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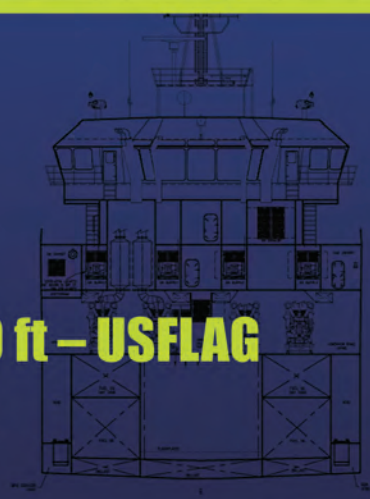

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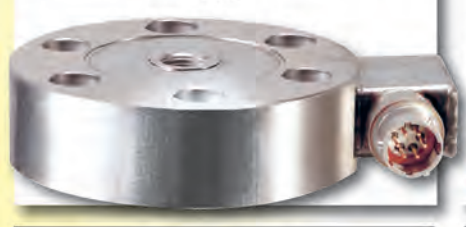

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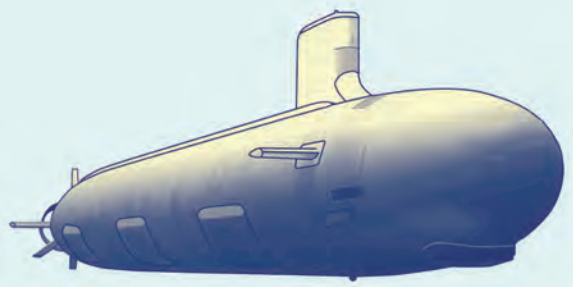

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For pundits who label the maritime industry conservative and behind the curve technologically, I invite them to thumb through this edition, *Maritime Reporter & Engineering News'* annual **Marine Design Edition**, which is produced the same time every year in step with the Society of Naval Architecture and Marine Engineering (SNAME) Annual meeting and exhibition. (This year, SNAME is taking up residence in Houston for three days in November. Turn to page 68 for details).

The Marine Design Edition is one of my personal and perennial favorites, as it serves as a showcase for the multi-faceted talent and dedication of maritime professionals from around the globe. To be succinct, it affords us the opportunity to catalog and present, reflect and look ahead on some cutting edge developments for future generation vessels.

One design that is a real eye-catcher is that of Utopia, an innovative self-propelled floating structure, a collaboration from Yacht Island Design and BMT Nigel Gee presented at this year's Monaco Boat Show that first came to my attention when **Keith Henderson** wrote about it via our *MaritimePropulsion.com*. The cutting edge design – which is more reminiscent of *"The Jetsons"* rather than a real-world marine structure – brings to mind the futuristic designs presented annually at automobile shows around the world: ***Will it ever be built?*** Probably not. ***Will it spur innovations that will be incorporated into future commercial vessel design?*** Absolutely yes.

As many readers of *Maritime Reporter* already know, the lion's share of true technological strides in this industry are the ones you can't see (at least while a vessel is working in the water), such as the innovative hull designs, the cutting edge propulsion advances, and the futuristic coatings technologies, to name but a few; all designed to ultimately help the maritime industry maintain and extend its transport sector lead as the cleanest and most efficient means to move cargo around the world.

I am pleased to report that **Jonathan M. Ross, P.E.**, who has graced our pages many times over the years, is the headliner in this edition with his insightful prose on "The Human Element," specifically how you can use Anthropometrics to enhance crew performance and passenger comfort. His feature, *"In Vessel Design, One Size Does Not Fit All"* starts on page 34.

As we are long-tenured supporters and proponents of program and policy designed to promote science and technology awareness and education to the next-generation, I am particularly proud to offer *"ROBOBOATS"* written by *Marlene Stevens*, an overview of a recent student engineers design competition to design, build and operate unmanned surface craft. It's a story (starting on page 45) that you don't want to miss, if for nothing else to discover how a team from Diponegoro University, Indonesia traversed many obstacles to come to our shores to compete.

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

Pictured on this month's cover

An X-BOW vessel designed by ULSTEIN, the seismic vessel Polarcus Alima, recently transited to Asia-Pacific via the Northern Sea Route (NSR), making it the first known passage of a 3D seismic vessel along the Northern Sea Route. Its passage commenced from Hammerfest in Norway after completion of seismic operations in the Barents Sea, and after only nine days and 3,000nm the vessel reached Cape Dezhnev in the Bering Straits. Polarcus Alima is an ultra-modern 12-streamer 3D seismic vessel of the SX134 design. The expected time savings in transit between Norway and New Zealand compared to the traditional route through the Panama Canal amounts to some eight days. The savings versus the Suez Canal, a necessity for some larger seismic vessels, amounts to 13 days. *(Image: Ulstein)*

Proposed Long Island *Offshore Wind Project*

13 to 17 — **Distance in miles the wind farm would sit offshore**

85 to 170 — **Estimated number of permanent jobs the offshore wind project would create**

350 to 700 — **Amount in MegaWatts of the proposed Offshore Wind Farm off of Long Island, NY**

2300 to 4700 — **Estimated number of construction jobs the offshore wind project would create**

2.7 to 4.7B — **Proposed cost ($) of a new Offshore Wind Farm off of Long Island, NY**

The winds of change are blowing on the U.S. East Coast, in fact they are blowing right in the back yard of *Maritime Reporter & Engineering News*. Last month the Long Island–New York City Offshore Wind Collaborative, consisting of Consolidated Edison Company of New York (Con Edison), the Long Island Power Authority (LIPA), and the New York Power Authority (NYPA) filed a lease application with the U.S. Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE). This application furthers Governor Andrew Cuomo's clean energy agenda, as earlier in 2011 the Governor announced awards under New York's Renewable Portfolio Standard program, providing contracts valued at $191m to 17 renewable energy projects statewide. It is expected that approximately $1.85 billion will be awarded to additional renewable energy projects over the next four years to meet the state's goal to meet 30% of the state's electricity demand with renewable resources by 2015. The Collaborative also issued a study (**http://www.linycoffshorewind.com/econstudy.html**) showing the proposed wind farm would have a significant impact not only to the energy and environment, but also employment in the region, as the numbers below show. While traditionally the U.S. has struggled to bring these projects from concept board to reality, it appears there is a significant shift in sentiment, particularly as the enabling technologies designed to safely and efficiently install and maintain these offshore wind farms continues to drive costs down. In the meantime, we will continue to monitor this and isimilar projects around the world as they progress from planning to execution, helping to open a new business segment for the commercial marine market.

(Photo: Greg Trauthwein)

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Steve Durrell

President, Irving Shipbuilding, Inc.

As it is the builder of 80% of Canada's current Surface Combatant fleet, Halifax, Nova Scotia-based Irving Shipbuilding is justifiably confident in its bid to win a sizable portion of the Canadian government's estimated $35b National Shipbuilding Procurement Strategy contract. With the award announcement expected mid-October, on the eve of his yard potentially winning the biggest deal in its history, ***Maritime Reporter & Engineering News*** *sat down with Steve Durrell, President, Irving Shipbuilding, in his office to discuss his team's precise planning, daily dedication and corporate commitment to building a world-class shipbuilding and repair operation.*

By Greg Trauthwein, Editor

Tell us a bit about yourself.

I graduated Maine Maritime Academy in 1984, after which I moved to Saint John, New Brunswick, and started with the Irving Group sailing with the Kent Lines for about nine months. In 1985, I started in the Frigate Program as a propulsion system engineer; in fact, I started at Saint John the week we cut steel for HMCS Halifax, which is in mid-life refit (at Irving Shipbuilding) right now, so it's come full circle. I've had a little more than 26 years with the company. I came to Halifax in 1994, and I started on the ship repair side. I became ship repair manager of the ship repair group, and then led the commercial group before becoming president of the shipbuilding operation in 2008.

How would you describe your management philosophy?

The shipbuilding business is, by nature, a project-based business. The projects can span years and require crisp metrics, expert project management and the amalgamation of disparate disciplines and processes into one cohesive path to deliver a finished vessel of the highest quality, on-time and on-budget. We have long-standing relationships with a relatively small number of clients, with repeat business absolutely critical to our long-term success. My approach to business success is to ensure all 1,200 employees understand exactly where the organization is headed (through consistent, repeated communication of our vision), how we plan to achieve our objectives, and that they each play an intrinsic role in that success. Everything we do in the organization can be categorized under one of three planks of our mission, to be project-driven, process-centered and people-focused. We measure our success against our balanced scorecard and I share those results with the entire organization on a regular basis. We all benefit when we do well, and we all focus on the areas to be improved. We celebrate our successes together – as families. I communicate as often as possible and listen to our employees concerns and suggestions. And we are all focused on how to be better, with formal continuous improvement processes driving our core business each and every day. The ships we build are huge, highly technical steel vessels, but our business comes down to people … the skilled, experienced workers who build those vessels and the men and women in uniform who sail them.

In walking the halls, I noticed an award conferred on Irving Shipbuilding from ExxonMobil. How was that earned?

ExxonMobil was a great customer, not just in giving us the work, but you also learn a lot from the oil majors with their great management systems and safety philosophies. They are very open and nothing is proprietary when it comes to safety; they want to share their safety philosophy, and that is something we believe as well. We want to be a safe industry and have everyone understand the importance of our safety culture. I tell people: we work in confined spaces, we work at heights; we work in awkward positions; we do hot work … and sometimes we do that all at once. So you have to be extremely conscious of the work environment, and safety is of the utmost importance.

Which investment do you see as being the key to you shipbuilding capability, today and tomorrow?

Building now for the future was a philosophy, and we are fortunate to have owners in J.D. Irving, Limited that believe in us; believe in the future of shipbuilding; and are willing to invest and give to us the support we need to help us move forward, take advantage of opportunities and grow the business and industry. The obvious things that you see around our operations, the physical assets, the physical infrastructure upgrades are extremely important. But the single most important investment that we have made is the investment in our people. The training, the safety, the communications investments; these investments are all critical for us to achieve the global high performance standard that we have achieved and that we continue to strive for.

Central to this is the investment in our apprenticeship program, and today we have more than 250 apprentices working in the trades. We have invested in relationships with Community Colleges and Universities, in order to further develop our apprenticeship program and to provide a steady stream of engineering, planning, scheduling and accounting students.

What do you count as your biggest challenge to running an efficient and profitable shipbuilding operation.

On a going-forward basis we've been able to having a sustainable work load, avoiding some of the traditional boom and bust cycles in shipbuilding. One of the most significant contributions to that is when our owner decided to build their vessels here instead of going offshore or buying used tonnage; to invest in their fleet and doing so through us. That was critical in allowing us to maintain a sustainable, level-loaded workforce, and that led to additional opportunities. For example, while building these vessels, we were able to bid and win the $194m contract to build the nine mid-shore patrol vessels for the Canadian Coast Guard.

In your career, what is the single most important technological development that has helped to make the business of building and repairing ships more efficient?

Information … no question, it's information. The speed at which you can acquire information, how you can organize and access information has changed phenomenally. When I started, the fax machine was just coming out and we had one personal computer in the engineering department. Even in the last five years, if you look at the way in which you can ac-

(Continued on page 13)

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If you are successful in your bid for the contract via National Shipbuilding Procurement Strategy, how will Irving Shipbuilding change?

We've been careful to ensure that all of the work that we're doing, all the processes we've implemented are scalable, scalable to be able to implement the new work. Most visibly you will see the physical plant change. The Ultra Hall that we are proposing will be visible from outside the gate; there will be physical changes that anyone driving down Barrington Street will notice easily. I think one of the other changes we will have will be in our workforce. We will have that long-term future, the feeling of having a sustainable future, and our workforce will feel confident making the investment in homes, cars and other big purchases.

What is the importance of this contract to the Halifax Maritime Cluster as a whole?

The economic impact is going to benefit everything, from the educational systems, to our partnership with the Halifax Marine Research Institute, which has a very broad, pan-Canadian approach to helping the overall marine industry. Our winning this will have a benefit across Canada our extensive web of suppliers. It's not just the hardware business of building the ship that will benefit. Our supply base runs deep, and includes everything from taxis and caterers all the way up to steel suppliers and equipment suppliers. It's a very broad range of direct suppliers that we have.

What else do you see as key drivers for the shipbuilding business going forward?

The East Coast offshore business is a big sector that we are continually looking at, as we have built five offshore supply ships for the East Coast offshore, and have completed a number major overhauls of rigs, and built platforms. That's not only a big driver for us, but for the economy in general.

Investing in Employees Pays Dividend

Irving Shipbuilding's management team espouses an investment in its employees as critical to its long-term success. Investment in this regards entails a broad range of initiatives from the grass roots investment in its own in-house apprenticeship program and relationships with community education centers to ensure a steady stream of qualified workers; to investment in constant communications with its team of more than 1,200 to ensure all are on the same page regarding company quality, safety and performance initiatives and objectives. Durrell and company embrace sharing the wealth when times are good, and sharing the responsibility among the entire team to identify and implement change when needed. A thorough tour of the shipyards helps to confirm that this message far exceeds motto and brochure, as Irving's main shipbuilding facility in Halifax is a modern, well-maintained facility, with a cleanliness and order second to none, and a bustling workforce. Concrete evidence that the strategy is a success come via Irving Shipbuildings annual survey of employees through the independent third-party organization, Tower's Watson. Since 2008, not coincidentally when Durrell took the helm of Irving's Shipbuilding operation, the Employee Engagement Score at Halifax Shipyard has risen 62%, scoring a 53 in 2008, and rising to an 86% mark in 2011, meaning the company has achieved a Global High Performance status.

www.shipsstarthere.ca

SS New York Helps Commemorate 9/11

Crew members aboard the amphibious transport dock ship USS New York (LPD 21) man the rails and present honors while passing The World Trade Center and the National September 11 Memorial and Museum as the ship arrives in Manhattan. (U.S. Marine Corps photo by Sgt. Randall A. Clinton/Released)

WWII Mine Disposed of at Site of World's Largest Windfarm

Explosive Ordnance Disposal (EOD) specialist Ramora UK (www.ramorauk.com) reports that it has safely disposed of an unexploded World War II mine onsite at one of the world's largest offshore wind farm. The four-man Ramora UK team used a Remotely Operated Vehicle (ROV) to place a countermining charge next to the 1,500lb (680kg) mine which had been assessed as high-risk due to damage previously sustained to it. Throughout the procedure a 1,500m safety zone was maintained to protect other vessels in the area. "The expansion of the offshore renewable energy sector is creating an increased requirement for rapid and safe disposal of the UXO that is very common in coastal waters," said David Welch MIExpE, Managing Director of Ramora UK. "This mine was particularly hazardous because of damage that had occurred to its booster release mechanism. We are very pleased that our experienced operators were able to deal efficiently with it." A controlled explosion was then initiated from a safe distance, leaving an underwater crater 65ft (20m) wide by 13ft (4m) deep. The German, ship-laid, ground mine was detected in 115ft (35m) of water, 20 miles (33km) off Harwich in Eastern England, on the site of the Greater Gabbard Windfarm which will be the world's largest offshore windfarm when it is completed next year.

www.ramorauk.com

Thinking "Inside" the Box

Philippine school made from APL cargo containers inaugurated

Somewhere, Malcom McLean, "the father of containerization," is smiling. Last month the NOL Group celebrated with the Philippine Christian Foundation (PCF) the inauguration of the container school called "Philippine Technical College." The campus is unique in that it is built exclusively from APL cargo containers.

NOL Group donated 53 containers to PCF and subsidized the purchase of 26 more. The Group also sponsored a classroom for students and shipped three 40-foot-containers of building materials to Manila to assist in the school's construction.

"We're privileged to support this landmark project in a unique way," said Edgar Milla, APL's Managing Director for the Philippines.

The containers were sheathed in concrete for added strength and used as primary construction material for the school. The design of the facility meets the standards of the Philippine Department of Education.

The four-storey facility is near an area

Air Pollution Plummets

When Ships Shift Fuels, NOAA Reports

New clean fuel regulations in California and voluntary slowdowns by shipping companies substantially reduce air pollution caused by near-shore ships, according to a new NOAA-led study published in *Environmental Science & Technology*.

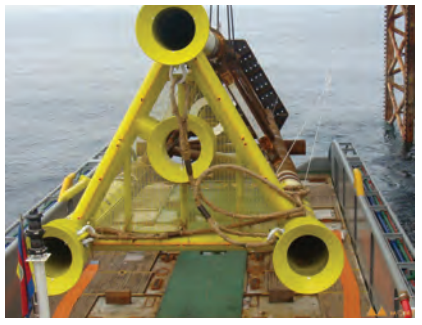
The study examined a container ship operating under a 2009 California regulation requiring that ships switch to low-sulfur fuels as they approach the California coast, and also adhering to a voluntary state slowdown policy, intended to reduce pollution.

The research team found that emissions of several health-damaging pollutants, including sulfur dioxide and particulate matter, dropped by as much as 90%.

In May 2010, a NOAA research aircraft flew over a commercial container ship, Maersk Line's Margrethe Maersk, about 40 miles off the coast of California. Researchers on the aircraft used sophisticated custom instruments to 'sniff' the ship's emissions before the ship switched to lower-sulfur fuels (by law, within 24 miles of the California coast) and slowed down voluntarily. A few days later, scientists aboard the NOAA-sponsored Woods Hole Oceanographic Institute's research vessel Atlantis sampled emissions of the same ship as it cruised slowly within the low-sulfur regulated zone.

Sulfur dioxide levels, which were expected to drop, did do so, plummeting 91 percent from 49 grams of emissions per kilogram of fuel to 4.3 grams. Sulfur dioxide is best known as a precursor to acid rain, but can degrade air quality in other ways, directly and indirectly through chemical reactions in the atmosphere. In particular, emissions of sulfur dioxide lead to formation of particulate matter in the atmosphere which poses serious public health concerns. Particulate matter pollution dropped 90 percent from 3.77 grams of emissions per kg of fuel to 0.39 grams. Unexpectedly, black carbon levels also dropped, cut by 41 percent, the team reported. Black carbon comprises dark-colored particles that can warm the atmosphere and also degrade air quality.

Momentum Completes Offshore Install for PCPP



Momentum recently completed the offshore installation of the DANA LWS (Light Weight Structure) for PCPP. PCPP is a joint venture between Petronas Carigalli, PetroVietnam and Pertamina of Indonesia. Momentum loaded the structure on to a Barge and installed the structure using a Jackup drilling rig. Traditionally, the installations of these structures are done using a Derrick Barge at a far greater expense to the client. "Momentum continually seeks innovative and cost effective solutions for their clients," said Jimmy Larsen, Deputy Managing Director. The combined weight of the unit (jacket, platform, boat landing) was 300 tons which was installed in 50m of water depth and the project was completed on time under budget and with zero incidents.

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Piracy Quick Reference Guide Offered by ABS

In support of the maritime community's efforts to protect seafarers against acts of piracy, ABS has prepared a quick reference guide (QRG) to assist ships' crews in implementing the industry's "Best Management Practices for the Protection of Seafarers from Somali Based Piracy," commonly referred to as BMPs. Designed specifically for onboard use, the QRG summarizes the recently published version 4 of the BMPs in a user-friendly format that can assist the Master and the Ship Security Officer in preparing the vessel for transit through a high-risk area. It also identifies actions to take should the vessel and its crew be attacked. "This Guide is another tool ship operators can use against the menace of piracy and hijacking" says Hemant Juneja, ABS Director of Management Systems Certification. "It is not intended to replace the BMPs but rather act as a supplement designed especially to give the crew a quick reference guide for protection against these threats. It can also be used as a training tool in shipboard drills and exercises."

MSC Chicago Charts New Waters for Durban

The 9,178 TEU MSC Chicago has become the latest vessel to take advantage of the newly deepened and widened port entrance channel in the Port of Durban, one of Africa's busiest and largest multi-service ports. The ship is now also the biggest to date to sail into South African waters. Last week the vessel arrived on its maiden voyage to the country en route from Europe and stopped at the Ports of Cape Town, Ngqura and finally Durban.

The Port of Durban's harbor widening and deepening project was completed in March 2010 and saw the channel depth increased from 12.8m to a variance of 16m in the basin to 19m in the outer channel. The width was increased from 125m to an average of 225m. Built in 2005 MSC Chicago measures 337 x 46m with a 13.1m draft. MSC Chicago was guided into port by Pinky Zungu, one of three women employed by the country's freight logistics giant Transnet who recently made history as Africa's first black, female marine pilots to obtain the prestigious 'open licence.' The qualification enables Zungu and her colleagues Precious Dube and Bongiwe Mbambo to navigate ships of any size and type into South African waters.

[Photos by Terry Haywood]

Pinky Zungu, the marine pilot who guided the MSC Chicago into Durban. She recently made history with two others to become one of Africa's first black, female marine pilots with an open licence allowing her to navigate vessels of any size and type into South African waters.
Below: Tugs guide MSC Chicago into the Port of Durban.

Gerald R. Ford (CVN 78)

Huntington Ingalls Industries, Inc. (NYSE:HII) said that the company's Newport News Shipbuilding (NNS) division placed an 825-ton superlift on the aircraft carrier Gerald R. Ford (CVN 78) on Sept. 12, completing the ship's stern. Gerald R. Ford is being built using modular construction, a process where smaller sections of the ship are welded together to form large structural units called superlifts. The superlifts are pre-outfitted and lifted into the construction dry dock with the shipyard's 1,050-metric ton crane. The final superlift of the ship's aft end includes the steering gear rooms, electrical power distribution room, store rooms and tanks. At 90 feet long, 120 feet wide and 30 feet deep, the superlift was among the largest of the 162 that comprise Gerald R. Ford.

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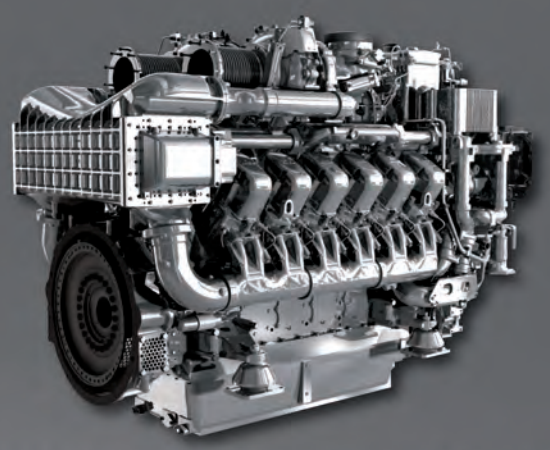

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The Changing Face of Piracy

About The Author
David Rider is Neptune Maritime Security's Communications Officer, and has 20 years' experience in journalism and communications. He can be contacted by email at david.rider@neptune-ms.com

As the NATO and EU NAVFOR operations Ocean Shield and Atalanta continue their work in the Gulf of Aden, Indian Ocean and Red Sea areas, one could easily be forgiven for thinking, well, that's that. Tough luck, pirates, the world is on to you. Sadly, as anyone involved in international shipping knows, that is very far from the truth.

The fact is that the areas patrolled by the world's navies are vast and the chance of early interdiction of a pirate skiff or mothership by a naval vessel is small. In the risk versus reward world of the pirate, it's a virtual no-brainer.

