inc
www.lqm.com
tel: 201-871-9010
email:nj@lqm.com
Products: Marine Fuel Brokers, BOptimum and BunkerDashboard bunker optimization and procurement software
Products: Seawater Lubricated Bearings

Ohmsett, National Oil Spill Response Test Facility
Atlantic Highlands, NJ 07716
www.ohmsett.com
tel: 301-230-4565
fax: 732-866-7189
email:jdelgado@marinc.com
Descr: Ohmsett is the only facility in the world where full-scale oil spill response training, testing, and research can be conducted with oil in a realistic simulated marine environment under controlled conditions.
Products: Oil Spill Response training, testing and research.,

Power Research Inc.
Houston, TX 77024
www.priproducts.com
tel: 713-490-1100
email: pri@priproducts.com
Descr: Manufacturer of heavy and distillate fuel treatments for deposit control, emissions reduction, improved lubricity and microbial growth elimination
Products: PRI-RS, PRI-27 and PRI-SOLV for HFO, PRI-D and PRI-OCIDE for distillates

Qatar Lubricants Co. Ltd (QALCO)
Mesaieed Industrial City
Doha, 22750 Qatar
www.qalco.com
tel: 974-4583237
email:qalco@qatar.net.qa
Descr: The only Lubricants blending plant in state of Qatar
Products: All type of Lubricants including Marine Lubricants,

Saipem S.p.A
Via Martiri di Cefalonia ,67
Milano, it 20097 Italy
www.saipem.it
gianni franzoni
tel: +390252044491
fax: +390252034403
email:gianni.franzoni@saipem.eni.it
Products: Oil Company

SKF Maintenance Products
Nieuwegein, 3430 BA the Netherlands
www.mapro.skf.com
tel: +31 (0)30 630 7200
email:info.mapro@skf.com
Descr: Maintenance tools and lubricants
Products: High quality, high performance grease for rolling bearing applications,

Sun Coast Resources, Inc.
Houston, TX 77028
www.suncoastresources.com
tel: 800*677*3835
email:sales@suncoastresources.com
Products: Sun Coast Resources, Inc. is proud to be a Chevron Signature Class lubricants distributor, reserved for a select group of marketers.

Total Lubricants USA Inc
Linden, NJ 08844
www.total.com
tel: 908-313-4208
email:ajit.gangadharan@total-us.com
Products: Marine, Automotive, Glass, Industrial

Varna Products
Cameron Park, CA 95682
www.varnaproducts.com
Tiffany McAchran
tel: 530-676-7770
email: tmcachran@varnaproducts.com
Descr: Manufacturing of industrial oil/fuel pumps

W&O's FuelProof System

W&O introduced the FuelProof fuel, energy and emissions management system, designed to save money and improve vessel efficiency by integrating current data management systems. "We developed the FuelProof system with modules that provide better accuracy and more precisely monitor vessel bunker custody transfer, fuel consumption and efficiency, and emissions," said Jack Guidry, President and CEO of W&O. "Using the W&O iShip data management infrastructure, FuelProof also takes operational efficiency a step further by integrating all existing engine management, automation and DCS systems using a single, easy-to-use interface that provides accurate measurement, recording and reporting of valuable fluid flows on vessels."

The FuelProof bunker module considers all factors affecting bunker transfer measurements, unlike current measurement methods in place that require manual measurements and calculations to compensate for temperature, density or grade, which can provide a one to five percent margin of error in the readings' accuracy. FuelProof's direct mass method of measurement delivers a 0.5 percent margin of error during the bunkering process, drastically reducing discrepancies and costs.

Scalable to any large ship or smaller barge, FuelProof has many applications and can be utilized as a single fuel measurement system or be fully integrated with all vessel measure and control systems. This complete interface captures, records and reports all vital fluid levels on vessels in a single data management infrastructure to provide a single, context based view of vessel operations to all stakeholders in the company. Furthermore, a vessel's FuelProof system can transmit anywhere in the world to allow fleet managers to accurately gauge operations of all fleet vessels simultaneously.