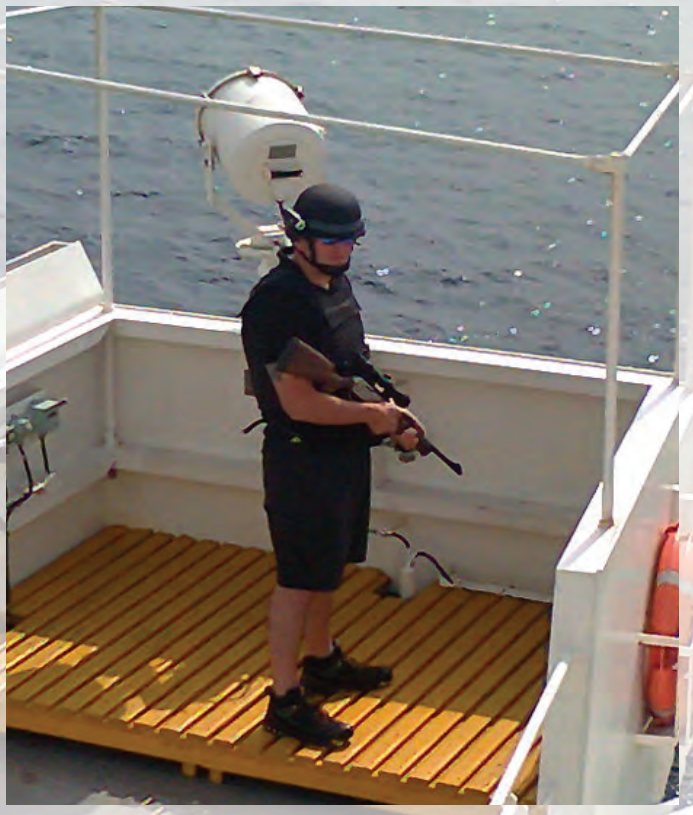
Given that around seven percent[1] of the world's oil supplies and an estimated 22,000 vessels transit the Gulf of Aden (GoA) annually, it would be reasonable to expect that same transit route to be safe and free of incident, but the reality is far from it.

In early August 2011, the International Chamber of Commerce's Commercial Crime Service reported that there had already been 22 successful hijackings by Somali pirates, while countless others have been approached, attacked and pursued by pirates in high speed skiffs, launched from nearby motherships.

As the methods employed by the world's navies to combat them have become more sophisticated and organized, so the pirates have changed their tactics to suit, with the first six months of 2011 showing a dramatic rise in attacks over the same period for 2010; some 266 attacks on vessels in the period, compared with 196 for last year[2].

This year's monsoon season has been a stark reminder that pirates are highly motivated to capture their quarry. While normally shipping could breath a sigh of relief at the arrival of the summer monsoon, this year the IMB issued a statement warning seafarers of the continuing danger of pirate attack. The organization said that the movement of pirates to the GoA and Southern Red Sea (SRS) areas, due to monsoon conditions in the Indian Ocean were a, "cause for concern." IMB Director, Captain Pottengal Mukundan, said: "It may be that these recent Indian Ocean incidents are a sign of desperation by pirates, or that there are many more pirate groups operating now than there were in 2010, particularly outside the Gulf of Aden."

As a leading supplier of armed security personnel to the maritime community, Neptune Maritime Security continually has Vessel Protection Teams (VPTs) transiting both the IRTC and High Risk Area,



and identified a potential trend in pirate tactics during the monsoons.

While July was a quiet month in the SRS region, with only a handful of minor reports, a string of what can only be termed 'swarm' attacks took place in August off the coast of Eritrea, possibly due to pirates moving up through Bab el-Mandeb, the 'Gate of Tears,' the strait that connects the Red Sea to the Gulf of Aden and Indian Ocean. When the monsoons bring dangerous conditions to the open sea, pirates will retreat here to calmer waters.

It was here that large numbers of pirates were reported to be operating in 'packs' and attempting to swarm vessels in large numbers.

The first incident, on August 7, according to the report filed with the IMB's Live Piracy Reporting Center[3], saw 12 skiffs containing between five to eight pirates per skiff pursue and attack a bulk carrier approximately 20nm off the coast of Eritrea. As the skiffs approached to within 300m of the carrier, the Master ordered the armed security guards onboard to fire warning shots at the pirates' skiffs. While this show of force saw the majority of pirate vessels break off their attack, two skiffs continued in their pursuit for some 30 minutes, returning fire at the armed guards until they, too, aborted their attack. If one believes the report – and there is no reason to doubt the legitimacy of reports filed with the IMB – then even underestimating the number of pirates to just 60 still leaves us with evidence of a worrying trend in pirate tactics.

Following an advisory notice issued by Neptune Maritime Security to both the media and other companies in the industry, we received news of a second 'swarm' attack[4] on August 10. On this occasion, a Panama-flagged tanker, Golden Topstar, was pursued while underway at 13:08N-043:07E by pirates in 12 skiffs. The vessel evaded the attack by employing evasive maneuvers and firing flares. The site of the incident is just 6.5nm away from the attempted attack three days previously.

A third 'swarm' attack occurred[5] on August 17. A bulk carrier underway, approximately 22nm off Assab, Eritrea, at 13:16N-043:01E, was approached by seven high speed boats, each containing three to five men, armed with automatic weapons. Again, the attack was repelled thanks to the employment of evasive maneuvers and an increase in speed by the vessel. This attempt occurred just 10.2nm away from the incident on August 10th.

Reports then emerged from the Iranian Navy, concerning a wave of attempted attacks on the bulk carrier 'SAEI' at the mouth of the SRS at Bab-el-Mandeb, although exact location information was not provided. According to the Iranian Navy report, the first attack saw four skiffs containing 20 pirates engage the vessel, the second wave featured eight skiffs with a force of 40 pirates and a third and final attempt was said to feature just two skiffs with just 12 pirates on board.

While some sources have questioned the credibility of these reports, the bulk of available data should at least raise concerns in the industry as to the changing and malleable nature of the tactics employed by pirates in the area. The IMB reports[6] that (at the time of writing), since May 20, 14 vessels have been attacked in the Southern Red Sea.

Further east, pirates were also changing their MO, choosing to avoid the rough Arabian Seas in favour of daring raids near major shipping hubs.

The successful hijacking of the chemical tanker, Fairchem Bogey[7], on August 20, illustrates how pirates have altered tactics in response to pressure from EU NAVFOR, the monsoon and better practice by vessels transiting the HRA. According to reports, the Fairchem Bogey, carrying a cargo of methanol, anchored 4-5 miles off the Omani port of Salalah. Ironically, the armed guards employed by the shipping company to watch over the vessel in transit had disembarked once the ship reached what was thought to be safe anchorage. Then, at approximately 0630 UTC, a group of pirates stealthily boarded the vessel and took its crew of 21 hostage. Did the pirates have someone on shore, advising them of the protection team's departure, or was this just dumb luck? We may never know.

The attack caused concern not only due to its brazen nature, but also because Oman has a well resourced Coast Guard, who were on the scene within an hour.

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Unfortunately, by then it was too late, and they were warned off by the hijackers, who later sailed the vessel to Garacad and demanded a $10m dollar ransom for its release[8].

The attack shows parallels to the hijacking of the cargo ship, Leopard, which was boarded off the Omani coast on January 12. The freighter had discharged its armed guards and was boarded shortly afterwards. Six crew members are still being held hostage by the pirates involved[9]. Since the hijacking of the Fairchem Bogey, there have been several other attempts made to attack vessels, which the Omani Coast Guard have rebuffed.

While attacks on vessels off Oman are hardly news, recent weeks have seen an increase in attempted hijackings in the region, which perhaps illustrates the increasing pressure pirate gangs have felt due to local weather conditions, the presence of naval vessels and more recently, the presence of armed security guards onboard vessels. According to EU NAVFOR, 90% of ships surviving a pirate attack in the Gulf of Aden this year have credited a security team for aiding their escape[10].

As we reach the end of the monsoon season, international shipping can once again expect Somali pirates to strike out further into the Arabian Sea and Indian Ocean in an attempt to make up for time lost due to the monsoon, utilising hijacked fishing boats and merchant vessels as mother ships. As Captain Keith Blount, Chief of Staff with EU NAVFOR told Reuters: "I think we are going to see a surge in piracy because we always have done at this time when the southwest monsoon abates and the seas become flatter."

"Typically the pirates have a really good go in the autumn and winter," he said on the sidelines of a shipping conference[11].

The international battle against piracy continues its cat and mouse game, with no immediate end in sight for either the beleaguered shipping companies who have paid an estimated $95 million in ransoms this year alone, or the estimated 343 seafarers still being held hostage in Somalia[12].

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2. http://www.icc-ccs.org/piracy-reporting-centre
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12. http://somaliareport.com/index.php/post/1580/Weekly_Piracy_Report

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Investigation, Litigation and Legislative Results from

Deepwater Horizon Linger

About The Author
Jonathan Waldron, partner at Blank Rome, concentrates his practice in maritime, international and environmental law, including maritime security.
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It has been more than 16 months since the Deepwater Horizon incident on April 20, 2010 which resulted in the deaths of 11 and injuries to 17 men working on the platform and the discharge of approximately five million barrels of oil. The well was finally capped on July 15, 2010 yet the Joint Coast Guard and Bureau of Ocean Energy Management Regulation and Enforcement (BOEMRE) Investigation final report (Joint Investigation) has not been completed and released to the public. In addition, Congress continues to wait until the final results are released to make its own assessment of what legislation should ultimately be enacted and the complex litigation will be with us for years.

INVESTIGATIONS & LEGISLATION

The Presidential National Commission (National Commission) was established on May 21, 2010 and its final 380-page report was released as scheduled on January 11, 2011 finding "systemic" problems across the industry, condemning industry in its failure to prepare adequate plans to respond to a major incident, and pointing the finger at the Administration for grossly inadequate federal oversight. As discussed below, however, Congress has not taken any action as a result of this report pending the release of the Joint Investigation report. When that occurs, there will be much interest from federal agencies, the public, and Congress to compare the National Commission final report and the Joint Investigation before determining future agency actions and legislation.

Regrettably, however, there has been an extended delay and ensuing confusion related to the Joint Investigation. Although the convening order for the Joint Investigation mandated the issuance of a single report, the Coast Guard chose to publish a "preliminary" report on April 22, 2011 close to the one-year anniversary of the casualty addressing issues under its jurisdiction. The problem with this report was that it was not "final agency action" by the Commandant. Indeed, it is highly unusual for the Coast Guard to release such a report to the public before finalization by the Commandant.

Furthermore, the Joint Investigation final results, both from BOEMRE and the Coast Guard, were scheduled to be published on July 27, 2011, however, the Joint Investigation report remains pending as of the date of the writing of this article. After a few days of silence following the missed deadline, the agencies noted on the Joint Investigation website that the agencies were working diligently to complete the report and in order to ensure that all evidence is properly weighed and considered, it was taking additional time to finalize the report. In the meantime, the Republic of the Marshall Islands, the flag state of the Deepwater Horizon, released its findings just before the Labor Day holiday.

While the release of the National Commission's report earlier this year rekindled interest in Congress, it is now clear that Congress intends to wait until the release of the Joint Investigation report before seriously considering legislative action. In reality, the National Commission was under a tight deadline and its final report failed to address a number of key matters including why workers on the rig made the decisions they made before the explosion and why the blow out preventer (BOP) failed because tests are not yet completed. It is noteworthy in this regard, that Congressman LoBiondo and Congressman Mica recently co-sponsored and introduced the Coast Guard and Maritime Transportation Act of 2011 (the bill typically used for enactment of maritime legislation) on September 2, 2011 and there is no Deepwater Horizon spill legislation included in this bill. This is indicative that Congress is waiting for the release of the Joint Investigation report before introducing a consolidated spill bill this year.

In addition, although no longer in the news, it must be kept in mind that the Department of Justice (DOJ) criminal investigation continues. DOJ will review the Joint Investigation report and likely move forward with its grand jury investigation as it will be able to review the findings in the draft report to confirm that its prosecution theories will not conflict with the investigative findings. DOJ should start issuing subpoenas to individuals sometime after they review the report and then move forward with criminal charges against the companies it decides to target sometime in the third or fourth quarters of 2011.

However, it should be kept in mind, that much of the troublesome Deepwater Horizon spill legislation that was under consideration last year, including H.R. 3534, the Consolidated Land, Energy, and Aquatic Resources Act of 2009 (CLEAR Act), which the House passed last year, was reintroduced early this year. Of specific note, with regard to the Clear Act and the National Commission Report, Ed Markey, the Democratic Congressman from Massachusetts, introduced H.R. 501 on January 26, 2011 (Implementing the Recommendations of the BP Oil Spill Commission Act of 2011). H.R. 501 includes the troublesome provisions of the CLEAR Act.

LITIGATION

With regard to litigation, the spill spawned hundreds of lawsuits. Following the filing of hundreds of lawsuits, it was decided to consolidate all of the complaints under a special federal legal procedure designed to speed the process of handling complex cases such as air disaster litigation or complex product liability suits known as multi-district litigation (MDL). The purpose of using the MDL procedure is to efficiently process cases that could involve an extremely large number of plaintiffs in many different federal courts which all share common issues. The Deepwater Horizon litigation was consolidated in the Eastern District Court of Louisiana before Judge Barbier. However, the reality is that there are many different defendants with different interests that will prolong this case for years.

A part of this litigation involves action by DOJ to collect civil penalties. DOJ can seek penalties of $40,000 per day or $1,100 per barrel of oil discharged for negligence. However, if gross negligence is found BP is subject to a civil penalty that can be awarded by the court up to $4,300 per barrel of oil. Information has been released on two reports funded by the Administration which indicate that between 4.9 and 5 million barrels of oil were spilled. Based on the 4.9 million amount, the maximum penalty could be $5.4 billion and if there is a determination of gross negligence the fine could be $21 billion.

CONCLUSION

Congress will indeed revisit Deepwater Horizon issues this year and next year during the 112th Congress. While all legislation pending when the 111th Congress adjourned has expired, much of it has been reintroduced already in the early days of this new Congress.

In the shadow of the budgetary, economic, and war issues that have dominated the attention of Congress in the early days of this session, hearings have been held and numerous bills introduced to address oil spill liability, preparedness, and response in the aftermath of the Deepwater Horizon incident. The key issues will most likely continue to be changes in liability and the possibility of enacting the so-called "Americanization" and Jones Act provisions that will affect all offshore activities and operations. Of course, other changes could be advanced and a watchful eye is needed to avoid undue regulatory burdens and unintended consequences.

The reports by the National Commission, the Joint Investigation team, and the Republic of the Marshall Islands will most certainly be considered in advancing any legislation. Urgent calls for Congress to act, such as heard recently at the Pacific States/British Columbia Oil Spill Task Force annual meeting, continue from many different segments, including states, environmental interests, industry groups, and individual members of Congress. In conclusion, we do not expect Congressional interest to diminish, however, it is difficult to predict exactly when Congress will actually act on spill legislation given the other Congressional priorities it faces as it returns from the summer recess.

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CONTINUAL PROGRESSION

Slow Steaming & the Environment

By Patrick Havil, Total

The North American Emissions Control Area, effective 2012, will impact 50% of international containership maritime traffic, forcing ship owners and operators not typically operating in ECAs to begin use of lower basicity cylinder lubricants required for lower sulphur fuels. By 2015, 90% of the world's container routes will involve ECA transits. This will pose challenges when entering and leaving ECAs, as lower base number (BN) lubricants are not suited or economically beneficial to operation with higher sulphur fuels permissible for use outside ECA boundaries. Ship operators are under pressure to deliver against current and impending Sulphur Oxide (SOx) and Nitrogen Oxide (NOx) regulations, reduce bunker fuel costs through slow steaming; posing a significant conundrum when procuring marine lubricants. At the same time they need to maintain a clear competitive advantage through reliable, consistent operations and ensuring profitability. The industry therefore needed a new generation of marine lubricants that not only offer significant cost savings and better performance, but are also compatible with different levels of sulfur, and the demands of slow steaming. To address this TOTAL Lubmarine developed Talusia Universal – a new type of lubricant offering a "one step solution." When the European emissions control legislation came into force, shipping company Navig8 realised that the majority of its vessels would be trading across emissions control areas (ECAs) and began to recognise the significant lubrication challenges posed by switching between high and low sulphur fuel.

"Switching fuels when entering and leaving ECAs is headache enough for the crew, without the associated cylinder oil requirements," explains Mr Roy Sugato, technical manager, Navig8. "The OEMs were telling us that unless the oil was changed within a certain period of time we would run the risk of scuffing."

Good performance is essentially a matter of oxidation stability and detergency. With 2-stroke engines, where the lubricant is injected into the combustion chamber, neutralisation of the acidic formation build-up during the combustion process is also essential. These acidic formations originate from the sulphur that is in the fuel, so a lubricant developed to match high levels of sulphur in the fuel cannot match a Heavy Fuel Oil (HFO) bunker fuel with lower sulphur levels, or cleaner, distillate marine fuels. Today's OEMs recommend switching from one oil to another, depending on whether the vessel is using a high or a low level of sulphur fuel oil. They advise that using a BN 40 oil (low basicity lubricant) with a low sulphur HFO, and a high basicity BN 70 lubricant with a high sulphur HFO. This is because if there is an excess of basicity in the combustion chamber, increased levels of calcium carbonate result, producing hard deposits that lead to bore polishing. When burning HSFO outside ECAs sulphuric acids are formed. This is even more pronounced when the vessel is slow steaming, making compatibility essential for an efficient BN lubricant, which many BN 70 lubricants are not. "When we understood the significant benefits of Talusia Universal and discovered that the price was comparable to our existing lubricant, we decided to adopt it immediately on all our vessels," says Sugato. TOTAL Lubmarine's Talusia Universal is the only lubricant compatible with fuel at all sulphur levels, meaning that the requirement to switch lubricants when moving in and out of an ECA is completely removed. Mr Sugato explains: "Our technical crew was a little sceptical of the product at first, as there is nothing similar on the market and the OEMs had advised that the lube must be changed to protect the engine. However the technical information from Lubmarine, supported by testimonies from the various OEMs reassured them. And close monitoring over the initial months demonstrated that the product negated all of the challenges we were facing." Risk management is one of the foundations of Navig8's business and is a key factor in their decision making process. Talusia Universal ensures that the engine is safeguarded against corrosion - regardless of the sulphur content or vessel speed. It reduces the potential of human error and the time required to switch at ECA entry and departure points, as well as saving storage space and the additional cost of installing additional cylinder oil tanks and pipelines.

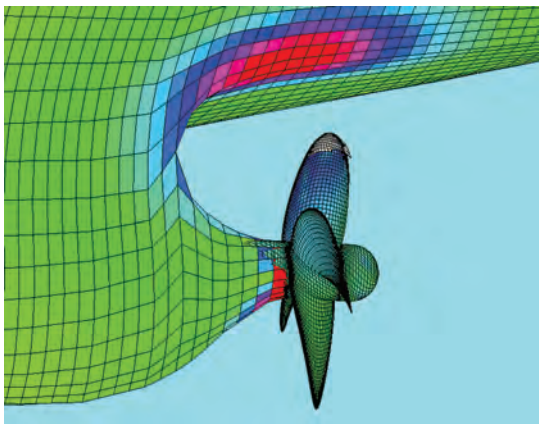
"Lubricants consume between 50-60% of the technical budget, and as such is not something we can afford to get wrong," said Sugato. "We are so confident of Talusia Universal that we use it on all 21 of our vessels."

Cooperative Research Ships

Still finds Interesting Subjects to Tackle

About The Author
Ed van Daalen is senior researcher at the R&D department of MARIN. For more information Email: e.van.daalen@marin.nl

There can be few organizations that bring together so many sectors of the maritime industry in a non-competitive environment. Cooperative Research Ships (CRS), 40+ years and still going strong, tackles problems of common Interest and furthers research. The practical knowledge and tools that emerge from CRS are then used by its members. Initiated by MARIN in 1969, the organization is a true cooperative. All of its members are actively involved, equally fund the research work and then they directly get the benefits. Results are exclusively available for the CRS members. Currently, 23 organizations are involved in CRS, including leading shipyards, suppliers, classification societies, navies, research organizations and one of the largest ship operators. MARIN plays a facilitating role by taking care of the chairmanship and secretariat. CRS has a simple and democratic organization, with as little bureaucracy as possible. Anyone can come up with an idea for research. About a dozen items are selected and voted on at the mid-year Open Meeting and then a limited number of proposals are presented at the Annual General Meeting in December. Each year, three new projects are chosen to run alongside the existing ones. A seven-strong Steering Group organizes the two main annual CRS meetings, monitors working group progress and facilitates the flow of information and creation of research proposals. One representative from each industry segment sits on the Steering Group for two years. For each working group, organizations can choose to be a full member, which entails active involvement, or a corresponding member. All members can obtain research updates through frequent meetings and through access to the CRS website at **www.cr-ships.org**. Members have to be in agreement with new candidates but already many competitors work together in CRS. Often they find the informal contacts very useful. CRS also provides a training ground for young engineers. They not only learn the technical side but also about working in international teams. As of 2010, each member will pay 60,000 Euro each year for funding between 10 to fourteen projects. Roughly 100,000 to 400,000 Euro over a three-year period is provided for each project.



Hull pressures generated by a cavitating propeller computed by coupled RANS and boundary element methods.

BY THE MEMBERS, FOR THE MEMBERS

Collectively, CRS possesses a wide range of expertise and facilities, ranging from practical design, engineering, construction and operation, to fundamental research in many maritime related areas. This is used to optimum advantage in carrying out the work programme. Developments in the maritime industry can be followed up directly, as is illustrated by the ongoing projects on performance in extreme conditions (ice), energy and emission, survivability and broadband propeller noise. Although working groups run for around three years, in reality most build on past CRS research. For instance, in the area of seakeeping, CRS has worked on related projects for over two decades so there is a continuous accumulation of knowledge and tools. Knowledge is also combined effectively between projects, e.g. by bringing together the working groups on propulsion and manoeuvring. These features are unique in the R&D world. Over the decades there have been many highlights. New insights have been gained into complex phenomena related to cavitation and broadband excitation, using combined numerical and experimental techniques. The effects of propeller-induced vibrations is a big problem for yards and owners. The current PROCAL tool development will allow CRS members to predict with accuracy the propeller loads and eventually, cavitation and impact on ship response. The programs PRECAL and PRETTI and previous slamming and green water on deck research, provide vital building blocks into seakeeping researchin combination with structural dynamics.

THE FUTURE STARTS TODAY

CRS has been specialized in many areas until now but it makes sense to integrate a number of areas, for instance, propulsion research with seakeeping and manoeuvring research. Such a multidisciplinary approach can then be used for improving design and operational performance. At the last Open Meeting, CRS has identified several new areas for research, including the development of a CFD toolset, propeller and shaft loads, bow thrusters and trimaran design. There will always be plenty of technical challenges to ensure that CRS has enough work for the next 40 years!

Seafarer Competency
The Manila Amendments to STCW

About the Author
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Email: dennis.l.bryant@gmail.com

The first International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention) was adopted in 1978. It proved to be largely toothless and vague to the point that it actually established no meaningful standards. While it was a first step, the 1978 Convention was not a good first step.

After many years of effort, the Parties to the 1978 Convention met again in 1995 to overhaul the process.

As noted in the Foreword to the publication of the results on the 1995 Conference: "Complete revision to the annex to the 1978 STCW Convention became necessary in order to clarify the standards of competence required, introduce qualification requirements for trainers and assessors, provide effective mechanisms for enforcement of its provisions and allow greater flexibility in the assignment of functions on board ship and thus broaden the career opportunities of seafarers." The amendments adopted by the 1995 Conference of Parties to the STCW Convention, 1978 were quite successful in establishing meaningful standards against which to measure the quality of training, certification, and watchkeeping of seafarers.

The world, though, does not stand still. Some would argue that the 1995 standards were obsolete before the ink was dry on the signatures adopting the amendments. Certainly, much has changed in the interim between 1995 and today. Electronic navigation was in its infancy in 1995.

Maritime security was a minor consideration. The use of simulators and other electronic training aids was rudimentary. Additionally, forgery of seafarer certificates was not particularly widespread at that time.

After some years of work, the Parties met again, this time in Manila, the Philippines.

There, they agreed to a wide-ranging update of the STCW Convention and Code. They also agreed to an ambitious timetable for implementation of the changes. The rapid coming into effect of many of the changes may come back to haunt the various Administrations tasked with implementing the new provisions and the maritime community – the world's merchant mariners and their employers.

At the end of the Conference in Manila on 25 June 2010, the Parties approved a Final Act reporting adoption of what are commonly called the Manila Amendments. The Parties also adopted a number of resolutions that are related to, but somewhat outside the strict terms of the STCW Convention.

One resolution recommends that Administrations take appropriate steps to establish electronic databases to assist in verifying the authenticity and validity of certificates of competency and endorsements and to respond promptly to requests from other Administrations for verifications. Another resolution recommends that Administrations make arrangements to ensure that shipping companies take steps to promote the technical knowledge, skills, and professionalism of seafarers.

The Parties invited the International Maritime Organization (IMO), in cooperation with the International Labour Organization (ILO) and the World Health Organization (WHO), to develop guidelines to implement the medical fitness standards for seafarers. The Parties invited the IMO to revise and update existing model courses and develop new model courses consistent with the STCW Convention as amended. A resolution was approved recommending the governments adopt measures to ensure that masters and officers of ships that operate in polar waters have the appropriate training and experience.

Other resolutions were adopted to attract new entrants, particularly women, into the maritime profession. Finally, in recognition that the world will continue to change, a resolution was adopted calling for further amendments to the STCW Convention and Code on a five-year cycle and a comprehensive review on a ten-year cycle.

Among the direct amendments to the STCW Convention and Code are the following: (1) revised requirements for hours of work and rest; (2) new requirements relating to training in modern technology, such as the electronic chart display and information system (ECDIS); (3) new requirements for marine environment awareness training; (4) new requirements for training in leadership and teamwork; (5) updated competence requirements for personnel serving on all types of tankers; (6) new requirements for security training, including training for potential pirate attacks; (7) introduction of modern training methodology, including distance learning and web-based learning; (8) training for operations in polar waters; (9) training for operation of dynamic positioning systems; and (10) new requirements for maintaining standards for competence and refresher training.

The 2010 Manila Amendments enter into force on 1 January 2012. Specific requirements are to be phased in. The new minimum rest hour requirements and a limited number of new standards will take effect immediately. Commencing 1 July 2013, new entrants must be provided training in accordance with the Manila Amendments.

Also on that date, Administrations will commence issuance of Manila Amendment certificates. As of 1 January 2014, all seafarers must be provided with security training. All provisions of the Manila Amendments become mandatory for all seafarers as of 1 January 2017.

The US Coast Guard recently issued a Supplemental Notice of Proposed Rulemaking (SNPRM) to implement the Manila Amendments for the US merchant marine, as well as to make other non-STCW changes to reorganize, clarify, and update related provisions. Unfortunately, the marine industry was only being provided until 30 September 2011 to submit commets.

This short timeframe was dictated somewhat by the 1 January 2012 entry into force of the Manila Amendments. It is hoped that the Coast Guard will issue an Interim Rule, as opposed to a Final Rule. An Interim Rule can include a further request for comments and expedite the making of changes to the regulations to address rubbing points that arise as the rule comes into effect.

One of the Coast Guard's goals with this rulemaking is to better separate the STCW requirements and the non-STCW requirements. A significant proportion of US mariners are not subject to the STCW, but the current regulations engender some confusion concerning which requirements apply to non-STCW mariners and their employers.

The SNPRM also provides entry paths from domestic endorsements to the equivalent STCW endorsements.

The Coast Guard proposes to accept various methods for assessment of competence, preserving the "hawsepipe" program which permits the use of on-the-job training or practical experience to obtain endorsements and foster career paths. Mariners serving on the Great Lakes and inland waters would be eligible for sea service credit toward STCW and domestic endorsements of unlimited tonnage.

Applicants serving on Great Lakes waters would be credited with one day of ocean service for every day of Great Lakes service, because operations on the Great Lakes closely resemble ocean service. Applicants serving on inland waters would be credited with one day of ocean service for every two days of inland service for up to 50% of the total required service.

The regulatory changes required to implement the 2010 Manila Amendments, as well as those required to otherwise bring the Coast Guard regulations up to date, are numerous and detailed. They will impact every US merchant mariner and every one of their employers. The timeline for these changes is ridiculously short given their breadth and depth. The Coast Guard and the regulated community must work together in good faith to bring those changes into effect.

The regulated community must work hard to understand and implement the changes, while recommending appropriate changes to the Coast Guard. The Coast Guard must avoid playing "got you" and not take immediate adverse action based on technical non-compliant situations.

The regulated community will need guidance and occasional prodding to come into full compliance. A draconian approach by the enforcement side of the Coast Guard will prove distinctly unhelpful and counter-productive. We are all in this together.

Fast Track Amphibian

Increased Flexibility for the Amphibious Mission

Fast Track Amphibian LLC has developed a solution that employs only the tracks to provide propulsive power on land and water. For the last 10 years FTA LLC has researched, designed and built a concept demonstrator, and shown the ability to achieve high land and water transit speeds with the ability to navigate over difficult terrain. Recently on display and demonstrated at the Multi-Agency Craft Conference (MACC) at Naval Expeditionary Base Little Creek, the Fast Track Amphibian concept demonstrator was viewed by many, with similar reactions – interest that a vehicle could achieve its primary water propulsion via tracks only, and then amazement at the speeds achieved to date by FTA LLC on both land (65 mph) and water (39 mph). Particularly so when considering the 2500 pound concept vehicle (FT1) is powered by a single 148 hp, Rotax snowmobile engine and driven by a belt driven continuously variable transmission. The engineers at FTA LLC had to resolve one central challenge to make the concept vehicle operational: develop a system to keep the water from adhering to the tracks and recirculating as the track RPM

increased. They resolved this issue via a specially designed diverter system, allowing the track to operate efficiently in the water. The FT1 can transit over and thru difficult conditions such as marshes, mud-flats, shallow waters, sandbars, and debris filled waters . It can enter water at high speed and maintain that high speed, as well as starting from a dead stop in the water. Water to land transitions can be made quickly as well, with no need to stop and reconfigure the vehicle. FTA LLC's concept demonstrator provides a starting point for what is possible with their technologies, which can be scaled up or down for use in multiple vehicle concepts and missions. The Wernicke brothers (Ken and Rod), both retired aeronautical engineers, have completed preliminary designs for vehicles ranging from a <50 lbs unmanned vehicle up to a 3-ton capacity cargo transport. Mission Flexibility: A track propulsion USV capable of conducting reconnaissance along constricted water ways but then being able to transit ashore for land reconnaissance as well. A Riverine Patroller that affords its operators the flexibility to launch and recover at any location desired, not being restricted to those locations with prepared trailered-boat launch capabilities. Craft capable of carrying a squad of Marines or Soldiers would be able to transit over land and water with minimal delays as they maThe Fast Track Amphibian is a concept ripe for continued refinement of its subsidiary systems, and design of vehicles that will perform those missions called for by various operators. FTA LLC is ready to move forward in designing and building a new prototype in order to demonstrate a more refined, robust vehicle to the many potential users of this type capability. As a small company, it is teaming with other companies that bring systems engineering, operational mission thinking, and manufacturing capabilities to the table.

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The Risk-based Approach to Polar Code

Growing shipping activity in Polar waters, whether driven by tourism, cargo operations or oil exploration has become one of the most significant trends in ship safety over recent years.

By Luis Guarin, Director,
Safety Engineering, Safety at Sea Ltd.

The IMO's Sub-Committee on Ship Design and Equipment (DE) is working on a mandatory Code for ships operating in Polar waters — widely known as the Polar Code, to supplement other regulatory instruments, including SOLAS and MARPOL. The Code will seek to address the specific risks relating to operations in Polar waters, taking into account the extreme environmental conditions and the remoteness of many locations.

The International Association of Antarctica Tour Operators (IAATO), set up in 1991, to advocate and promote safe and environmentally responsible private sector travel to the Antarctic, represents over 100 private sector companies – the majority of which are passenger ship operators. It has expressed its concern that any new rules should properly reflect the diversity of operating conditions in Polar regions. Consequently, it has been working with UK-based Safety at Sea Ltd on a risk assessment - based study of passenger vessels operating in Antarctic waters. Dr. Kim Crosbie, environmental operations director of IAATO, said, "We wanted to take into account all the diverse elements associated with operating in the Antarctic, including the geography, climate, seasonable variables and the diversity of the fleet, to evaluate the hazards, risks and possible mitigation methods. Our goal is to create a tiered risk approach which could be used in the development and application of a mandatory Polar Code."

IAATO has aimed to develop a framework for voyage risk assessment which could be used in voyage planning, preparation and execution, and for managing and authorizing activity in line with safety requirements.

The organization also wanted to get involved in the process because it was concerned that the Polar Code could become overly prescriptive using a broad-brush approach. This might have some advantages, in being relatively easy to understand and implement, for example. However, inflexibility might have an adverse impact on shipping, without any corresponding benefits in terms of safety. For example, rules that might appropriately be applied to vessels operating in the dark winter months or heavy ice conditions might not be as relevant for operations the continuous daylight of summer in ice free waters. Again, a relatively large cruise vessel that sails through ice free waters and does not land passengers, faces different safety issues to a small expedition type craft that can land up to 100 persons onshore at a time.

COLD COMFORT

Luis Guarin, Director of Safety at Sea, comments: "Based on the research we have carried out together with IAATO, we are now strongly advocating that IMO takes a goal-based and risk-informed approach to developing requirements under the Polar Code. What we want to avoid is a 'one size fits all' set of rules and regulations. The core concept is that the requirements of a Polar Code should be based on an understanding of the level of risk implicit in particular circumstances."

An initial study carried out by Safety at Sea at IAATO's request reviewed the current operational activities of IAATO members and created a preliminary risk assessment of passenger ship operations in Antarctic waters that could be used in the planning, preparation and execution of a voyage. The process involved defining key problems, identifying potential hazards, analysing risk and assessing various Risk Control Measures (RCMs).

The description of the activities of the IAATO members and their operational environment set the scene for the study and involved both an overview of the IAATO fleet and a detailed analysis of a representative vessel. The patterns of tourism were assessed and a representative voyage was identified and used as an example for the risk assessment.

In addition seven key environmental and defining features - sea ice cover, sea water temperature, sea conditions, air temperature, traffic levels, Search and Rescue (SAR) response and navigational chart coverage and availability - were evaluated and used to define five representative sea areas within the Antarctic region. A qualitative risk assessment was undertaken to assess the potential influence of identified factors and hazards on the level of risk. A total of 25 hazards were identified including, for instance, sea ice, unknown bathymetry, and poor surveys. Subsequently, Safety at Sea assessed the potential influence of various factors and events on potential risk, specifically in terms of the impact on people, associated with passenger vessel operations in Antarctic waters. The Safety at Sea study concluded that a high risk to human life was posed by grounding, contact with ice and medical emergencies; while a moderate risk to life was presented by a vessel becoming stranded in ice, a collision with another vessel and heavy weather damage. The most significant hazards contributing to overall risk were inexperienced crew and poorly maintained vessels. Other significant factors included localised, extreme weather; large seas and swell; and having limited assets available to carry out a rescue.

HISTORICAL ANALYSIS

The risk analysis carried out by Safety at Sea used historical casualty data and a sample voyage itinerary to assess the frequency of incidents and the incidence of

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Passengers exploring from the M/S Nordkapp on Petermann Island.

exposure to grounding and ice hazards. The process also involved modelling to estimate the probability of all possible outcomes in the event of grounding or contact with ice. This included, for example, structural vulnerability, flooding vulnerability and exposure and vulnerability to environmental factors. The historic data analysed by Safety at Sea covered more than 630 ship years and 74 incidents, including 45 medical evacuations (although these were not specifically related to the operating environment), 14 groundings and five incidents of heavy weather damage.

Some 66 RCMs (Risk Control Measures) were identified, analysed and ranked. These included RCMs already implemented through international legislation such as SOLAS, STCW and ILO and IAATO's self-management systems. They also included specific requirements implicit in the IMO Guidelines for Ships Operating in Polar Waters.

The analysis assessed the extent to which RCMs were operational, as opposed to being factors related to vessel design and construction or equipment specification. It also looked at whether they were related to crew experience; associated with poorly maintained vessels; or were related to significant Antarctic environmental hazards.

The study found that over half of the identified RCMs are operational in nature, with the remainder relating to ship

construction and equipment. Similarly, more than half the RCMs are for mitigation, to influence the consequences of an eventual accident, and 36% for prevention. The remaining 12% have elements of both prevention and mitigation.

At least 15% of the identified RCMs related to inexperienced crew and 12% to measures relating to significant Antarctic hazards such as localised, extreme and unpredictable weather conditions and not having SAR assets readily available. None of the measures explicitly addressed the hazards associated with poorly maintained vessels, although Safety at Sea points out that this is clearly one of the most significant factors contributing to risk. One of the key conclusions was that the risks associated with certain events are proportional to the exposure to ice. This, it was pointed out, varies on a month to month basis within areas, and between areas of the Antarctic.

ICE STRENGTHENING

The study observed that the probability of exposure to ice hazards could be reduced to a negligible level by means of an ice routing service and by implementing effective training for ice navigation. It also came to the conclusion that it was 'reasonable' that any SOLAS vessels intending to operate in areas and times of the year where the probability of meeting ice hazards was high should be ice strengthened to some degree.

However, Mr Guarin observes: "Ice strengthened hulls could mitigate the severity of the consequences of contact with ice. However, measures to prevent the occurrence of grounding or contact with ice should be prioritised."

Given that in Antarctica SAR assets might not be readily available, damage stability standards for vessels in Antarctic waters should be consistent with the principle that the vessels is its own best lifeboat. This requires the level of survivability of a vessel to be subjected to realistic ice damage and that raking damages are fully evaluated and understood.

According to Mr Guarin: "Current damage stability standards, including those implicit in SOLAS 2009, do not cover such items. These standards are based on damage characteristics relating to collisions with vessels and do not explicitly address the issues of survival time, an important consideration in the Antarctic." Risks associated with other events, such as grounding, are voyage-specific and are almost independent from exposure to ice. The study also pointed out that factors such as the availability of search and rescue assets vary both geographically and seasonally and that this has implications for RCMs. It further recommended that measures aimed at increasing crew understanding and competence should be prioritised. "Even slight variations in factors such as itinerary, destinations, month and so on can lead to big variations in risk. These variations have to be accounted for in any regulatory framework," suggests Mr Guarin. In the opinion of both Safety at Sea and IAATO the findings of the study justify taking a risk-based approach within the development of the Polar Code. Mr Guarin says: "If the Code is too prescriptive then there will inevitably be some inconsistencies in how it is applied and we believe the approach we are suggesting would avoid that."

The study has now been submitted to IMO as a 'case study' to assist with the development of the Polar Code. Dr Crosbie concludes: "Discussions within IMO have started and, while it is early days, we are hopeful that the strength of this analysis will be recognised by the regulators."

Castrol Calling for

Clarity on Polar Lubricants Usage

As Polar shipping movements increase, Castrol Marine suggests that greater attention should be paid to the environmental credentials of lubricants used on board in applications where there is a risk of leakages and discharges.

Growing demand for effective shipping routes and cruises to previously inaccessible destinations has led vessels into increasingly sensitive marine areas.

Exemplary is the increasing amount of seaborne traffic beginning to move along the Siberian coast. There are also hopes of opening up more of the North West Passage above Canada.

The Northern Sea Route voyage is one-third of the distance of traditional routes through the Suez Canal, bringing with it lower fuel costs. Nordic Barents operator Nordic Bulk Carriers was recently reported as claiming that an Arctic voyage to Asia would save the company $180,000 in fuel costs over the equivalent journey via the Suez Canal.

Norilsk Nickel, the world's largest nickel producer, carried ore to China and South Korea by the eastern part of the Arctic route last year. Two tankers owned by Murmansk Shipping loaded with petroleum recently moved through the ice-thinned passage from Murmansk to Chukotka in the Russian Far East. Again, Sovcomflot has also taken one of its 70,000dwt tankers from Russia to the Far East on this route, while Russian oil company Novatek has undertaken a trial shipment of 60,000 tons of oil products to China via northern Siberia.

NEW RESPONSIBILITIES

With such operations come new responsibilities for shipowners in terms of both safety and the environment. These have been recognized by guidelines issued by the International Maritime Organization's Maritime Safety Committee and Marine Environment Protection Committee for ships operating in Polar waters.

Among the explicit statements regarding the environment in these Guidelines is the following: "Sterntube bearings, seals and main propulsion components located outside the hull should not leak pollutants.

Pollution resulting from leakages from oil lubricated stern tubes is now widely acknowledged. A joint paper presented to the MEPC by Friends of the Earth International and WWF projected that discharges across the entire marine environment, including open seas to be as much as 244,000 tonnes a year.

Such leakages could be 'engineered away', either at the design stage or during refit through using extra seals. However, the costs associated with this make it relatively unlikely that leak-free seals will be adopted by the industry in the near future, unless operators are forced to do so by legislation.

In fact, though, the IMO's Polar guidelines did not call for an outright ban on oil-lubricating stern tubes, instead stating: "Non-toxic, biodegradable lubricants are not considered to be pollutants".

CLARITY CALL

Castrol Marine suggests that there remains lack of clarity in the marine industry on what 'non-toxic biodegradable lubricants' performance should be and how it should be measured.

"The claims for 'environmentally responsible' products can sometimes be misleading," says Susannah Linington, Castrol Marine environmental specialist. "For example, terms such as 'environmentally friendly', 'food grade' or 'biodegradable' oils are often used without justification. It is essential that operators ask the right questions about what they are buying into and get the right information to enable the most appropriate products to be selected."

Linington said that the marine industry needs consistent standards covering the chemicals used on board vessels.

"As any leaked product will go into the sea rather than into freshwater, it is important that marine testing is carried out on the product, not testing in freshwater or in the soil," said Linington. "The product's lubricating performance should also be considered alongside its bioaccumulation, marine toxicity, and biodegradability properties in sea water."

For marine and offshore applications, Castrol has developed a full range of high specification, environmentally responsible lubricants as drop-in replacements for conventional mineral oils in equipment where there is a risk of accidental spillage or leakage into the marine environment. BioStat, for example, is suited for the application in stern tube, reduction gear, thruster, spur, helical and planetary gear units, couplings, rolling and sliding bearings.

BioStat fluids contain selected additives ensuring good oxidation stability, good anti-corrosion and anti-wear properties and low aquatic toxicity, Linington explains. "The marine performance of Castrol BioStat has been measured in comparison with conventional lubricants and has been proven to have superior biodegradation, significantly reduced bioaccumulation and toxicity, and enhanced renewability (that is, products contain components derived from renewable resources)."

GUIDANCE FROM OFFSHORE?

In assessing the future path of regulation, shipping might do well to consider the more precise approach taken to defining the environmental performance of lubricants in the offshore sector, Ms Linington says.

She points out that many of the Castrol range of environmentally responsible lubricants have undergone full component level marine environmental testing according to the OSPAR (the Oslo and Paris Conventions for the protection of the marine environment of the North-East Atlantic). These products are registered with the Norwegian authorities for use offshore.

UK legislators recently arrived at a new definition of offshore 'releases', to provide the basis for enforcement against operators for unintentional chemical releases. Permit holders now have an obligation to prevent damaging incidents or to limit their environmental consequences. Again, the Canadian government recently started asking offshore permit holders for information on the environmental specifications of thruster fluids. Currently, even shipboard lubricants used in Polar waters do not have to undergo the same rigorous environmental testing as those used offshore. However, Linington points out that the final draft of the European Ecolabel for lubricants extends to lubricants in marine applications, suggesting the same exacting standards in defining what constitutes a non-toxic biodegradable lubricant may soon become a feature of maritime regulation. The US Environmental Protection Agency (EPA), for example, is already reviewing criteria in the Vessel General Permit for the selection of environmentally preferable lubricants for use in stern tubes and thrusters, and indeed deck machinery, with a due date for completion of the review by the end of November 2011. Given these trends, Linington says: "The shipping industry needs to review applications that have the potential to discharge lubricants into the sea, either intentionally or by accident, as a matter of urgency, particularly as operations extend into more sensitive seas. It is imperative that owners assess whether they could use products in these applications that have a reduced impact on the marine environment, based on biodegradation, bioaccumulation and toxicity in sea water, while maintaining good lubrication performance."

As operations extend into ever more sensitive marine environments, such as Polar regions, Castrol believes the time is right for all maritime transport operators in applications at risk of operational discharge to switch to environmentally responsible products.

"As any leaked product will go into the sea rather than into freshwater, it is important that marine testing is carried out on the product, not testing in freshwater or in the soil," says Ms Linington. "The product's lubricating performance should also be considered alongside its bioaccumulation, marine toxicity, and biodegradability properties in sea water."