The FuelProof system easily integrates with existing emission-reducing technology on vessels, including the Amot G-Valve, to provide a complete, accurate measurement and improvement of emissions compliance.

www.wosupply.com

Em-trak A100 AIS

Em-trak is a high performance, professional standard full feature AIS Class A transceiver. Easy to install and intuitive to use, the Em-trak A100 has plug and play compatibility with all your bridge systems. Engineered to operate in even the toughest of marine environments, the em-trak A100 is approved fro both deep sea and inland use. Available from Port Supply, the wholesale division of West Marine.

Email: govtind@portsupply.com
www.portsupply.com.

Magnetic Patch Helps Save Nuke Waste Freighter

A magnetic patch made by Miko Marine AS of Norway was used to seal a leak in the hull of the nuclear waste freighter Puma . The ship was in danger of sinking on December 18, 2010, when it experienced a leak in its engine room while sailing south along the coast of Norway following its delivery of 333 tons of spent nuclear fuel to Murmansk. An inspection by the Norwegian Coastal Administration vessel KV Farm revealed a burst valve on a pipe supplying sea water to the ship's sanitation system. The crew was unable to stop the flow of water into the engine room until the leak was sealed by a magnetic patch provided by the KV Farm. Packs of magnetic patches are carried aboard Norwegian Coastal Administration vessels.

Email: info@miko.no

Packs of magnetic patches are carried aboard Norwegian Coastal Administration vessels.

Globe iFusion: Inmarsat's "Product of the Year"

Inmarsat named Globe iFusion the 2010 Maritime Solution of the Year. Globe Wireless became a FleetBroadband Distribution Partner in January 2010. In September 2010 Globe iFusion was released, making Globe Wireless the only Distribution Partner that is also a type approved FleetBroadband equipment manufacturer. The total solution provided by the Globe iFusion is a one-stop- shop for hardware, installation, airtime, applications and maintenance. The system is comprised of two main components; The Globe i250 and the Globe iPortal.

www.globewireless.com

Readily Biodegradable Stern Tube Oil

Klüber Lubrication developed Klüberbio RM 2-150, a synthetic, readily biodegradable stern tube oil for the lubrication of propeller bushes and propeller shaft seals of fixed-pitch and controllable-pitch propellers. It is non-toxic to marine organisms and its biodegradability is at least 60 percent according to the OECD 301 F test. Klüberbio RM 2-150 is an environmental-friendly, reliable alternative to conventional mineral oils. Klüber cooperated closely with its affiliated companies SIMRIT and Merkel Freudenberg Fluidtechnik, both leading suppliers of seals to the industry.

www.klueber.com

webXaccelerator Satellite Router

Global Marine Networks introduced the GMN webXaccelerator for ship-to-shore and remote communications needs for the commercial fishing, marine transport, cruise ships, offshore oil rigs, and first-response communications coordination markets. The webXaccelerator is a satellite router with access control and data acceleration that is designed to provide users of satellite and other wireless data systems unprecedented control of their satellite data installations, while providing data speeds up to five times faster than uncompressed rates.

www.globalmarinenet.com.

Salwico G1000 Opacity Monitor

The G1000 is a particular robust system well suited to resist heat and vibrations in and around smoke stacks. The installation cost of a G1000 is often less than a single fine and a consistent monitoring of emissions will contribute to the image of a conscientious and environmentally friendly owner.

Email: cmsab@consilium.se

Go to Jail!

Creative Building Products (CBP) introduced a new maritime security product: the shipboard temporary containment facility. A major cargo ship line contacted Creative Building Products because of the reoccurrence of stowaways. After meeting with the security personnel with this ship line, the need to have a temporary place to house these stowaways was their highest priority. It was revealed that often during the process of "containment", potential new hazards to crew or destruction to the vessel itself might occur. In addition to stowaways, the possibility of unruly passengers or crew and, even the threat of piracy, can lead to the need for a temporary containment facility. CBP's task was simple. Build a containment facility to house these people, make sure the crew could safely make the arrest, and provide a controlled setting for the remainder of the voyage. The unit shown here can either be portable or permanent structure. It is an all steel 20' ISO container. Designed to house up to four prisoners.

www.soacorp.com
Email: scott@soacorp.com

MARITIME REPORTER AND ENGINEERING NEWS

Jan. 4 - May 10, 2011

www.maritimephotographs.com

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Don Sutherland Memorial

Maritime Photo Contest

Your photo could be published in the world's largest maritime magazine

This is the perfect opportunity to share your personal view of the maritime world. Candidates may enter as many photos as they like, in each of the five categories below. Entries can be submitted and viewed at:

www.maritimephotographs.com

The best entries from each category will be published in the June 2011 edition of Maritime Reporter and Engineering News. All photos will be hosted online, where voters will choose one overall Grand Prize winner. Votes must be entered by May 10 to be counted.