Susannah Linington

**(IMO MSC Ref. Resolution A.1024(26). Guidelines for Operating in Polar Waters. Section 7.2.3).*

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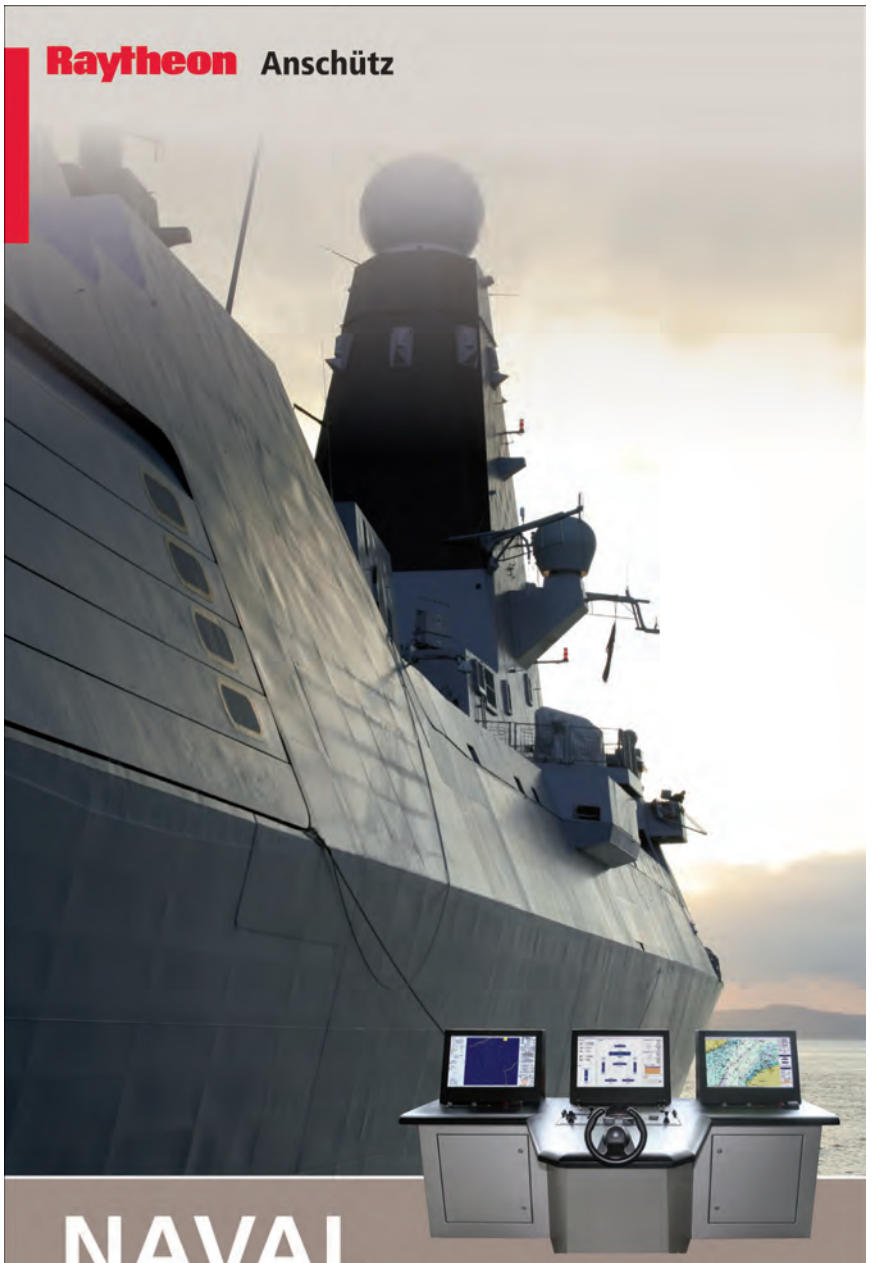

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Enhancing Crew Performance & Passenger Comfort

In Vessel Design, One Size *Does Not* Fit All

By Jonathan M. Ross, P.E.

Vessel designers routinely use the principles of human factors to enhance crew performance and passenger comfort. But even though many aspects of human factors are well known, certain important categories often remain underutilized. One of these categories is anthropometrics, the study of human body dimensions and capabilities. Anthropometrics analyzes age, gender and other data within populations of people, such as offshore workers or cruise ship passengers. For the designer, owner, and operator, attention to anthropometrics during the design process helps enhance crew performance and passenger comfort.

WHY ANTHROPOMETRICS

Anthropometrics is a key ingredient for the successful design of everything from furniture to underground mines (Hughes 2006, Schute 2003). In particular, a working knowledge of anthropometry is essential to the successful design of marine vessels (Lossa 2010), whether small craft, offshore platforms or cruise ships. This is especially true with regard to the placement of instrumentation and controls, accessibility for maintenance, visibility through bridge windows and clearance for safe and efficient movement about the vessel. Poor anthropometric design can result in people bumping into overhead structure, not being able to reach controls, and not having visual contact with critical instrumentation. Examples of inappropriate anthropometric design include the following:

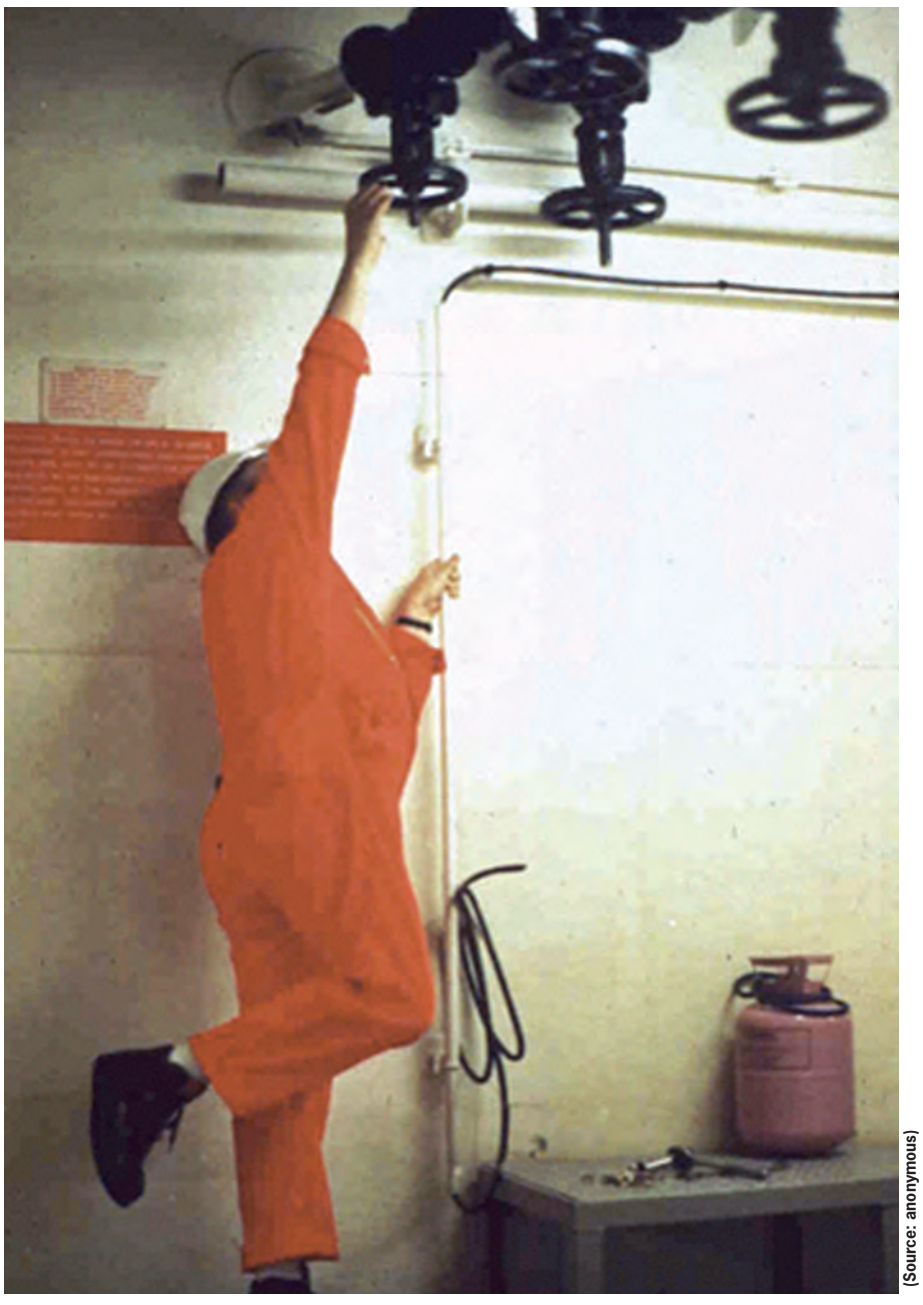
- Inability of Korean crew personnel to reach valve handles in the engine room of a Swedish-design container ship
- Inability of US Navy personnel to access equipment for maintenance in an auxiliary ship
- Insufficient clearance between truck accelerator and brake pedals in utility trucks, resulting in unintended acceleration for drivers wearing large boot or shoe sizes (Freier 2010)
- Computer keyboards that are too large and require too much key force for most users (Hwang 2010)
- Undersized seat widths and personnel weight capacities of survival craft on oil rigs in the Gulf of Mexico (too small for present-day offshore workers)(BMT 2007, MMS 2001)
- Difficulty of Korean soldiers in operating US Army standard weapons, in particular the M-1 rifle (e.g., grasping the stock, reaching the trigger and sighting)(Hart 1967).

DATA – SELECT WHAT WORKS FOR YOUR PEOPLE AND YOUR DESIGN

Anthropometric data has been standardized to a large extent, and variables

(Source: anonymous)

Anthropometry's Primary Message: "One Size Does Not Fit All."



(Source: anonymous)

Incorrect Valve Placement is Appropriate Only for Tall Operators, Causing Reach Difficulties for Others.

have been developed that apply to numerous applications, from furniture to space craft. This data is often readily available. However, there are still differing definitions, conventions and levels of accuracy. The designer must compare data from different sources with care to be sure that the data reflects the appropriate measurements and the population of people who will be crew or passengers on board the vessel. Typical measurement categories include the following (MoD Std 00-25-17):

- *Height (stature)*
- *Sitting eye height*
- *Standing eye height*
- *Sitting elbow rest height*
- *Functional reach*
- *Foot breadth*
- *Foot length*
- *Head circumference*
- *Waist circumference*
- *Hip breadth*
- *Weight*

Significant amounts of anthropometric data exist, particularly for military personnel, both male and female. Example data is presented in Table 1 presents height data for ten international regions of the world. The data is for the 50th percentile, that is, half of the population of the region is taller than these values and the other half is shorter. Data of particular value to the marine designer is found in American Bureau of Shipping "Guidance Notes for the Application of Ergonomics to Marine Systems" (ABS 2003a). This data is from US and international sources.

Table 1
50th Percentile Height Data (cm) for Ten International Regions
(Estrada 1995, ABS 2003b)

Region	Male	Female
Sri Lanka	163.9	152.3
Colombian Workers	168.6	155.6
Japan	168.7	155.7
China	169.0	155.4
France	171.9	160.4
Germany	173.3	161.9
Sweden	174.0	164.0
UK	175.5	162.0
US	176.0	162.6
Netherlands	179.5	165.0

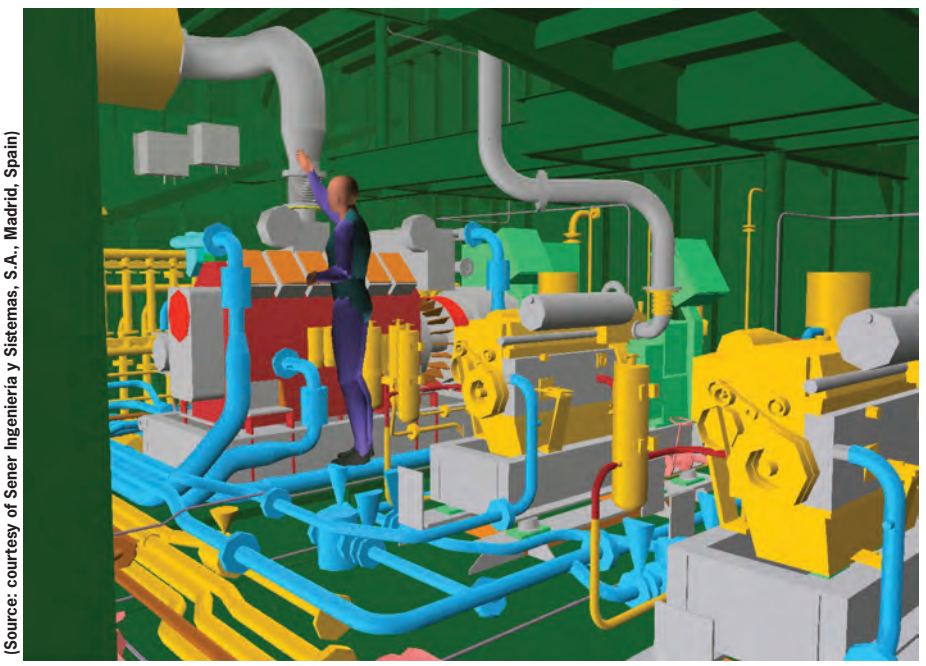
WHO TO INCLUDE IN YOUR DESIGN RANGE

When using anthropometric data, the designer must determine which portion of the population will be accommodated. This is necessary because designing for every member of a population is often impractical. For example, a designer may decide to include 90 percent of a population and select a range between the 5th and the 95th percentiles.

In practice, larger people may be able to squeeze into a tight spot, and smaller people may be able to reach a bit further than their comfort zone, but the idea is that specifying a data range within specified percentiles provides the designer with a dimensional framework that will result in a practical, cost-effective design.

Whether to use a 5th or 95th percentile or an inclusive range depends upon the design situation. For example, when designing for maintenance access behind installed equipment, access clearance is important. The shoulder width of the 95th (larger size) percentile may be specified. This ensures that only a small 5 percent of the population will have possible problems with access.

On the other hand, when designing the location for a valve, reach can be important, and the designer may select a 5th (smaller size) dimension (Figure 1). As a result, all but 5 percent of the population can easily reach the valve (Panero 1979). Figure 2 shows another valve-related example in which all but the smallest person would find two adjacent valve placed



(Source: courtesy of Sener Ingenieria y Sistemas, S.A., Madrid, Spain)

Using Digital Mannequin in FORAN to Check for Proper Component Placement.

too close for effective opoeration.

For critical applications (e.g., emergency breathing apparatus) and for screened populations with specified anthropometric characteristics (e.g., helicopter pilot maximum height), the designer must accommodate 100% of the population.

One general anthropometric design approach considers four design principles (ABS 2003a):

- **Design for the average** - application is for non-adjustable situations such as work stations and desks
- **Design for the range** application is for adjustable situations, such as seating. Generally, the design will accommodate the middle 90% of the population
- **Design for the largest** - applications are mostly for clearances (e.g., hatches and walkways). Generally, the design goal is to accommodate 95% of the population
- **Design for the smallest** - applications are mainly for strength (e.g., pull, push) and reach distances. Usually the reach and strength of the 5th percentile person is used as the design criterion.

THERE IS NO AVERAGE PERSON – MELD YOUR DATA CATEGORIES WITH CARE

The marine designer may be tempted to choose the 50th percentile anthropometric characteristics as the basis for an "average person model." This approach is not valid, and has been named the "average person fallacy," because different people vary in different ways; there is no average person. Also, percentiles are not additive.

Consider the design challenge of a multi-dimensional work area, such as a cramped control station in a shipboard crane. All of the following variables may be important:

1. *Sitting height*
2. *Buttock-knee length*
3. *Buttock-heel length*
4. *Functional reach*
5. *Sitting knee height*
6. *Shoulder (bideltoid) breadth.*

In this example, the designer may use anthropometric data from the UK Royal Navy and may want to design the work area to fit everyone from the 3rd to the 97th percentiles. For just one variable (e.g., "sitting height"), the goal is met: the work area can be designed to fit all individuals between the 3rd and the 97th percentiles. But if the work area must simultaneously fit 3rd to 97th percentile individuals from both of the first two variables, then fewer individuals are included. The reason is that there is not a perfect overlap between the individuals within the 3rd to 97th percentiles for "sitting height" and those individuals within the 3rd to 97th percentiles for "buttock-knee length." As more variables are added, the work area fits fewer individuals. Only 78% of the population will fall within all six of the above "3rd to 97th percentile" variables (MoD Std 00-25-17).

(Source: anonymous)

Valve Handles Are too Close for all but the Smallest Person.

DIGITAL MANNEQUINS AS AN ANTHROPOMETRIC TOOL IN THE CAD ENVIRONMENT

Human Digital Modeling tools simulate humans by means of 3D electronic models (Figure 3). These tools combine computer-aided modeling with anthropometric data, and for some years have been used effectively within industry and government. Digital mannequins, based on anthropometric data, are placed within CAD models and exercised to develop and refine the human-machine dimensional and strength interface. A family of mannequins is produced through a statistical method and exercised for a given design (e.g., 5th percentile female and 95th percentile male).

The Ford Motor Company and NASA have been active in this field (Nadadur 2009, Thaxton 2007). In addition, since 1986, the German company Human Solutions has developed the RAMSIS mannequin, originally for automotive design, with emphasis on driver comfort and posture. The company has applications tailored to industrial vehicles and aircraft, and is presently entering the submarine design arena. The mannequins are based on anthropometric data appropriate for each field of application (Heiner, Human Solutions 2010, van der Meulen 2007).

The Value of Anthropometrics in Design - Conclusions

Major conclusions are as follows:

- One size does not fit all, whether for shoes or marine vessels
- Applying anthropometric considerations to the design process is practical but can increase cost and time; usually, detailed anthropometric analysis is needed in only certain instances
- The payoff of anthropometrics in design is an improved fit between the people and the vessel, with a result of enhanced crew performance and passenger comfort.

OTHER HUMAN FACTOR TOPICS

Past articles in this magazine – October 2006, November 2006, January 2007 & March 2007 – discussed dominant human factors issues of concern, the human-machine interface, human stressors, and advanced marine vessels.

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About The Author

Mr. Ross is the Principal of High Ground Initiatives LLC, where he is responsible for ship and craft projects involving human factors, renewable energy and naval architecture. He is the author of the book Human Factors for Naval Marine Vehicle Design and Operation (Ashgate 2009), and has made US and international presentations on human factors. This article is excerpted from his recent paper, Using Anthropometrics in Designing for Enhanced Crew Performance.

Braving the Human Element in Safety

By Rich DeSimone, President, XL Insurance, US Ocean & Inland Marine

The maritime industry is notorious for braving the elements. One element however — the human one — poses greater safety risk than rough seas or gale-force winds and is requiring more companies to take an aggressive approach in emphasizing every employee's role in their risk management efforts. While maritime companies have developed technologically sophisticated hull designs, stability systems, propulsion systems, and navigational equipment, overall the industry's safety record could be better. It is undoubtedly one of the world's most risky and complex industries. And as such, it requires very attentive focus on safety and risk management issues, especially in light of the economic and workforce issues facing the industry today. Despite the various and sometimes hostile natural elements through which those in the maritime industry navigate on a daily basis, human error is the most frequent cause of maritime accidents, attributable to more than three quarters of all incidents. Globally, the industry employs some 1.2 million seafarers, who perform strenuous work for long hours under extremely difficult conditions. The current global economy, high crew turnovers, job security concerns and a host of employment concerns place an additional toll on seafarers. Resulting fatigue and stress, strain performance and contribute to inattentiveness which results in mistakes with dangerous consequences.

Today the maritime talent pool is presenting added challenges. A shortage of experienced seafarers has been a well publicized and ongoing problem. Today's new ships have outpaced the development of qualified seafarers to safely guide them. The economic downturn may have resulted in some loss of qualified seafarers to onshore jobs, leaving behind an even greater shortage of talent. But like many professions, there are certain perceptions about the industry that make it difficult to attract new talent. A constant flow of new talent is vital to the industry. While it takes only a year or two to build a new vessel, it takes as many as eight years to produce a qualified seafarer and much longer to cultivate an experienced officer.

Every human error that was made was determined to be a necessary condition for the accident. That means that if just one of those human errors had not occurred, the chain of events would have been broken, and the accident would not have happened. Therefore, if we can find ways to prevent some of these human errors, or at least increase the probability that such errors will be noticed and corrected, the industry can achieve greater safety and fewer casualties. Skilled and experienced crews are essential to the successful and safe operation of today's hi-tech vessels and play a valuable role in protecting a business' profitability. The time and attention invested in providing a safe work environment protects people, company assets and operations, and the environment against risks to injury, loss or damage. A strong safety culture assures that business activities are fully compliant — if not exceeding — all legal and regulatory requirements.

CLEAR LINK

Some companies are quick to see a very direct link to strong safety measures and their overall performance. In fact, one maritime industry CEO starts every one of his earnings calls with a report on his company's safety record for the quarter. Safety and a company's financial health are tied that closely. Safety is not just about trips or falls. It's about performing well and physically performing well often translate to stronger financial performance – aided by fewer workers compensation insurance claims, lost days of work, etc. Additionally, one misstep may not only significantly harm a company's bottom line, but its reputation – something that can be tough to recover from. Employees need to know the importance of the role they play in ensuring a safe workplace, by demonstrating the right attitude toward safety and consistently following safety rules and procedures. Given the nature of the work required of them, instilling a safety culture throughout the organization is an ongoing imperative in the marine industry –only partly dictated by government regulation and insurance carrier requirements. Insurance carriers look closely at safety records and a marine client who shows complacency, especially when incidents may be a clear indication that corrective actions need to be taken, can be deemed a less than desirable risk.

Accidents are opportunities to learn and make corrective actions. The goal in safety, however, is to learn without having to experience the repercussions of a mishap. Safety is best implemented when top management believes in a safety philosophy, and a written safety policy is created based on the company's philosophy. The safety policy should communicate to all levels of employees that management supports a safety philosophy and is committed to employee and community safety. When supported by management, a written policy establishes the idea of safety as an important part of operations regardless of the type of industry and employee's job responsibilities. In light of some of the industry challenges, marine insurers are more than willing to work closely with their clients to suggest prequalified safety consultants, to review safety manuals, to assist in setting up employee training or to perform safety audits, among other services offered. Today, safety training is particularly essential as the industry replenishes its talent pool. In addition, those who oversee and regulate waterborne trade in the U. S. are acutely aware of the hazards facing operators. The U. S. Coast Guard takes the matter so seriously that in the very near future they will be implementing a safety management system that will apply to all operators in domestic trade. To minimize human error and maximize human performance, safety needs be more than a pile of procedures and checklists. Safety is said to be learning without experience. As more maritime companies provide the right learning opportunities, they help improve the crews' qualifications and in turn, boost their own company performance along the way.

Polarcus Alima takes the Northern Sea Route

An X-BOW vessel designed by ULSTEIN, the seismic vessel Polarcus Alima, recently transited to Asia-Pacific via the Northern Sea Route (NSR), making it the first known passage of a 3D seismic vessel along the Northern Sea Route. Polarcus Alima is an ultra-modern 12-streamer 3D seismic vessel of the SX134 design.

JHSV 1 Christened

The Military Sealift Command joint high-speed vessel USNS Spearhead (JHSV 1), the first of 10 Navy joint high-speed vessels designed for rapid intra-theater transport of troops and military equipment, prepares for its Sept. 17 christening ceremony at Austal USA in Mobile, Ala. The 338-ft.-long aluminum catamarans are designed to be fast, flexible and maneuverable even in shallow waters, making them ideal for transporting troops and equipment quickly within a theater of operations. *(U.S. Navy photo Courtesy Austal USA/Released)*

Design of Aquarius Solar Power Array Starts

Another step forward in the development of the Aquarius System was made recently when work begun on the detailed design of the wind and solar sail panel. This panel or rigid sail will be used to harness wind and solar energy which will then be used to help power a ship thereby reducing fuel consumption and the emissions. The rigid sails are being developed by Eco Marine Power in co-operation with a number of development partners. The rigid sails will form part of an array which will allow ships to tap into renewable energy at sea, at anchor or even when a ship is in harbor. Each sail panel will be positioned by a computer control system being developed by KEI System Pty Ltd of Osaka, Japan, and the sails can be lowered and stored when not it use. When wind conditions are not favorable they can also be positioned to offer little wind resistance and yet still collect solar energy.

Recent advances in solar module technology mean that it is now feasible to use a combined rigid sail and solar energy collection device and Eco Marine Power is at the forefront of developing this technology.

Using solar modules mounted on a rigid but movable sail panel offers many advantages over simply mounting solar panels on the deck of ship and Eco Marine Power believes the Aquarius System will also offer an attractive return on investment (ROI) for shipping lines. **www.ecomarinepower.com**

ShipConstructor helps the New Brazilian Shipbuilding Industry in

Soaring to New Heights

(Photo Claudio Paschoa)

The recent growth of the Brazilian shipbuilding industry, with the construction of more than 20 new shipyards and efforts to modernize older shipyards, has highlighted the need for more efficient ship design and construction methods. With the increased reliance on production line automation, ship design software has become even more important. ***Maritime Reporter and Engineering News*** *spoke with* ***Mr. Bruno França****,CEO of Brazilian IT company Sincronia and ShipConstructor representative in Brazil, about the relevance of CAD based ship design software in the new Brazilian shipbuilding industry.*

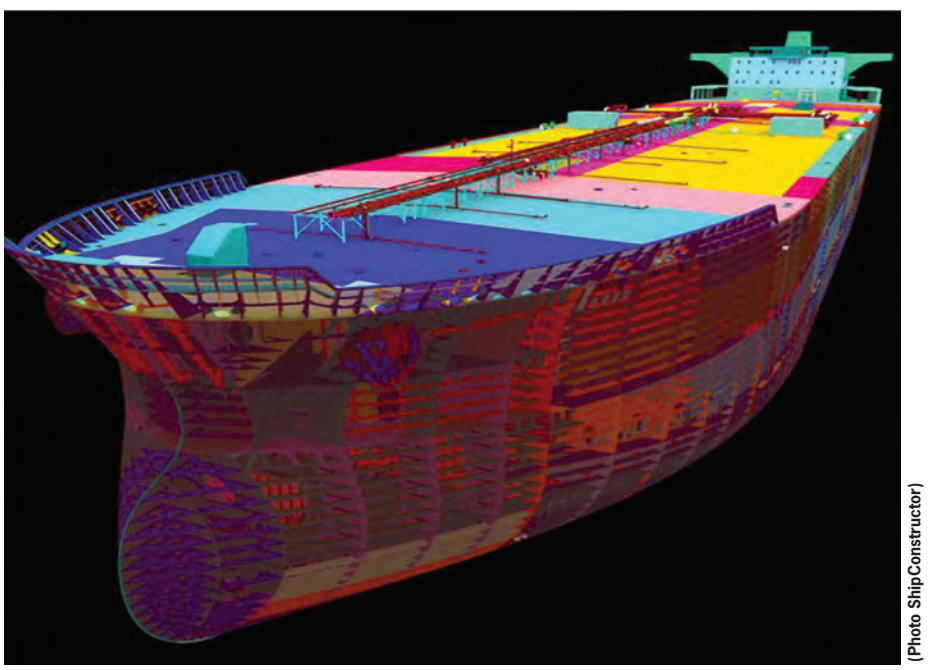
By Claudio Paschoa

Please tell us a little about yourself and your company (Sincronia)?

My name if Bruno França, I am CEO of Sincronia. I am an Aeronautical Engineering Graduate from Imperial College London and early on worked in the offshore engineering market as a structural engineer, before migrating to IT.
Sincronia is focused on the IT demands of engineering intensive large scale infrastructure and equipment projects. Our market segments include shipbuilding, offshore construction and industrial plant.
Our range of product and services include:
PLM/Document Management, Enterprise Search and Design Review: Sincronia IFM and Autodesk Navisworks, 3D design, production detailing and integrated CAD/CAM tools for the Shipbuilding and Offshore market: Shipconstructor & Maxsurf Suite, along with consultancy, training and implementation services.

(Photo Claudio Paschoa)

Bruno França - CEO of Sincronia.



(Photo ShipConstructor)

ShipConstructor tanker details.

What is the relationship between your company and ShipConstructor?
We are qualified representatives for ShipConstructor and Maxsurf in Brazil.

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

What would you consider the software´s main competitive advantages?
Shorter implementation time, speed to proficiency and lower maintenance/administration costs, complemented with first-class technical support. ShipConstructor is built on top of AutoCAD, one of the world's most widely used CAD programs. The AutoCAD foundation provides a population of skilled workers already familiar with the basic tools and general look and feel of the software. Additionally, ShipConstructor is a suite of products targeted specifically at the shipbuilding and offshore industries. This basic philosophy behind the technology allows clients to directly interact with the 3D product model of a ship or offshore project in a manner that is natural for their business. Users with a solid foundation of AutoCAD skills and a decent understanding of the industry are armed with the tools required to quickly become proficient with the software. Competing products are widely recognized as requiring as much as 400% greater training to achieve the same level of proficiency.

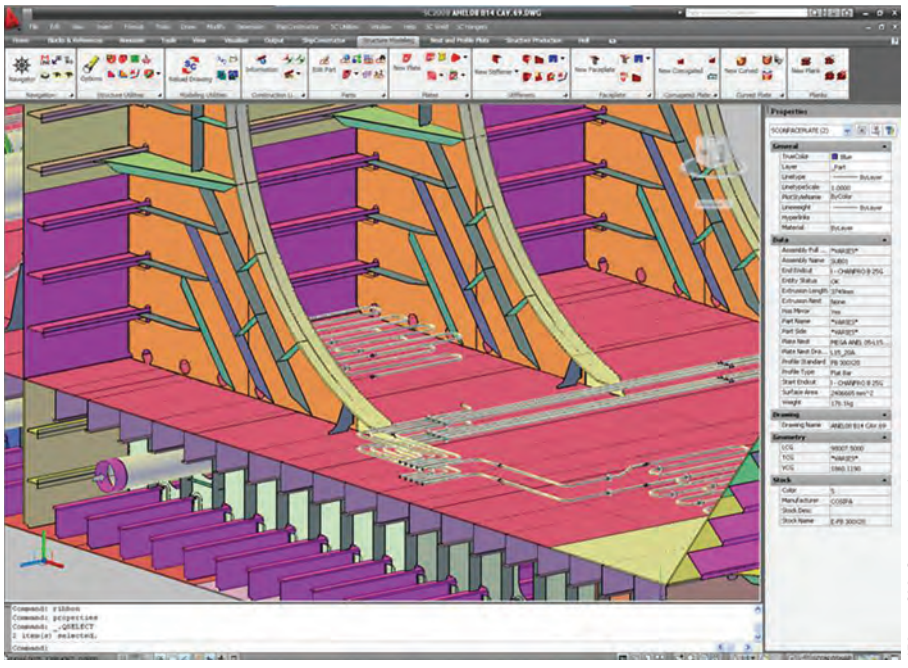
What are ShipConstructor´s range of applications?
ShipConstructor offers a complete package covering all disciplines (structure, pipe, hvac, electrical, welding) for production detailing software as well as tight integration with Maxsurf Suite for initial design capability. Maxsurf is the most commonly used initial design suite in Brazil.

How long has ShipConstructor been in the Brazilian market?
The software has been used since 2008.

Could you give us a short description of the scope of CAD based ship design software business market in Brazil?
Currently the main activity we see in Brazil is project detailing to attend local workshop skills as well as PETROBRAS/TRANSPETRO specifications and requirements. We see few yards actually developing their own internal design capability with most designs still being imported from foreign design offices and technology partners.

What is the current market demand for ShipConstructor?
ShipConstructor is being widely adopted by both Brazilian yards, engineering design offices as well educational institutions. We have a specific educational package for technical colleges and universities and are investing in helping them get up to speed to train students best-practices in shipbuilding using 3D CAD/CAM software.

What is the current market demand for your specific services (Sincronia)?
We see strong demand both for ShipConstructor training and consultancy services as well as our PLM/Document Management side of the business. For the latter the demand is much wider covering other segments such as onshore, industrial and nuclear plant.



(Photo ShipConstructor)

Shipconstructor Window.

Who are ShipConstructor´s main competitors in Brazil?
In the shipbuilding market our main competitors are FORAN/SENER, AVEVA Marine and Intergraph SmartMarine.

How do you view the next five-year business scenario for ship design in Brazil?
We see one of the main challenges will be training local resources to use CAD/CAM software effectively, which is why we are so bullish regarding ShipConstructor as it easily outperforms rival products in ease of use and training/setup time.

What are the current world market trends in CAD based ship design?
Emerging market shipyards such as Brazil and India are looking for CAD/CAM software that out-of-the box is easier to implement, train and maintain. In comparison with that point of view we see some large Korean yards having customized so much of their original commercial software that they are stuck, facing huge migration costs to adopt newer technology from the same vendor. China is a place where everyone is fighting to get some significant market share and still preserve their IP. Europe and the US are pretty much saturated markets.

Production line automation is considered an advantage by most major shipbuilders.

How does ShipConstructor software interact with the automation hardware?
ShipConstructor software offers excellent production automation integration with automated nesting as well as full support for cutting machines (cutting, marking, bevel), generating native CNC code, as well as integration with pipe bending machines. One of the key elements of the software is the intelligent association between production output and the 3D model, so that, for example, if a given structural part is modified, an associated nest drawing will be notified and updated as well.

Which are the main shipyards using the ShipConstructor design software in Brazil?
Our main clients are: Estaleiro Atlântico Sul (Brazil's largest shipyard), Estaleiro INACE, ETP-ENG, Consunav and Kromav Engenharia.

Is ShipConstructor also present in other shipbuilding segments such as cruise ships, yachts and military craft? Do you believe it can enter these market segments in Brazil?
Estaleiro INACE is already using ShipConstructor on yachts and patrol boats for the Brazilian Navy. We have also been approached by other Brazilian yards which have shown interest in using the software for future Brazilian Navy projects. An important point to note is that ShipConstructor currently dominates the US Navy shipbuilding program, with over 80% of current projects using the software as the CAD/CAM tool of choice.

Do you have an idea of how many ships built in Brazil were designed using the ShipConstructor software recently?
ShipConstructor is being used at EAS for the construction of 10 Suezmax tankers, 5 Aframax tankers as well as the P-55 semi-sub hull platform. At Inace shipyard it has been used on fast-supply boats, navy patrol boats and commercial yachts. At ETP-ENG it is being used for PSVs (Ulstein based design).
It is also worth mentioning that several yards in Brazil such as the Detroit shipyard have used project detailing services from Guido Perla (PSVs) and Robert Allan (Tugs), all executed in ShipConstructor CAD/CAM software.

What kind of support do you or ShipConstructor offer to the companies that use the software?
We offer local training and technical support. ShipConstructor Software Inc. is recognized by the industry as offering benchmark first-class support.

What is the expected growth for the ShipConstructor software sales in Brazil?
In two years we overtook the installed base of our main competitor who had been operating in Brazil for over 10 years. We expect to double our installed base in the next two years.

How would you position ShipConstructor in the world ship design software market?
It is achieving significant success in emerging markets such as Brazil and dominates the US Navy market which gives it a solid revenue base, independent of global crisis , double-dip recession etc. for future growth.

What are your views on the growth of Brazilian shipbuilding and how does that affect your product?
We are very pleased to be actively taking part in the revival of the Brazilian shipbuilding industry. My partner and father Coaracy da Silva was actively involved in the first cycle of the Brazilian Shipbuilding industry 60s-80s, when Brazil achieved international recognition as one of the leading shipbuilding nations. Seeing his son directly involved in this second cycle has been extremely gratifying from his perspective. ShipConstructor has a very strong support structure in Brazil and I believe this will be very important to the Brazilian shipbuilding industry. As a result of the growth of Brazilian shipbuilding industry and the efficiency and quality of our product we are confident we will double our installed base in Brazil within the next two years.

What would you consider the current market challenges Brazilian shipbuilding is facing? In which way can the ShipConstructor software help to overcome these challenges?
Training local resources is the key choking point. As I mentioned before we are actively working with state and federal institutions to offer training programs for both technical colleges and universities. We are confident local shipyards will increasingly see the benefit of using the most effective and easy to use CAD/CAM software as being a key factor for their bottom line, especially when compared to overly complex software that comes packaged with heavy consulting service/customization requirements. A recent story illustrates this point: we were talking to a Brazilian shipyard owner who mentioned that one of our competitors had boasted that he had five consultants working full-time implementing their software for a specific department of a large Oil & Gas Owner/Operator client. He said he laughed and replied…"if I need five people just to implement your software it is definitively not the software that I want to buy."

ROBOBOATS

By Marlene Stevens

Student Engineers Design, operate unmanned surface craft in competition

The theme of the 4th International RoboBoat Competition, sponsored by The Association for Unmanned Vehicle Systems International (AUVSI) Foundation and the Office of Naval Research (ONR), was "The Four Elements." Teams of students designed and built autonomous surface vehicles (ASVs) that faced challenges involving earth, air, fire and water.

The competition was held at The Founders Inn and Spa, Virginia Beach, VA, June 8-12, 2011 and included 15 teams representing colleges and universities around the world. The goal of the competition is "to provide an opportunity for students to experience the challenges of and develop skills in system engineering by accomplishing realistic missions with autonomous vehicles in the maritime environment and to foster ties between young engineers and the organizations developing Autonomous Surface Vehicle (ASV) technologies."

Teamwork and problem solving are the keys to any successful STEM (science, technology, engineering, mathematics) project. "There is no dead weight," said Kelly Cooper, a program officer with ONR. "Every member of the team is vital to the outcome. These teams build autonomous boats, completely from scratch, that are programmed by the team to make decisions and perform tasks, without the benefit of remote control, tethers or human intervention. Teams have to program their boats to make real time decisions, based upon the conditions at hand, so a certain amount of artificial intelligence technique is essential to the successful completion of the competition."

The teams were judged on both design and performance. Prior to the competition, each team had to submit a journal paper and website for evaluation by the judges. Teams are judged on the utility of the website. The journal paper describes the vehicle design and the rationale behind the design choices. From the journal paper, teams are judged on technical merit and written style.

Each vehicle is brought before the judges and during this static display time judges, the general public, the press and other organization representatives listen to a presentation from each team, ask questions and view each boat up close. The team is then judged on technical accomplishment, craftsmanship and even their team uniform. Discretionary static points are awarded after the static judging.

CHALLENGED BY THE ELEMENTS

The performance portion of the judging took place out on the course. Each boat is weighed right before going into the water. After a thrust test, the vehicle begins its autonomous journey by heading in a straight line through the first set of buoys known as the "starting gate." The boat then heads toward the second set of buoys called the "speed gate," with the goal of getting from the starting gate to the speed gate in the shortest amount of time. The vehicle must also navigate through sets of red and green buoys while avoiding "obstacles" represented by yellow buoys. A blue buoy marks the end of the channel and the start of the four advanced tasks known as "The Four Elements," representing earth, air, fire and water.

The earth task involves getting the boat to perform a task on the ground; in this case, retrieving a ball from a platform set out of the water. This can be accomplished by either sending the craft up a ramp or by using something from the boat to pick up the ball and take it with them.

The air task involves some serious problem solving. The boat approaches a set of four metal plates with logos on them. Behind each plate is an electric heater, but only one of them is actually on. The boat has to determine which plate is live and this information is sent from the vehicle, back to the judges.

The fire task involves putting out a sim-

Pictured above is provided courtesy of 5G International Inc, a developer and builder of USVs for more than 25 years. Pictured is 5G International's 21 ft (7 m) Interceptor USV, powered by a 266 hp (195 kW) multi-fuel Steyr engine and Hamilton Jetdrive has a speed in excess of 40 knots.
5G offers a patented Marine Handling System, designed to provide a safe, automated solution to the problem of launching, refueling and recovery of a boat while the mother ship is underway. For more information visits www.5gmarine.com

(All Photos by Marlene Stevens)

The Stevens Institute Team walked away with 5th Place and Rookie Best Performance at the 4th International RoboBoat Competition.

1st place winners, University of Rhode Island prepares to interview with robotics expert, Zoz Brooks after their success at the 4th RoboBoat Competition.

ulated fire. The boat uses its on-board water cannon to squirt water through a hole in the sign marked as a 'burning' boat. By filling the cup on the other side of the sign, a flag comes up to simulate that the fire is out.

As the boat approaches a make-shift water fall for the water task involved, the boat must get under the spray and press the stop button to turn off the water. If the boat isn't watertight, the water will disable the craft.

Each boat must be complete with GPS and/or a navigation system, a camera, a propulsion system, a computer and be water tight to stand the rigors of the competition.

Teams were judged on ship design and performance. A team can consist of a combination of faculty, industrial and/or government partners and high school, undergraduate and/or graduate students, although full-time students must compose at least 75% of each team.

Fifteen teams entered this year's RoboBoat Competition and the winners are as follows:

1st - University of Rhode Island
2nd - University of Central Florida
3rd - Georgia Tech Aerospace Sys. Lab
4th - Virginia Tech
5th - Stevens Institute
6th - Diponegoro University, Indonesia
7th - Georgia Tech Savannah Robotics

Special awards went to the following:

- University of Michigan: Edge of the Envelope for S&T Stretch
- Stevens Institute: Rookie Best Performance
- Cedarville University: Rookie Honorable Mention
- Diponegoro: Innovation in Design and Cost Performance
- U.S. Naval Academy: Professionalism
- National Cheng Kung University: Best Paper

Other teams entered were Cedarville University, Embry-Riddle University, Florida Atlantic University, Old Dominion University, Villanova University and Virginia Tech.

"These teams build autonomous boats, completely from scratch, that are programmed by the team to make decisions and perform tasks, without the benefit of remote control, tethers or human intervention. Teams have to program their boats to make real time decisions, based upon the conditions at hand, so a certain amount of artificial intelligence technique is essential to the successful completion of the competition."

Kelly Cooper, Office of Naval Research

This was the second year for National Cheng Kung University, Taiwan and, despite the language barrier, did an exceptional job of presenting the best paper. But the Dark Horse of this year's event was definitely the team from Diponegoro University, Indonesia.

The Diponegoro University Team, all students of naval architecture, came across the RoboBoat Competition while surfing the internet. They quickly realized that this was a competition that they could not ignore. They built their boat in 30 days using any and everything they could find lying around. They also found a sponsor in addition to the University's support, and obtained visas a mere 5 days before the start of the competition. Upon landing in the United States, they were not allowed to bring in certain parts of their boat. Undaunted and with the self-less help of the U.S. Naval Academy, the Diponegoro University team was able to replace those missing parts from Radio Shack.

When I asked the team's lead about all the obstacles they encountered leading up to the sixth place award he replied, "I have a dream. I want to make roboboat because it is never there for Indonesia. I want to secure our country."

After the awards dinner, the team was headed to Washington, DC to meet with the Indonesian Embassy. They were looking forward to being in our nation's capital, to visiting the Indonesian embassy and seeing and having their pictures taken in front of the White House. Despite the language barrier, these young men are a source of inspiration to all they encounter. I expect to see more of Diponegoro University at future competitions.

SEAPERCH AT ROBOBOAT 2011

The goal of Navy STEM programs is to increase the talent pool of future Sailors, naval scientists and engineers. STEM enables the success of naval missions and protects the live of Sailors and Marines.

The SeaPerch Program is funded by the Office of Naval Research (ONR) as part of the National Naval Responsibility for Naval Engineering. SeaPerch is a remotely operated vehicle (ROV) and an underwater robot that students build from a kit. As part of the SeaPerch program, teachers are trained to build their own SeaPerch. They then go back to their schools and teach their students. The SeaPerch program is now in 38 of the 50 states as part of the curriculum or as an after school program. Student teams participate in regional challenges and this year marked the first National SeaPerch Challenge, held at Drexel University in Philadelphia, PA.

The earlier we can introduce young students to robotics and engineering, the better chance we have of building a competitive team of engineers for America's future. "I did robotics in high school and I think that program was a great program. I think that programs like that were very helpful. We had a math and science program and they did a thing on robotic arms

Image Above
The Diponegora University Indonesia team is jubilant with their 6th Place and Innovation in Design and Cost Performance awards at the 4th International RobobBoat Competition. This represents their first attempt at an international competition.

Image Above Right
Damien Bretall Instructs the fine art of soldering as part of the SeaPerch Teacher Training class held at the 4th International RobobBoat Competition in Virginia Beach.

with a space program and we got to go look at how those worked and learned about basic math in middle school," said Janine Mask of the Florida Atlantic University Team.

For a few hours on Saturday, June 11th, you could see these robots in action at the Founders Inn pool operated by middle and high school students.

Grace Magdamo, niece of Susan Nelson of the Society of Naval Architects and Marine Engineers (SNAME) and Education and Outreach Director of the SeaPerch program, built her SeaPerch in the sixth grade and is now a high school student at Watkins Mill High School in Gaithersburg, MD. Last summer, Grace attended GEMS (Gains in the Education of Mathematics and Science), a U.S. Army K-12 program, where she learned more about robotics. "It was a lot of fun exploring the areas of engineering. We did biology, we dissected a sheep brain. And it was programming robots to move around a chair. It was a sprinkling of everything." More and younger women like Grace are pursuing careers in engineering, thanks to programs like GEMS, SeaPerch and the efforts of the AUVSI Foundation.

There was also a teacher training class for local teachers facilitated by Susan Nelson and Toby Ratcliffe, Research Hydrodynamicist, Naval Surface Warfare Center Carderock Division and Educational Outreach Coordinator, National Defense Education Program (NDEP) Pre-Engineering Program. Teachers all over America are looking to programs like SeaPerch as a way of getting their students to see the wonderful benefits of science, technology, engineering and mathematics in the real world.

At the awards dinner, Kelly Cooper challenged all students present. "SeaPerch is one of our key STEM programs at ONR for the K-12 component of what we are doing for outreach. We would like to offer that each of the teams that are participating in RoboSub and RoboBoat, as an opportunity for you to reach out to high school students in your local area, that you can then recruit to be a member of your AUV [autonomous underwater vehicle] or ASV [autonomous surface vehicle] team."

Ms. Cooper went on to say, "We will provide mentorship to you to train you on how to do the SeaPerch program. We will provide the SeaPerch kits to you so you can work with the students and start involving them in what you are doing in hopes of recruiting them to your team in the future."

She went on to say, "We will give a $5,000 award for community outreach to the team that does the best with this over the next year."

Port Ops and Vessel Efficiency

According to the United Nations, the world's population which currently stands at just over 6.7 billion could reach over nine billion by 2050. This staggering figure will no doubt create a surge in consumerism and a subsequent increase in demand for much larger ships, in order to be sufficiently equipped to support the global trade economy. Furthermore, the need for bigger vessels is being driven by the shipping companies' desire to reduce costs, in order to weather the economic storm which still remains a worrying challenge. Cruise ships are also facing a growing pressure to provide bigger and better vessels which include much grander amenities such as shopping malls and golf courses, to accommodate the increasing number of people taking holidays at sea, with passenger ferries facing similar challenges.