Established to honor the memory of Donald S. Sutherland, photographer extraordinaire.

Categories:

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Offshore Structures
People
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Weather Systems

Grand Prize:

Canon EOS Rebel Digital T1I 15.1 MP
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This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR assumes no responsibility for errors. If you are interested in having your company listed in this Buyer's Directory Section, contact Mark O'Malley at momalley@marinelink.com

ALUMINUM

Mandel Metals, 147 Main Street, Chardon, OH

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

Alaska Ship and Drydock, Inc., 3801 Tongass Avenue, Ketchikan, AK , tel:907 225-7199, fax:907 247-7200, dward@akship.net contact: Doug Ward, www.akship.net

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

CHAINS

Washington Chain & Supply, P.O. Box 3645, Seattle, WA 98124, USA

COATINGS/ CORROSION CONTROL/ PAINT

Eureka Chemical Company, 234 Lawrence Ave., South San Francisco, CA

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

ELECTRICAL SERVICES

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

ELECTRONICS/NAVIGATION COMMUNICATIONS SERVICE AND

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

ENGINE AND COMPONENT ALIGNMENT

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

EPC CONTRACTORS AND ENGINEERING

Waller Marine, 14410 W.Sylvanfield Houston, Texas 77014 , tel:281 444 9650

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

GYROCOMPASS

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

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

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

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

NAVIGATION

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

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

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

PROPULSION EQUIPMENT AND SERVICES

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

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

SIMULATION TRAINING

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

STORAGE BUILDINGS

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

SURFACE PREP TOOLS

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

TANK GAUGING AND SENSORS

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

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

VALVES

Leslie Controls, 12501 Telecom Dr., Tampa, FL 33637, USA

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

Markey Machinery, P.O. Box 24788, Seattle, WA 98124, USA

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

MaritimeJobs.com

where employers and job seekers connect

The Maritime Industry's Leading Employment Website. For more information contact: Jean Vertucci at vertucci@marinelink.com

Vessels/Real Estate/Business for Sale/Charter
New/Used Equipment • www.MaritimeEquipment.com

"SUNY Maritime College is requesting sealed bids from bidders to purchase a Vessel named the SUNY Maritime (a/k/a/ EX-USNS Stalwart) (CG#002635) in its current "as-is, where-is" condition at its current mooring. The minimum bid price for the sale of this Vessel is $125,000. The Vessel is located at Olivet Pier - SUNY Maritime College.

Bidders who would like to receive the Notice of Sale should fax their information (name, e-mail, address, phone, fax, etc.) to 718-409-7209.

A pre-bid inspection is encouraged for all bidders and is scheduled for January 13, 2011. Prospective bidders are reminded that such inspection is undertaken at their own risk.

Please contact Patricia Sabatino at 718-409-7209 to confirm that you will be attending the inspection.

It is the State University of New York's policy to take affirmative action to ensure that New York State certified minority and women-owned business enterprises (M/WBEs) are given the opportunity to demonstrate their ability to provide the University with commodities and services at competitive prices.

Collection of Vessel is February 15, 2011".

Maritime Professional

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Maritime Risk Live Webcast

Overcoming Uncertainty and Meeting Compliance Standards by Empowering Individuals

Presented by Maritime Professional and American Public University

Wednesday, February 16, 2011 - 11:00 a.m. - 12:15 p.m. ET

Maritime stakeholders face complex day-to-day challenges. Maintaining a healthy bottom line in the face of a myriad of regulatory, environmental, and operational risks has become "Job #1". Preventing the loss of vessel and crew from acts of piracy, catastrophic accidents, natural disasters, or the loss of infrastructure resulting in down time – which hinders or suspends essential activities – are just some of the tasks confronting today's maritime professional.