Although there are obvious benefits to much larger ships such as fuel consumption, the increased risks and challenges which can impact overall operational efficiency of the vessel must not be ig nored. Ian Fraser, Director of BMT ARGOSS, a subsidiary of BMT Group Ltd, discusses the associated challenges and presents a holistic view on the necessary actions needed to be taken, to ensure that these large capacity vessels operate in the most efficient and effective manner and are able to meet future needs. He also considers the impact this growing trend is having on ports around the world and provides guidance on how best to leverage this opportunity.

The recent order from Maersk for 10 new Triple-E mega-ships, each capable of carrying 18,000 twenty foot containers would certainly suggest that the trend for much larger vesselsis gaining momentum. Although the benefits of such vessels can be seen as an extremely attractive proposition in terms of economies of scale and reduced fuel consumption, there are increased risks and challenges which must be effectively realized and overcome before we can even think about introducing these ships to our seas.

First, the risk of collision with other vessels is heightened due to the confined spaces that many of these larger ships will have to navigate through. The sheer size of these vessels will also create a much more complex operational environment for the crew onboardand more specifically the Captain, whose job it is to manage the safe transition of the ship in and out of port. Within this environment comes the potential need for more tugs to support the vessel, as well as an increased level of general shore side support infrastructure.

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Additionally, the risk to the environment is noteworthy. Larger ships mean larger amounts of goods, materials, chemicals or people being transported, therefore the repercussions of such a vessel losing its cargo becomes an ever greater risk to our seas. Couple this with the desire for ships to operate further afield in order to maximize the commercial opportunities and where operating conditions can be much harsher (i.e significantly higher wave heights and colder waters), it's no surprise that companies are turning to specialist experts to help them overcome the various issues before construction begins.

Understanding the impact on ports is certainly of equal importance as they are the vital connection between the ship and ensuring the effective flow of international trade and passengers from country to country, therefore accommodating much larger vessels must be duly considered. Regardless of where the port is situated, there will undoubtedly be a need to analyze and increase the amount of dredging required or introduce new handling techniques and specialized berthing structures. An enhancement of the mooring capabilities such as ropes and bollards will also be needed and it's important that the relevant stakeholders develop a comprehensive strategy to ensure that an effective infrastructure is indeed in place.

Tugs, as aforementioned play an important part in supporting a ship's transition to port therefore if port authorities are looking to support the berthing of much larger vessels, they must also consider the tug requirements to ensure the necessary support can be maintained. Analysis of the cost effectiveness of having more of the same type and size of tugs already available or introducing larger tugs and their associated environmental impacts and requirements would need to be carried out.

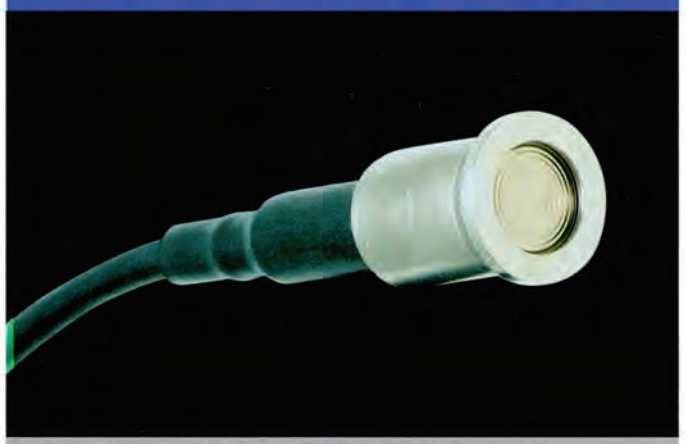
Never before has the shipping industry been under such intense pressure to address CO2 emissions and energy efficiency. As a result legislation is constantly evolving with the IMO (International Maritime Organization) as the driving force. For example, the EEDI (Energy Efficiency Design Index) which took centre stage at the IMO's 62nd Marine Environmental Protection Committee (MEPC) session was finally agreed to be put on a mandatory footing with 49 states voting in favor. These new regulations are expected to come into force from January 1, 2013 and will apply to all new ships of 400 gt and above. Therefore, the impact of such regulation must be understood by designers and builders in order to ensure that these proposed mega-ships are fully compliant. It is for this reason that designers, builders and equipment suppliers around the world are now striving for more efficient and eco-friendly designs. Classification society requirements will also continue to evolve and revisions to current rules will no doubt be introduced – all of which needs to be addressed by the relevant stakeholders. The importance of staff training cannot be underestimated. As these ships

continue to increase in size and ports become busier, the risk of incidents such as collisions and groundings becomes even greater. Bigger ships means more equipment to handle and it's vital that seafarers are equipped with the necessary knowledge to better understand the complexities in operating such a vessel. This becomes even more important when operating within challenging environmental conditions, therefore the training must be comprehensive and consider the effect unfavorable weather conditions can have on mega-ships – all of which will help to optimize operability and maintenance and minimize safety risks. Despite facing an uphill struggle to overcome these challenges, key stakeholders within the shipping industry are taking the necessary steps to address the associated risks. Port authorities for example, are working with independent experts, including BMT who are providing advice on the apparent effects on moorings from ship to ship interaction. Traffic analysis is also being undertaken by many ports. Operators, owners and charterers are now quickly realizing the importance of performance monitoring on board vessels and this need will only become greater when much larger ships are introduced. Fuel usage and its effect on tightening budgets is an increasing bugbear and being able to educate your crew on the effects of their actions and how to improve overall operational efficiency can certainly create a win-win situation.

The term energy mapping, in other words monitoring, is becoming increasingly important for cruise ships in particular, due to the vast area of living space on board such a vessel, compared to for example, a container ship which will normally only have a very small living area. This type of monitoring allows operators, owners and charterers to assess their entire emissions and energy consumed across the ship and help identify where efficiencies can be made.

In isolation all of the issues are being considered by individual stakeholders. With our use of comprehensive, industry driven, advanced software modelling, environmental modelling and general approach to understanding the core issues surrounding analysis of vessel/port-design and operation, BMT has the expertise to deal with every aspect of the supply chain.

Decision Support Systems such as PC REMBRANDT and SMARTSERVICES for each of the aspects considered are becoming increasingly important tools to the industry and fundamental to the education process, from direct training through to performance trend monitoring and analysis. This, coupled with ourhigh quality meteorological and oceanographic services over the 20 years provides us with the enviable position to be able to support all the operational requirements that will arise with the increasing size of vessels. It will also allow us to provide vital support to the general industry in driving down costs,whilst continuing to operate in a safe and environmentally friendly manner.



Bulkhead Shaft Sealing Really is

Rocket Science

Medford, Mass.-based Midé Technology Corporation employs its advanced brand of materials technology to keep navy and commercial vessels ship shape in the event of bulkhead shaft-seal flooding.

– By Greg Trauthwein

Midé Technology Corp., founded in 1989 by MIT PhD. Marthinus van Schoor, is a company created around the design and engineering of smart material based systems and solutions. Historically, the company has not served any specific industry, in fact, it has served many of them, including: work on the international space station; energy harvesting systems on trains; underwater thermally controlled buoyancy systems; and, most recently, work with the U.S. Navy and the commercial marine industry.

In 2004, Midé won a contract from the U.S. Navy to develop a novel bulkhead shaft seal using one of its smart materials, hydrogel embedded foam, a need born out of a situation where a worn out bulkhead seals nearly led to catastrophe.

Typical bulkhead seals are based on a contacting design where a wearing material is always in contact with the spinning shaft, but Midé proposed to the Navy the use of a solution using hydrogel embedded foam for a non-contacting seal designed not to touch the shaft until a flooding event occurred. When the water hits the foam the foam expands and engages a seal with the shaft. The company dubbed these HydroActive seals, and the development ultimately led to Midé Marine.

Midé's first product for the Navy was a retrofit solution, the Reliant Series RM; a product was designed to integrate with housings already installed on a specific Navy class of ships. When the Navy contracted Midé to develop seals for a new vessel design, it wanted a standalone product sans the heavy housings. To fulfill this need, Midé developed the Reliant YM (yoke model) bulkhead seal, which it has now supplied for two ships classes.

In recent years, the company has developed and introduced a commercial grade seal called the Omni Series, which offers the same non-contacting HydroActive benefits as the Reliant Series for vessles with smaller shaft deflections than typical Navy ships require. This reduced shaft deflection requirement leads to a simpler design and a lower procurement cost.

HOW IT WORKS

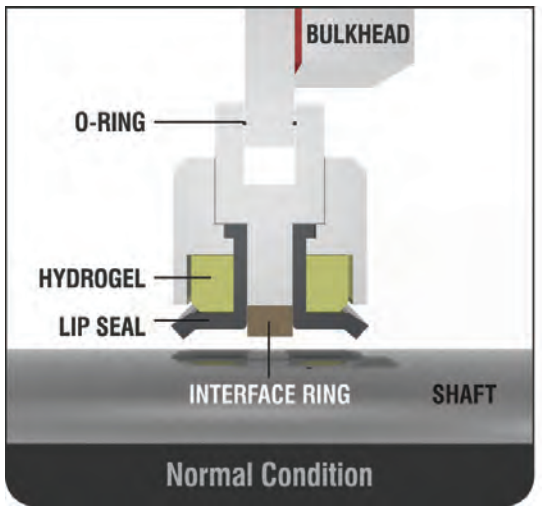
Midé developed a robust and reliable hydrogel embedded foam that provides adequate force and displacement to engage a seal on the shaft. It is important to note that it is scalable to most any size shaft. The process is completely reversible; the foam can be swelled and dried many times over. Heat above a certain threshold actually causes the gel to expel water. While the full process by which the company creates the foam is understandably proprietary, it is worthy to note a number of operational benefits inherent in the design, installation and use of the seals, including:

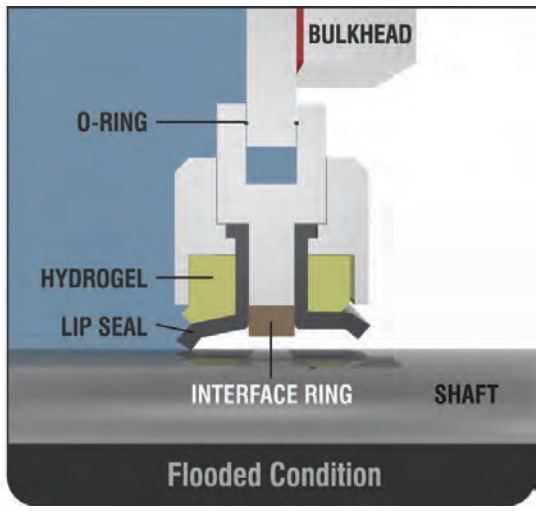
- Almost zero maintenance costs due to non-contacting nature of the design;
- Safer seal as there is no opportunity for the seal to wear and fail
- Lenient mounting requirements again due to non-contacting/floating nature of the design;
- Unlimited shaft speed during normal operation; still operable during flooding, but speed is limited to 25 m/s surface speed.
- Flexibility: Omni Series (commercial) seals range from 50 to 1000 mm, with a split design to ease installation for refit or newbuild.

Email: cludlow@mide.com
www.midemarine.com

Omni Series Specifications

Operating Pressures	up to 2 bar (30 psi)
Shaft Surface Speed	Dry = unlimited; Flooded – up to 25 m/s (82 ft./s)
Allowable Angular Misalignment	0.5 degrees
Leak Rate when Activated	Less than 473 ml/min. (less than 1 pint/min.)
Shaft Deflections	+/- 10 mm (+/- 0.39 in.)
Key Features	Non-Contacting Non-Rotating Reusable Lightweight
Approvals	ABS





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ZF Takes Delivery of

ZF POD 4000 Demo Vessel

ZF Marine has taken delivery of a new 50 ft. Viking Sportfishing yacht, which will be used to demonstrate the ZF POD 4000 propulsion system. The vessel is equipped with two Caterpillar C18 engines each producing 1150 bhp. These engines are mated to ZF 500 series transmissions, which are connected to the POD units via Centa carbon fiber driveshafts. The ZF POD 4000 drives are rated to 1200 bhp.

Control for the ZF POD 4000 comes from ZF Marine's well established SmartCommand control system, with JMS (Joystick Maneuvering System) and SteerCommand electric steering.

"Viking's long-time association with ZF Marine made us the logical choice for this collaboration," said Patrick Healey, executive vice-president, Viking Yacht Company. "Starting with our 47-year history of producing world class sportfishing yachts that combine performance and luxury, the Viking 50 convertible proved to be an able platform for this test of the new ZF POD 4000 propulsion system." Initial sea trials have been very positive. Top speeds are in the 40 plus knot range with efficient and impressive fuel burn numbers, along with the outstanding maneuverability inherent in pod-drive propulsion systems incorporating joystick control.

"ZF Marine is very proud to take delivery of this very special vessel" said Wolfgang Schmid President and General Manager, ZF Marine LLC. "This new Viking is a showcase of our technology that allows our customers to experience a complete propulsion solution from ZF Marine." He continued. The ZF POD 4000 Viking has recently participated in the Pirate's Cove and Mid Atlantic 500,000 fishing tournaments. The purpose of which was to demonstrate the ZF POD 4000's ability in the competitive sport fishing environment. The vessel was recently on an east coast tour that will include stops at the Annapolis, MD Boat Show, and the Fort Lauderdale International Boat Show. Follow the ZF POD 4000 Viking on Facebook at

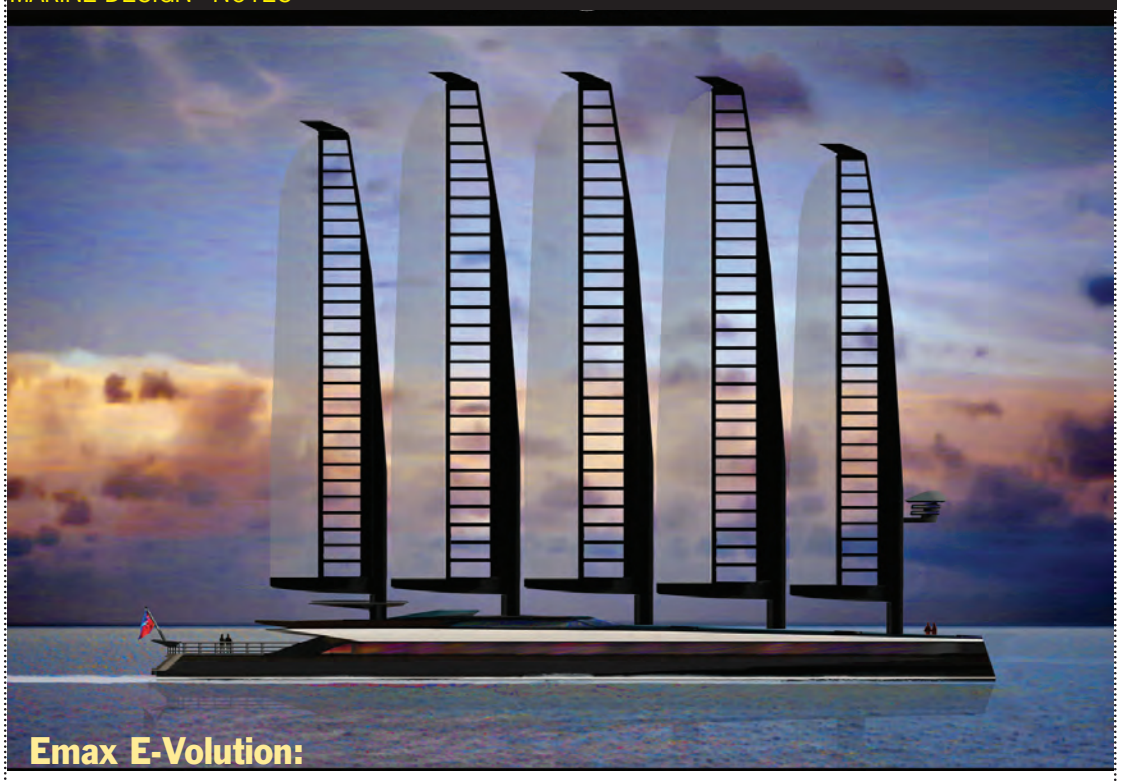
www.facebook.com/zfpod4000

ZF Marine takes delivery of their new Viking 50 Convertible equipped with ZF POD 4000 POD drives. Left to right: Joe Schwab, VP Sales, Viking Yacht Company; Patrick Healy, Executive Vice President, Viking Yacht Company; Wolfgang Schmid, President and GM, ZF Marine LLC; AJ Halavacs, Segment Manager Pleasure Craft ZF Marine LLC.

ZF Marine's new Viking 50 Convertible with ZF POD 4000 pod drives offers increased vessel performance while reducing fuel burn.

ZF Marine LLC recognized the following companies for their assistance with this project:

Company	Product	On the Web
Caterpillar Marine	Engines	www.marine.cat.com
Centa	Carbon Fiber driveshafts	www.centa.info
GPLink	Vessel and Systems Monitoring	www.gplink.com
KVH Industries	Sat Television	www.kvh.com
Underwater Lights USA	Transom lighting)	www.seavision.com
Winslow Liferaft	Liferaft	www.winslowliferaft.com
Ocean Systems Inc.	Underwater & Cockpit Cameras	www.splashcam.com
Release Marine	Helm Chairs and Gimbal Launcher	www.releasemarine.com
Edson International	Custom steering wheel	www.edsonintl.com



Emax E-Volution:

The Fastest and Greenest Superyacht Ever?

Designed by Sauter Carbon Offset and built by Ned Ship, the 66m Emax E-Volution is, according to the designer, a culmination of the best the yachting world, a vessel with a maximum speed of 28 knots and an unlimited "Zero Carbon" cruising range at 14 knots.

Solar Hybrid Power Sources

• 2MWs of Renewable Energy supplied by Wind, Sun, Waves &Currents

• 2MWs of ZF Hybrid Power supplied by MTU 2000 series Tier 4i engines, the cleanest marine diesel engines on the market.

• An additional 3MWs of energy harnessed from sustainable sources is stored and employed as ballast in a lithium ion UPS.

Propulsion

The Emax E-Volution's Stabilizing Propulsion System features anhedral ZF 4000 Pods and a retractable anhedral foil. The Pods and an electric bowthruster provide the advantage of full time Global Positioning, an alternative to environmental damage caused by anchoring.

Solar Array

The Photo Voltaic Exoskeleton imbedded into Ned Ship's epoxy composite structure, generates up to 300MWs of solar energy per year, enough to run all hotel services or by returning energy to the grid offsets up to 4,500 Carbon Nautical miles Cruising at 22 knots.

Dynawing Schooner LegacyDYNAWING SCHOONER LEGACY

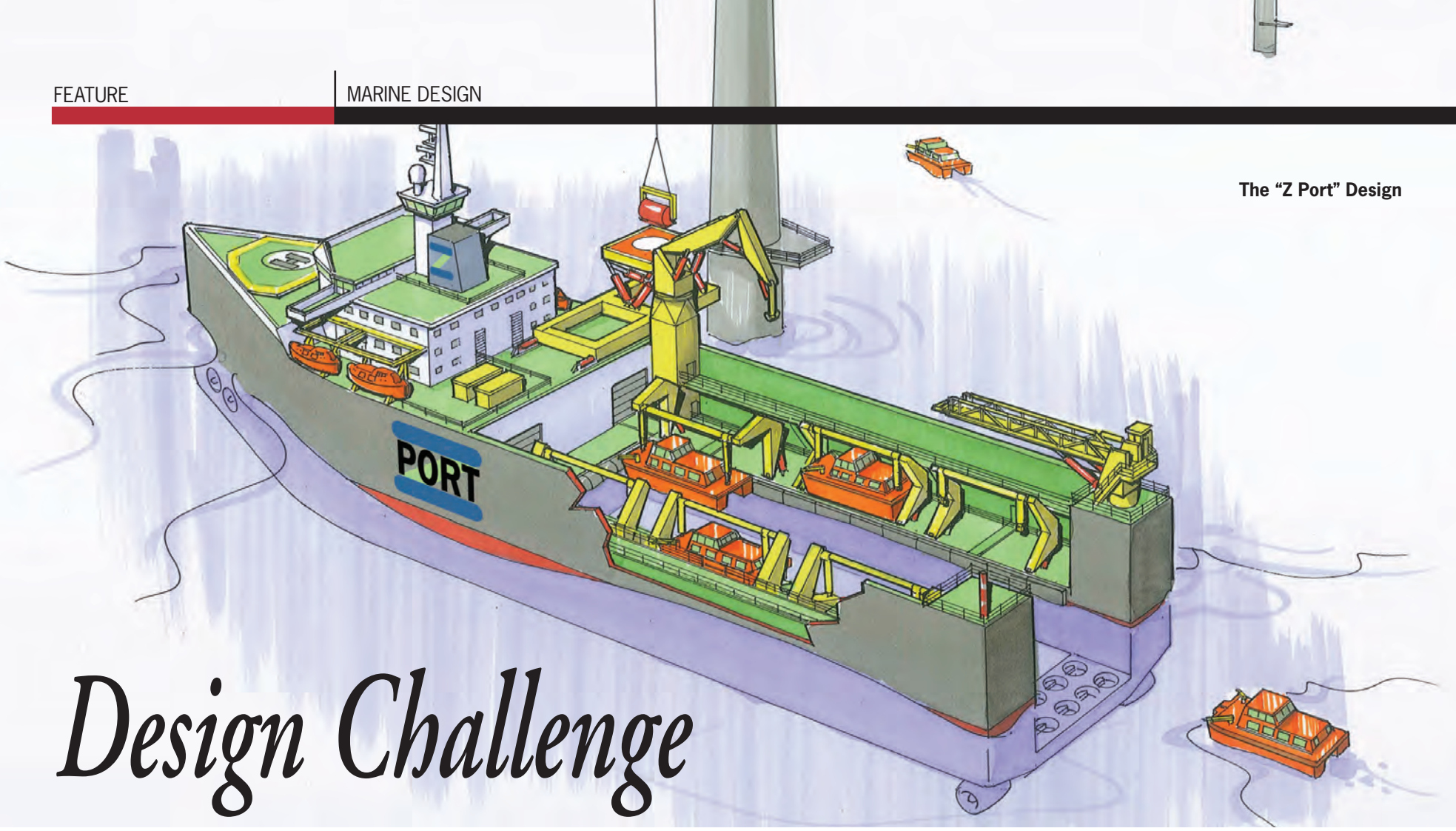
The Emax E-Volution's High Aspect Ratio DynaWing sails are 20% shorter than a conventional rig, yet produce twice as much power. When moored or under severe weather conditions the mainsails are reefed and the stay-less rotating Wingmasts are feathered into the wind. Richard Sauter head of SCOD said "as a Wingsail Schooner The Emax E-Volution inherits the legacy of the greatest sailing vessels of all time, past and present."

Email: Richard@SauterCarbonOffsetDesign.com

PelaStar Floating Wind Turbine Platform

The Glosten Associates, Inc. formally announced plans to commercialize their PelaStar floating wind turbine platform, and make the technology available to the global offshore wind energy industry within the year. The Glosten PelaStar technology was recently selected for an intermediate-scale prototype installation project with deployment planned for next summer in the northeast United States. This selection reinforcees the unique capability of the PelaStar platform to provide a scalable, integrated blade tip–to–seabed solution that minimizes the cost of energy in deepwater offshore wind sites.

Recognizing the need for a cost-effective, high performance floating turbine foundation system, Glosten engineers developed Tension-Leg Turbine Platform (TLTP) technology in 2006. This internal research and development effort led to a project for the Carbon Trust Offshore Wind Accelerator Program, which provided development support and allowed the technology to be vetted by Carbon Trust members including both international energy firms and offshore wind power developers. The Glosten PelaStar tension leg platform (TLP) combines proven technology with rigorous research, development, and engineering. By adapting established TLP technology from the oil and gas industry and incorporating breakthroughs in critical structural, mooring, and anchoring elements, PelaStar has addressed the complex challenges of offshore wind power development. In addition to being the lowest cost deepwater solution, key benefits include: minimal motion, minimal steel weight, and complete quayside integration of the turbine and tower on the PelaStar foundation.



The "Z Port" Design

Design Challenge

Devising the Best Way to Reach North Sea Wind Turbines

A Ship on Rally Car Suspension could help Solve £3bn Challenge to Access Offshore Wind Turbines

A boat with suspension, a giant robotic arm and a vessel resembling a seahorse are just three of the innovative concepts shortlisted by the Carbon Trust as part of a competition to solve the problem of transferring engineers and equipment safely on to wind turbines as far as 300km offshore in wave heights up to around three meters. The project aims to improve the economics of offshore wind by keeping turbines generating electricity in the harshest sea conditions to increase revenues by as much as £3bn for the next generation of the UK's offshore wind farms.

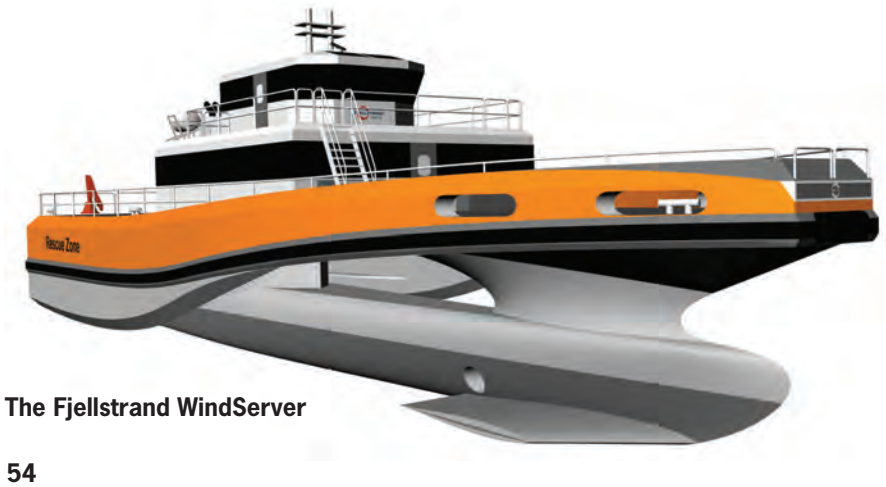
Through its Offshore Wind Accelerator program, the Carbon Trust is an industry collaboration of eight UK wind farm developers - E.ON, DONG Energy, Mainstream Renewable Power, RWE Innogy, ScottishPower Renewables, SSE Renewables, Statkraft and Statoil – to reduce the costs of offshore wind.

A technically rigorous process was used by the co-funded industry collaboration to select 13 designs from 450 submissions. The technical merit of these 13 concepts suggests they have the best chances of successfully driving down cost. Today's offshore wind farms are typically less than 25km offshore in relatively benign sea conditions, and consist of up to 100 turbines. Maintenance is possible in boats about 90% of the time when wave heights are up to about 1.5m. The new 'round three' offshore wind projects will be as far as 300km offshore in rougher sea conditions, and may consist of as many as 2,500 turbines. At these sites, today's access systems would only allow transfers about 210 days a year. The aim of the competition is to find concepts that can be commercialized to make transfers possible for a minimum of 300 days a year. Among the 13 designs shortlisted are a giant robotic arm for transferring engineers and equipment to the turbine base; a boat that uses suspension inspired by Paris Dakar-winning rally cars to remain stable for the transfer; a 'seahorse' vessel consisting of a towering keel that minimizes movements in the ocean swell; and a giant harbor mother ship that would act as a base for engineers for weeks on end, dispatching smaller daughter craft to access the turbines. Each of the successful applicants to the competition will benefit from funding of up to £100,000 to support the design and development of their concept, as well as technical support from the eight developers in the Offshore Wind Accelerator. The competition has selected the following thirteen designs, in three categories, to receive funding:

Transfer Systems

To transfer personnel and equipment from vessel to turbine, potentially with motion-compensation

- Autobrow, South Boats
- MOTS, Momac GmBH

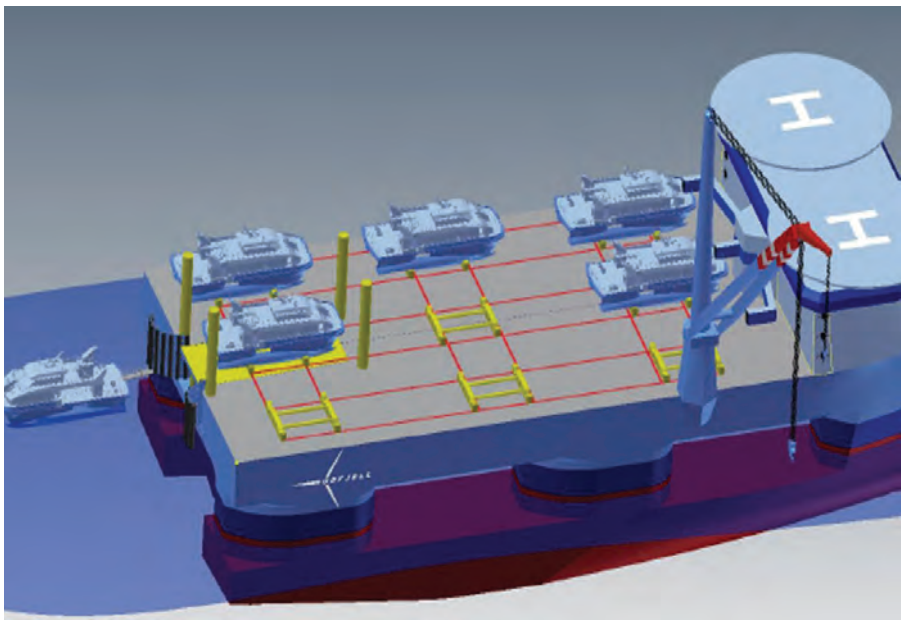


The Fjellstrand WindServer

The Nauticraft vessel design.

Pivoting Deck Vessel.

FOB launch and recovery.



- Wind Bridge, Knud Hansen
- TAS2, BMT Nigel Gee / Houlder

Vessels

Vessels for transporting personnel and equipment from permanent bases or mother ships to turbines, incorporating a transfer system

- *Pivoting Deck Vessel, North Sea Logistics*
- *Nauti-Craft, Nauti-Craft*
- *Fjellstrand Vessel, Fjellstrand*
- *SES Vessel, Umoe Mandal*
- *SolidSea, University of Strathclyde*
- *TranSPAR, Extreme Ocean Innovation*

Launch and Recovery Systems

Systems fitted to the permanent bases or mother ships for launching and recovering daughter craft from the sea.

- *Launch & Recovery, Offshore Kinetics*
- *Z Port, Z Technologies*
- *Launch And Recovery System, Divex*

TranSpar

USCG Works to Save Energy, Emissions

Alaris Companies last month announced it is working with the U.S. Coast Guard to help it decrease energy use and emissions via its fleet energy management program. ***Maritime Reporter*** *recently visited with Alaris CEO,* ***Bobbi Wolff****, and Executive VP of Engineering,* ***Michael Gaffney****, to discuss the company, its system and the global trend to minimize maritime's carbon footprint.*

(Photo courtesy USCG)

Two of the Coast Guard's National Security Cutters, Bertholf and Waesche, vessels in the Legend Class for which Alaris engineers performed an energy assessment.

We are helping the agency (USCG) to prepare for the Ship Energy Efficiency Management Plan (SEEMP) requirement which goes into effect January 2013.

Bobby Wolff, CEO, Alaris

Alaris recently won a contract to help the U.S. Coast Guard decrease energy use and greenhouse gas emissions. Can you give us an overview of the vessels studied and the findings?

Wolff: We've assessed the in port operations for three classes of vessels for the U.S. Coast Guard: the National Security Cutters, the 225-ft Juniper Class and the 110-ft Island Class. Alaris is now beginning work on a new contract to assess the ships' at sea operations as well. For the Juniper and Island Class Cutters in port operations we found a potential energy savings of 25 to 48%, largely through changes to heating and air conditioning.

Gaffney: On the National Security Cutters the main energy savings opportunities included securing equipment when it wasn't required such as lighting and ventilation and changing set points for things like the hot water heaters and chill water systems. Some of the longer term items included installing energy recovery on the air conditioning system and using the available heat energy from the condenser for in port engine and potable water heating.

Wolff: Besides helping the Coast Guard to reduce its environmental impact and save on energy cost, we are helping the agency to prepare for the Ship Energy Efficiency Management Plan (SEEMP) requirement which goes into effect January 2013. Last July the IMO passed a resolution requiring vessel owners to establish a baseline of their current energy use and adopt a plan to move forward. Our audit and baseline report provides that starting point and the Energy Conservation Measures (ECMs) we identify are the path forward. The baseline and ECM reports contain the metrics companies or agencies can use to evaluate their progress on that path.

A reduction in energy consumption by 25 to 48 percent a year for the Juniper and Island Class vessels seems incredibly high. Can you expand upon the areas that were found for the biggest energy/emission savings?

Gaffney: The Juniper and Island Class vessels we assessed were in Alaska and the biggest consumer of energy on those ships is heating. These ships use strictly electric heating, which is resistive heating, and the least efficient form of energy for heat. We identified more efficient methods of heating, including heat pumps. Believe it or not, air conditioning is also one of the highest energy consumers on some of these vessels. One Coast Guard ship we assessed in Alaska was running their air conditioner all year. But the sea water is 44 degrees, so all they have to do is run the chill water loop through a heat exchanger and shut off the air conditioner all together. Another main consumer was the jacket water heating, which was set at a very high temperature. Savings could be realized by lowering that temperature to 110 degrees, peaking at 160. Other changes such as lighting and insulation also offered significant savings. In all, the potential for energy savings on these ships is, in fact, 25 to 48%.

We understand that EQUATE is your in-house energy modeling software program which provides predictions of energy consumption. Can you provide a brief description, in layman terms, as to how it actually works?

Wolff: With EQUATE we catalogue all of the energy consumers and producers on a ship (ship systems and equipment). Additionally, we catalogue all the different operational profiles (modes of operation) and the amount of time that is spent in these particular operational profiles. From that we build a model of the energy consumption per unit of useful work, by system, right down to a particular piece of equipment. Then we identify where there are inefficiencies and waste and we look for the places where the most energy is being consumed. We identify energy conservation measures, or ECMs, with the biggest bang for the buck. We use real data as far as the cost of fuel, cost of electricity, etc. We can analyze all that and tell the client how much energy they're going to save, how much that equals in dollars saved and how much emissions will be reduced. With EQUATE, the owner can specify exactly what information they're after. For example, they could say "I only want to know about ECMs that are going to have a full pay back period within two years and have a return on investment of at least 30%." We're able to specify certain criteria so the model will automatically spit out results that will tell them, for instance, what motors they should throw out right now and replace with higher efficiency units, and which ones they should wait to replace when they fail. Right now, most people don't want to do things that aren't going to pay for themselves within a couple of years.

Gaffney: One of the things that makes this model so powerful is its ability to look at different energy rates or energy costs. You can have one rate during the day on shore power and another rate at night. There may be one energy cost for operating on one generator and another for operating on two. The model allows us to catalogue the cost based on how many hours each piece of equipment runs at each energy rate or cost. The amount of emissions created by each piece of equipment also varies by engine load and depends on if you're using shore power or ship's power. We capture all these dynamic scenarios and quantify it and put real value on it in terms of energy usage, energy costs and emissions. It allows you to do what-if scenarios. What if you improved the efficiency of your engines and lowered your per kilowatt hour cost? What if you used ultra-low sulfur fuel all the time instead of switching back and forth? Here's how much it would cost you based on your ship's energy profile and operational tempo. Here's the difference in emissions. We are not aware of any other model in the world that can do this.

Is EQUATE best suited to be utilized from the outset, at the design phase, or for existing vessels in service? (or does it matter)

Gaffney: It can be used at any phase and has been used for land-based facilities like terminals as well as for ships. The design phase is by far the most cost ef-

fective period to use EQUATE. It gives owners a financial basis on which to make technology decisions at the beginning of the vessel's life. We build the model based on design data and what the ship is intended to do. We can tell a client, if you use a higher efficiency motor, here's the maximum savings that you can attain in one year, based on the anticipated operational profile and anticipated load consumption.

Do you have any commercial marine case studies with the system?

Gaffney: We did an on board energy audit for Skaugen Petro Trans, Inc. (SPT) on a class of tankers and on one supply vessel. The supply boat was going to be repowered and SPT needed to understand where its current energy consumption was, both on the main engines and the auxiliaries. We went on board and measured all the auxiliary loads and came up with a set of ECMs that would allow the vessel to go from a 100Kw auxiliary engine down to a 40Kw auxiliary engine. On the main engine side, we attached temporary torque meters to the shaft and did T-trials to get a true understanding of the real power requirements. We found that they could use a smaller main engine as well. So the owner had a much smaller capital outlay for the repower and can now realize big savings on his annual energy bill at sea and in port.

On the tanker we took the same measurements on board and determined the most cost effective speed at which to transit, when possible. The auxiliary side of the tanker included a steam system used for unloading cargo for their large cargo pumps.

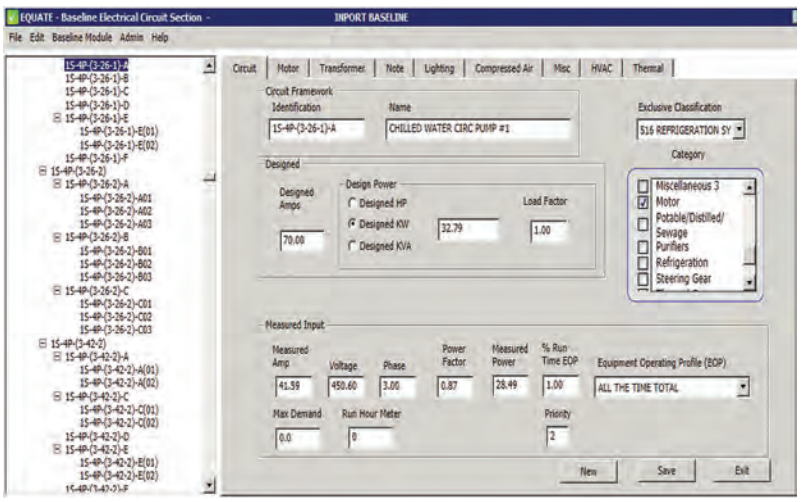
We discovered that if they optimized the boiler and pump load while discharging and only operated at certain discharge rates, they could save about $55,000 year or so — just from that one ECM. And the energy savings discovered for this one tanker were applicable to the entire class of SPT tankers.

Can you give a ballpark figure as to how much it costs for your energy and emission assessment using EQUATE, and some insights on the projected time frame for Return on Investment?

Wolff: It depends on the size of the ship and how much equipment is on board. An energy assessment with baseline and ECM report could range between $50,000 for a small vessel with few systems, to $500,000 for a large, complex vessel, such as a Navy ship. A complex, commercial ship, like a tanker, could run about $75,000. We have never done an assessment that did not have the potential to pay for itself in the first year. This includes the cost of implementing the energy management plan and making upgrades to equipment. Owners that have a number of vessels in the same class can use one assessment on a single vessel and apply it to the entire class.

Gaffney: There's always a way to implement an energy management plan through a self-funding program. Operational changes often pay for the cost of the assessment and then some. The following year the company can put the annual cost savings into investing on equipment upgrades which will bring even greater savings, and so on.

Michael Gaffney, EVP of Engineering



A screen shot of a data entry window for Alaris Companies' in-house EQUATE energy modeling software tool.

The Alaris engineers who performed an energy assessment aboard the U.S. Coast Guard Cutter Waesche in Alameda, Calif., from left to right: Michael Gaffney, Tom Goodridge, Chris Bobinger and Randall Frisk.

Bollinger Tapped to Build Four More FRCs

The Coast Guard awarded a $179.7m contract option to Bollinger Shipyards of Lockport, La., September 22 for the production of four more Sentinel-class Fast Response Cutters (FRCs). This option award brings the total number of FRCs under contract with Bollinger to 12, with a current contract value of $597m. The current FRC contract contains options for up to 34 cutters and is worth up to $1.5 billion if all options are exercised. The FRCs acquired under this contract option are scheduled to be delivered to the Coast Guard in 2014 and homeported in Key West, Fla.

"The Bollinger organization is very pleased that the U. S. Coast Guard has awarded four additional Fast Response Cutters (FRC) to our on-going contract," said Chris Bollinger. Execitove VP, Bollinger Shipyards, Inc. "This follow-on award will result in an extension of our backlog for several years, and provide jobs for over 500 Bollinger employees. This award reflects the Coast Guard's continued confidence in the quality products delivered by the Bollinger team, including our workforce and team of suppliers and contractors."

(Photos: Bollinger)

Chris Bollinger, Bollinger Shipyards

In September 2008, the Coast Guard awarded Bollinger an $88m production contract for the lead FRC. That ship, named the Bernard C. Webber, was launched on April 21 and will undergo sea trials prior to its anticipated delivery later this year. The second FRC, Richard Etheridge, was successfully launched August 18, and production is underway on FRCs #3-8. Webber will be homeported in Miami, Fla., and will primarily perform missions to save lives, enforce U.S. and international maritime law and ensure security in the Coast Guard's 7th District off the Southeastern coast of the U.S. and in the Caribbean Sea.

The Sentinel-class will eventually replace the Coast Guard's venerable Island-class 110-foot patrol boat. **The FRC uses a proven, in-service parent craft design based on the Damen Stan Patrol 4708.** It has a required flank speed of 28 knots and will be armed with one stabilized, remotely-operated 25mm chain gun and four crew-served .50 caliber machine guns. Other requirements include the ability to perform independently for a minimum of five days at sea and capable of underway operations for a minimum of 2,500 hours per year. It will use state-of-the-market command, control, communications and computer technology that will be interoperable with the Coast Guard's existing and future assets, as well as Department of Homeland Security and Department of Defense assets. The cutter will also meet American Bureau of Shipping design, build and class standards. The Coast Guard plans to acquire up to 58 FRCs.

All FRCs delivered as part of the Sentinel-class will be named after enlisted Coast Guard heroes. FRCs nine through twelve will be named the Kathleen Moore, Joseph Napier, William Trump and Isaac Mayo, respectively.

Join the conversation @ MaritimeProfessional.com — the largest maritime professional group on the internet with more than 14,522 members and growing. Every business day MaritimeProfessional.com delivers insightful news and analysis from correspondents around the globe. Below are excerpts from select recent BLOG posts.

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Creaking Port Infrastructure

Threatening the US Economy

For something so important to the U.S. economy, you would have thought the government would have kept a closer eye on its port development. When a college kid hears a knocking noise coming from his engine, he usually has two options: Crank up the music, or let the problem develop. Either option will save him money. In the short term, at least. Of course, eventually his engine will break down and if he is lucky, it will be a fixable problem from a cost-benefit point of view. This is where the U.S. finds itself with port infrastructure. ***Like a college kid, the government turned up the music and let the problems with its creaking infrastructure develop.***

And now, just when federal funding for the ports is so urgently needed, the government is in desperate cost cutting mode, slashing and burning every budget in sight.

At the Association of American Port Authorities annual congress in Seattle, port infrastructure was the hot topic on every executive director's mind. Some port authorities, such as the Georgia Ports Authority and the Port of Los Angeles, are in good shape, but many are not.

The timing of the debt crisis could not have been worse. The US Army Corps of Engineers says the top 59 ports in the US will only have 50 percent of their channel depth requirements in the coming year because of funding constraints.

Of the $832m set aside for coastal navigation, only $706 million is going towards maintaining the channel depths of more than 929 coastal ports. Of the 446 ports that requested maintenance funding, only 154 will get it.

After letting the problem develop through either ignoring calls from the industry or battling through decade-long studies and environmental impact assessments, the US is in … well, we could say in deep water, but that is the problem. The US is in water that is too shallow.

Container lines had better start adding wheels to the bottom of their bigger vessels because they will soon have to drive them into US ports. And then that college kid who has been behind the port development programme for so long may as well take the wheel.

Excerpted from a post by Greg Knowler on September 14, 2011

Shipbuilders Interact to Enhance Productivity

Upbeat about the steady progress ship builders are making in India, Institution of Naval Architects decided to step on the gas and brought together various players in the field to share their expertise and experience for increasing productivity in ship building. They held a number of short sessions over the past

The wealth of information that was provided would help small and medium size shipyards to undertake measures — though they may seem almost insignificant — for increasing productivity.

One prominent contributor was Ashok Chowgule, Executive Director of Chowgule Group. He advocated the need to operate within a time frame, quantify work and the use of right tools. “The need to keep in mind evaluation of productivity and the benefits needed for a holistic approach greatly increases throughput and enables higher productivity,” Mr Chowgule said. “The correct measurement process enables improvement in quality depending on the scale of operation. Measurement of work is important for planning the amount of work and resources. Measurement of work is also important for setting performance criteria.”

“Use of appropriate machinery helps to raise reliability and improve productivity,” he said. “CO2 is preferred over manual arc welding as it has the advantage of straight line continuous welding, gives cleaner work area, since there are no stubs left. Besides, there is little slag removal, etc.”

Several advantages can accrue using a tower crane which helps to enhance speed of operation and throughput. It was his experience that by using two Noboruders (and used simultaneously), pipe bending machine, CNC cutting machine which have two cutting heads, two plate bending machine with accessories, stage lifting jacks greatly help to boost production. For painting, the use of a cherry picker helps considerably.

At their Chowgule Shipyard in Goa he asserted that they were able to raise productivity significantly. Where they have been producing three 4,500 tonner vessels annually, with this rationalized system of operation they were able to build four vessels a year. Some useful tips were offered by Shirai and Pranav Sharma, VPs of Bharati Shipyard Ltd. Endorsing the view of having a strict schedule for production and detailed sequence design, they contended that a block erection schedule of one year was preferred. They said that a detailed assembly sequence should have a schedule of six months. So also for shell plate bending, steel prenesting and delivery, pipe indent and spool fabrication, pre-outfitting, block blasting and painting should all be maintaining a schedule of six months each. “One should concentrate on having sequence design (work design) as the first step and establish “Kanban System”, they suggested. “Advanced shipyards make micro schedule for 6 months to one year.”