* Standards of Training and Certification and Watchkeeping (STCW) Compliance
* Cost-Effective education of the entire maritime workforce
* Utilizing technology to more effectively deliver content
* Optimizing operational efficiency while minimizing vulnerability

REGISTER- http://www.apu.apus.edu/lp/webcast/maritime-risk/index.htm

The Essential Quarterly Magazine

Q1 2011 • MARITIME RISK

Maritime Professional Magazine is the official print publication of maritimeprofessional.com, which has attracted more than 12,300 global members since launching in October of 2009.

Leading this new endeavor is Managing Editor Joseph Keefe, bringing 20 years of industry experience as a professional mariner, maritime consultant, publication editor, and respected industry journalist.

Roundtable
The Classification Societies

By their very nature, classification societies are designed to help marine companies reduce risk. Maritime Professional taps executives from the world's leading organizations for their insights.

Operations
Ship Vetting

Selecting the right vessel for the job is critical to operational efficiency and profitability. MarPro's Joseph Keefe, from an expert perspective, delivers an overview of the RISK variables in play in 2011.

Technical
Marine Salvage

The evolution of Marine Salvage operators from pure salvage companies to partners in compliance (OPA '90); providers of training & education; and stewards of the marine environment.

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New President, CEO of Alfa Laval

John Atanasio was appointed President and CEO of Alfa Laval Inc., responsible for leading Alfa Laval in the USA to drive profitable growth in its markets, leveraging the company’s key technologies of heat transfer, separation and fluid handling. Atanasio joined Alfa Laval in 1982 in the company’s Food and Dairy Group. He joined Alfa Laval Separation in 1990. In 2001, Atanasio was named President of Alfa Laval USA’s Parts and Service Division, and then President of the company’s Equipment Division in 2004. Most recently, Atanasio served as President of the Hygienic and Marine group of Alfa Laval Inc. Prior to joining Alfa Laval, he held a number of positions at Westfalia Separator.
 Atanasio holds a Bachelor of Science degree. He has completed executive management programs at Duke University’s Fuqua School of Business and the Ashridge Business School. He is based at the Alfa Laval facility in Richmond, Va.

Milgem Frigates to be Equipped with COMPAC

Istanbul Naval Shipyards has installed Thordon COMPAC seawater lubricated propeller shaft bearings on the new Turkish Navy Milgem Frigates. The keel was laid for the first vessel, TCG Heybeliada (F-511), in July 2005. Launched in September 2008, the vessel is scheduled to commission in early 2011. The second vessel in class, TCG Büyükada (F-512), was laid in September 2008. It is scheduled to be launched in 2010 and commissioned in 2013. The Milgem class frigates are 99m (324 ft) in length with a displacement of 2000 tons. The vessels are powered by twin diesels and a single gas turbine turning twin controllable pitch propellers mounted on 547mm (21.5 inch) diameter propeller shafts riding on Thordon COMPAC seawater lubricated bearings. The vessels will have a cruising speed of 15 knots and a top speed in excess of 29 knots. The COMPAC bearing system was supplied to VA Tech by Thordon distributor, Belthor Systems GmbH. The system features Thordon's split tapered key design, where the bearings can be removed, inspected and reinstalled in just a few hours with the shaft still in place. There are currently over 600 ships operating with pollution-free COMPAC propeller shaft bearings. Thordon COMPAC bearing system offers excellent operational and wear performance, reduced breakaway torque, low acoustic signature, ease of maintenance and survivability (non-catastrophic failure mode). COMPAC has been used for over 30 years in naval seawater lubricated propeller shaft bearing applications.

Thordon COMPAC Bearings with tapered key set installed in bronze carriers prior to shipping.

www.thordonbearings.com

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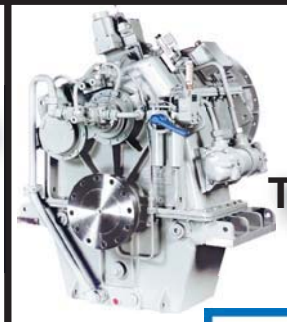

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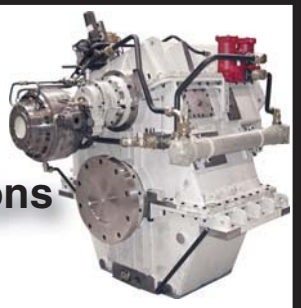

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