From a post by Joseph Fonseca, Mumbai, on September 19, 2011

Utopia

Not so much of a ship than a self propelled floating structure, this year's Monaco Boat Show introduced an unusual concept exhibit - Utopia! A collaboration between the UK companies Yacht Island Design and BMT Nigel Gee it resembles something out of a James Bond film. Still at the concept design stage, the 328 ft (100 m) "diameter" construction gives a volume similar to that of a larger cruise ship.

According to James Roy, Yacht Design Director at BMT Nigel Gee, "Utopia is not an object to travel in, it is a place to be, an island established for anyone who has the vision to create such a place."

The main accommodation and service area are deployed over 11 decks with the top deck recreational area and swimming pools covered by a retractable canopy. The public areas offer a selection of retail shopping malls, theater, a number of restaurants and an entertainment zone featuring bars, nightclubs and a casino. At the uppermost point, at a height of 213 ft (65 m) on deck 13, there is a panoramic observatory offering 360 degrees of unrestricted views.

Travel to and from Utopia may be by helicopter or boat: the design includes more than one landing pad plus a wet dock for visiting vessels.

The structure uses a four legged platform arrangement designed to keep motion to a minimum even under more extreme sea conditions. At the base of each leg is an azimuthing thruster providing slow speed propulsion. The large central section is used to attach the mooring system and is the main dock. Each leg has a retractable beach area at sea level for bathing and water sports activities.

Project Utopia seen from above, showing helipad and the central oasis with opening glass roof.

(Image credit: Yacht Island Design Ltd/BMT Nigel Gee)

The center section is used to attach the mooring system and houses the main dock. At the base of each leg is an azimuthing thruster providing slow speed propulsion.

Posted by Keith Henderson on MaritimePropulsion.com September 29, 2011

Cosco Busan

Bridge Spill Claims Finally Settled

The sorry saga of the San Francisco-Oakland Bay bridge collision has come to an end.

On a foggy November night in 2007, the Cosco Busan hit the bridge with its port bow, spilling 200,000 litres of fuel oil into the San Francisco Bay.

It was one of the worst oil spills in California. Far more destructive than organic crude oil, the fuel sludge coated sensitive beaches and habitats of local wildlife and generated the oil-soaked bird images that give the shipping industry its bad name.

Oil from the spill washed up on more than 100 miles of beaches and killed almost 7,000 birds. It was an environmental disaster and evoked fury from the public to environmental agencies to the government.

This week, Cosco Busan's Hong Kong ship management company Fleet Management, and the ship owner, Regal Stone, agreed to pay US$44 million to settle environmental claims and penalties in a deal with the US Department of Justice and other regulatory authorities.

The final step will be to have the deal approved by a federal court, and when that happens it will resolve all outstanding claims for damage to natural resources and the resulting clean up. The ship's insurers will pick up the tab.

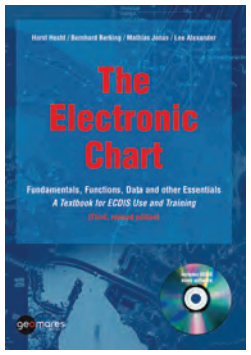
While owned by Cosco, the ship was chartered to Korean shipping company Hanjin. Fleet Management, which was sold last year, was fined US$10 million after pleading guilty to criminal charges that some of its crew falsified documents after the collision. But the pressure for justice ensured that justice would not be done. Punitive fines for ship owners and even refusing port access for their vessels is one thing, but imprisonment is a step too far. San Francisco Bay pilot John Cota was overseeing the navigation of the ship when it hit the bridge, and found himself jailed for 10 months.

Cota was found criminally negligent for taking the ship out in thick fog and ignoring danger signals. Negligent, sure, but criminally negligent? That's hard to swallow. His name joins a growing list of seafarers who have been unfairly jailed after oil spills whose highly photogenic consequences have seafarers lynched in the court of public opinion and jailed by courts of law. The penalties should be severe for dereliction of duty, but jail time is taking it all a bit too far.

Post by Greg Knowler on September 21, 2011

The Electronic Chart: Functions, Potential and Limitations

A Textbook for ECDIS Use and Training



Price $84
Web *www.electronic-chart.com*
Email *trea.fledderus@geomares.nl*

Geomares Publishing released the third, revised edition of the book *The Electronic Chart*, by Horst Hecht, Bernhard Berking, Mathias Jonas and Lee Alexander. The structure and content of this third edition has been designed to meet the specific needs of the ECDIS stakeholder community. The book is structured into five major parts, each building sequentially upon the last:

Part A (Chapters 1 – 6) introduces the subject and explains the basic fundamentals that make up an ECDIS, ranging from architecture to electronic-chart data structure and methods of display.

Part B (Chapter 7 - 13) describes the primary functions of ECDIS and its practical use, presenting a comprehensive account of ECDIS use in practice, including its potential, requirements and limitations from the point of view of a navigator. ECDIS functioning is explained based on ECDIS fundamentals.

Part C (Chapters 14 - 15) details the means and process of providing the electronic chart data required to use ECDIS worldwide. This includes official services for ENC data provision, distribution and updating.

Part D (Chapters 16 - 18) discusses the need for and primary objectives and content of ECDIS training. It gives guidance on how to design training courses, including simulator training, supported by ECDIS Demonstration software developed by a leading ECDIS manufacturer (Transas Marine).The IMO ECDIS training requirements and a cross-reference between training subjects and book chapters are given in the Appendix.

Part E (Chapters 19 – 24) describes key aspects of ECDIS beyond its practical use, such as adequate backup arrangements, safety issue considerations, regulatory and legal implications, and some economic aspects. The book concludes with an overview of supplementary information layers and other uses of ECDIS, and an outlook on future development.

The book can also be used selectively as handbook, with various ECDIS-related topics covered in a stand-alone manner. In addition, an effort has been made to cite references to international standards and requirements, or for gaining further information about a specific topic.

Obituary: 1934 – 2011

Frank Koch

Inspection Instrument Pioneer

Frank Koch, President and founder of DeFelsko Corporation died on August 8, 2011 at the age of 77. Born and raised in Germany, Frank was formally trained as a tool and die maker before emigrating in 1956. In the 1960's, Frank's entrepreneurial spirit led him to Ogdensburg, New York where he started several successful businesses including DeFelsko Corp.

It was his involvement with coating thickness and test instruments that most defined his career. Frank began importing and selling inspection instruments from Germany in the early 1960's and soon moved into manufacturing beginning with the PosiTest mechanical pull-off gage and continuing with the ever-expanding PosiTector series of inspection instruments.

Frank's combination of a bright mind, outgoing personality, dedication and tireless work ethic influenced the products he made and the business relationships he developed. He travelled the world developing a network of dealers. He forged relationships based on handshakes and on the strength of his character. He attributed much of his success to his loyal customers and dealers across the globe.

His ability to understand the needs of the inspection community and to make instruments that were rugged and easy to use set Frank apart from his peers. Under his leadership, DeFelsko pioneered many technologies including hand-held ultrasonic coating thickness gages, auto switching ferrous/non-ferrous coating thickness gages, and unique self-aligning adhesion testers.

Through his vision and the team he inspired, his company evolved from a one-man operation to a world leader in the design and production of quality, hand-held test equipment. Today, the company he started employs over 50 people at their facility in Ogdensburg, New York and houses research, manufacturing, sales, shipping and service departments. Frank's son-in-law, David Beamish has assumed the responsibilities as President of the company. Frank's daughter (and David's wife), Linda Koch Beamish retains her role as Vice President.

New NOL Group CEO Takes Over

NOL Group has completed the transition to a new CEO and that Ng Yat Chung will take the helm of the global transport and logistics company October 1, 2011. Mr. Ng, an NOL Executive Director since May, will succeed Ron Widdows who retires from the company Dec. 31.

Paltzo Named MD at ATLAS ELEKTRONIK

Volker Paltzo (46) has been appointed to the Management Board of Atlas Elektronik. Effective October 1, Paltzo will succeed Kai Horten, who leaves after five years as Managing Director of ATLAS to become CEO and President of the aircraft manufacturing supplier Premium Aerotec GmbH. Dieter Rottsieper will remain Speaker of the Management Board.

Howell Laboratories Names Allen President, CEO

(Photo: Bridgton News, Bridgton,ME)

Paul Wescott (left) & David Allen.

Howell Laboratories, Inc. announces the promotion of David G. Allen to President and Chief Executive Officer to succeed Paul A. Wescott, Howell's President since 1977 who is retiring. Allen has been with Howell since 1982 in a variety of positions, most recently as Vice President and Chief Operating Officer. He is a graduate of the University of Chicago and lives in Raymond with his wife and two children.

Nichols Joins Vigor Sales Team

Bryan Nichols is joining forces with VIGOR Industrial. Nichols joins VIGOR as a sales representative for the company, which builds, repairs and modernizes commercial fishing and cargo vessels, ferries and military ships at six locations in the Northwest. Nichols had been sales and marketing manager at Nichols Brothers Boat Builders of Whidbey Island, Wash. Nichols will represent VIGOR and its new-build and fabrication division, US Fab.

STX Marine Promotes Carroll

STX Marine promoted Mike Carroll to the position of Vice President – Operations for the Houston office. He has been with the company for 10 years and has been instrumental in expanding the capabilities and profile of the company in the US and will be responsible for the further success and development of the office. vessels in the Jones Act sector. Mike has Bachelors of Technology Degree and Diploma of Naval Architecture from Memorial University in Newfoundland.

Eckart Joins HS Marine Propulsion

John Eckart joined HS Marine Propulsion, LLC as the Principal Engineer. Eckart has worked in the marine industry for 25 years in the areas of hydrodynamics and ship propulsion. He spent the past 15 years as a principal engineer with Rolls-Royce Naval Marine, Inc., where he was responsible for propeller and waterjet design and analysis .

Former Navsea Commander Joins G&C Board

Gibbs & Cox said that Vice Admiral Paul Sullivan, USN (Retired) has been unanimously elected Sullivan's vast naval experience and leadership led to the successful delivery of 22 new ships, 63 major ship overhauls and more than 140 private sector overhauls.

Heikinheimo: President of Napa Group

Juha Heikinheimo (54) was appointed President of Napa Group (Napa Ltd), a provider of software solutions for the maritime industry. The appointment took effect on September 1, 2011. He assumes the position from Matti Salo, who successfully served as President of Napa Group for eleven years. Mr Salo will continue as President of the subsidiary, Onboard-Napa Ltd. He will focus his attention on customers and boosting the growth of the NAPA for Operations business.

ClassNK Opens First Russian Office

ClassNK opened its first exclusive surveyor office in St. Petersburg on September 14 with a reception hosted by ClassNK Chairman and President and Current IACS Vice-Chairman Noboru Ueda. The event was attended by more than 80 guests including executives and representatives from throughout the Russian maritime industry.

Berggren Joins Grundfos

Grundfos hired Jon Berggren as a new Business Development Manager. Berggren holds degrees in mechanical engineering and marketing. He has 14 years of international experience in the maritime industry. Most recently, he was Marketing Manager of Commercial Marine at Colfax Corporation, where he was also Sales Director of IMO AB, one of the company's brands. He has also held various positions with Alfa Laval, among other jobs.

Streit Joins Seakeeper

Seakeeper has named Brook Streit as regional sales manager for North America. He will be responsible for generating business in the recreational market. Streit formerly served as sales manager for Derecktor Shipyards in Bridgeport, Connecticut. In that position he generated sales leads for power and sailing yachts. Streit is a graduate of The Landing School's boatbuilding program.

ACL Appoints Blocker

American Commercial Lines Inc. (ACL) appointed Robert M. Blocker as Senior Vice President of Sales and Customer Service. Blocker served in progressively responsible sales roles with ACL from 1988 to 1995. He rejoins ACL after 16 years successfully leading AEP River Operations business development. He holds a bachelor's degree in business marketing from the University of Louisville. American Commercial Lines Inc. is an integrated marine transportation service company operating in the United States Jones Act trades.

Titan Salvage Appoints Dolson

TITAN Salvage, a Crowley Maritime Corporation company, appointed Dan Dolson to the senior management team as operations manager for the Americas. In this new role, Dolson now has responsibility for the operations and profitability of TITAN's U.S. office and depot in Pompano, FL.

MOL Selects KVH TracPhone V7

Following a successful trial on its liquefied natural gas (LNG) tankers, MOL LNG Transport Co., Ltd., a subsidiary of Mitsui O.S.K. Lines, is adding the TracPhone V7 satellite communications system from KVH Industries, Inc., to three of its LNG tankers. The systems will use KVH's global mini-VSAT Broadband(SM) service, which is being provided by KVH's partner, SKY Perfect JSAT, under the OceanBB brand name. SKY Perfect JSAT is working with Japan Radio Co., Ltd.

$1.8B Contract for Two DDG-1000

The U.S. Navy awarded General Dynamics Bath Iron Works, a subsidiary of General Dynamics (NYSE: GD), a $1.8bcontract for the construction of DDG 1001 and DDG 1002, the next two ships in the Zumwalt-class program. DDG 1001 is scheduled to be delivered in December 2015 and DDG 1002 is scheduled to be delivered in February 2018. The first ship in the class, DDG-1000, is over 50 percent complete and is scheduled to be delivered in 2014.

Imtech Acquires Techsol Marine

Imtech N.V. acquired the Canadian marine company Groupe Techsol Marine. This strategic acquisition means that Imtech has now a high-tech marine production site available in Canada. The acquisition also strengthens Imtech's service and maintenance foothold in North-America. With over 100 employees, Groupe Techsol Marine realises annual revenues of around 20 million euro. The acquisition will be paid in cash and will directly contribute to the earnings per share.

Corvus Energy joins Aquarius Project

Eco Marine Power said that Corvus Energy Ltd. will supply the energy storage component for its groundbreaking, patent-pending Aquarius Wind and Solar Power System for ocean-going ships. Since 2010, Eco Marine Power has worked on developing an advanced integrated system of rigid, photovoltaic-equipped sails and energy storage modules to allow ocean-going ships to harness renewable energies and reduce their need for oil. The rigid sails are used for propulsion and are covered in solar panels to capture solar energy. Corvus Energy's advanced lithium-polymer battery technology will store energy collected by the array of wind and solar panels. The batteries will then be used to power the ship's operational equipment or, alternatively, be used as a power source when at harbor or at anchor.

Hamburg Süd, GL Team on Emission Management System

Hamburg Süd and Germanischer Lloyd are jointly developing a data management system for systematically capturing all environmentally relevant ship operation information. The future "GL Emission Manager" will permit detailed evaluation and analysis of all relevant data of the entire fleet. Hamburg Süd has set itself the goal of creating a valid basis for further reducing the emission of contaminants by its deployed fleet. The system is to be used throughout Hamburg Süd's entire fleet from the start of 2012.

VT Halter Delivers for OSG

VT Halter Marine, a subsidiary of VT Systems, Inc. (VT Systems), delivered Endurance, the second 8,000 hp Articulated Tug Barge (ATB) tug to Overseas Shipholding Group, Inc. (NYSE: OSG). This is part of a contract that VT Halter Marine signed with OSG in April 2010 to complete two tugs over 16 months at the former's Moss Point Marine shipyard. The first tug, Courageous, was delivered in June 23, 2011. .

Uruguay Navy Selects Transas

The Naval Academy of the Uruguay Navy has completed the acquisition and installation of a simulator complex by Transas including navigation and maneuvering simulator NTPRO 5000, GMDSS Communications simulator TGS 5000 and Engine Room simulator ERS 5000 SOLO. The Naval Academy is a public training center, secular and free, which is responsible for the preparation and training of Uruguayan military and merchant marine people since 1907. Naval Academy supervises IMO Model Courses for seafarers, basing on its recognition as Training Center of the IMO. Uruguay, a South American country located between Argentina and Brazil, on the Atlantic

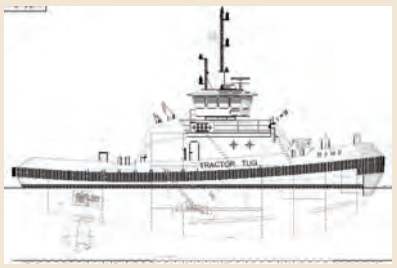
Maersk Line, Rickmers-Linie (America), Form U.S. Flag Partnership

Maersk Line, Limited and Rickmers-Linie (America), Inc. announced a partnership to provide breakbulk and project cargo shipping using two newly-built multi-purpose ships to be operated under the U.S. flag. The partnership brings together the complementary capabilities of the two companies to offer customers a new option for moving large and heavy cargoes worldwide. The new 19,000 deadweight ton vessels, named Maersk Illinois and Maersk Texas, each have a combined maximum lift of 480 metric tons and are twice the size of U.S. flag multipurpose vessels currently in operation. The service will operate as Maersk-Rickmers U.S. Flag Project Carrier, Maersk-Rickmers for short. The ships are currently under the Marshall Islands flag and are preparing for their maiden voyages.

Wärtsilä, Shell Sign Deal to Promote LNG as a Marine Fuel

Wärtsilä and Shell Oil Company signed a Joint Co-operation Agreement aimed at promoting and accelerating the use of liquefied natural gas (LNG) as a marine fuel. The Joint Cooperation Agreement will focus first on supplies from the US Gulf Coast, and then later expand their efforts to cover a broader geographical range. as fueled marine engines are seen as being a logical means for ship owners and operators to comply with increasingly stringent environmental legislation.

$23m for Great Lakes Shipyard



Caribbean Tugz, LLC, an affiliate of SEACOR Holdings, Inc., Ft. Lauderdale, Fla., awarded Great Lakes Shipyard, Cleveland, Ohio, vessel construction contracts to simultaneously build two new state-of-the-art 50-ton bollard pull ASD tugboats to be used for ship docking and escort operations at the Hovensa Oil Refinery in St. Croix, U.S. Virgin Islands. The contracts' total price of the new tugs is $23 million. Design and construction are to start immediately, and the tugs are scheduled for completion in early 2013. Designed by Jensen Maritime Consultant, Inc., Seattle, Washington, the new tugs will be built to the highest stan

www.thegreatlakesgroup.com.

Hempel: Focus on Fire Protective Coatings

With the extensive expansion of R&D in Spain, Hempel's new center focuses on bringing high performing fire protective coatings solutions to the global market. Intumescent coatings – passive fire protection that lengthens the time a steel structure will remain intact during a fire – provide longer evacuation times and allow emergency personnel more time to respond. That means that these advanced coatings solutions not only help protect investments, but can potentially save lives. "Along with a state-of-the-art facility, we have also established a team with years of experience in intumescent product development," said Hempel Business Development Manager Lars Risum.

Ocean and Rio de la Plat coasts, belongs to the select group of countries forming the IMO's White List, maintaining a constant concern to meet and exceed the standards set by that organization, belonging to United Nations Organization (ONU), so Naval Academy has a quality management system ISO 9001:2008 certified since 2004 and has been subject to voluntary audits of the IMO and the European Maritime Safety Agency.

www.transasmarine.com

Abu Dhabi MAR Kiel

As of September 1, 2011, the contracts for the acquisition of the former HDW Gaarden GmbH in Kiel have entered into force. Abu Dhabi MAR Kiel GmbH starts with 172 employees, the facilities, equipment and infrastructure of the former HDW Gaarden, working on first orders of its target markets offshore, mega yachts and construction of special vessels. Management Directors of this new company are Susanne Wiegand and Holger Kahl.

LR Wins Deal with Maersk Oil

Lloyd's Register (LR) won a contract to provide Maersk Oil with a comprehensive suite of risk-management services to support the offshore operator's commitment to meet global demand for energy in an efficient, safe and environmentally responsible manner.

BMT Offers CNRI Decommissioning Support

Courtesy of CNRI

BMT Cordah won a contract by Canadian Natural Resources International (CNRI) that will see BMT provide support and guidance for the environmental aspects during two of CNRI's decommissioning projects, both of which are currently in the planning and consenting phase. CNRI's Murchison and Ninian Northern fields located in the northern North Sea have both been in operation since the early 1980's.

Murmansk Shipping to Assist U.S.

Murmansk Shipping Company was selected among other operators of ice-breaking fleet by U.S. National Science Foundation (National Science Foundation - NSF) which provides U.S. Antarctic Program. The ice-breaker Vladimir Ignatyuk successfully works in Antarctica, including under the contract with the Center of Ocean and Antarctic Research of the Indian Government at Maitri and Larsemann Hills stations. The ice-breaker Vladimir Ignatyuk will provide services for piloting vessels for American polar explorers in difficult navigational conditions of Southern continent, including maintaining the channel of clean water in ice off McMurdo. The work of the ice-breaker will begin in the end of December 2011.

Vizada Launches SkyFile C Store & Push service

Vizada launched SkyFile C Store & Push to offer customers highly-reliable data reporting and polling services, including VMS (Vessel Monitoring System), LRIT (Long Range Identification & Tracking) and FleetNet. This enables shipping companies to adhere to IMO regulations stipulating that a vessel must send a position report every six hours, and that this report must in turn be delivered to the data center in less than 15 minutes (or seven minutes in European countries).

Krill Systems Wins WSF Deal

Krill Systems was selected by the Washington State Department of Transportation for fitting on the MV 'Walla Walla' operated by Washington State Ferries. MV Walla Walla is a Jumbo Class auto/passenger ferry measuring: 440ft LOA, 87ft beam, 18ft draft and is powered by four Diesel-Electric engines delivering 11,500hp. Krill Systems uses Microsoft SQL server database technology to record on-board sensor data with 2 second resolution and storage capacity of at least one year.

GL Hits 100m GT Milestone

Germanischer Lloyd (GL) fleet under classification now exceeds 100 million GT. GL has currently more than 7,200 ships from over 1,900 shipping companies worldwide under regular technical supervision. "We have been able to double the fleet in class over the last six years," explains Erik van der Noordaa, CEO of the GL Group, "and we want to have achieved the next 10 million GT by the end of next year." The ship which saw GL break the 100 million mark was shipping company Hamburg Süd's 85,676 GT "Santa Rosa".

The 300-m-long container ship, built by South Korean shipyard Daewoo, has a capacity of 7,100 standard containers (TEU) and fulfils the requirements of the Energy Efficiency Design Index (EEDI) the soon to be mandatory energy efficiency measure.

Rolls-Royce Wins PSV Contract

Rolls-Royce won an order from Norwegian ship builder Simek AS to design and equip a UT755 LC platform supply vessel. The contract includes a fully integrated Rolls-Royce power and propulsion system including main engines, propellers and tunnel thrusters. Deck machinery, electrical systems, automation and control systems and bulk handling equipment are also included in the order.

STX Finland: Contract for Well Intervention Vessels

STX Finland Oy and Eide Marine Semi AS, a subsidiary of Eide Marine Services A/S, signed a contract for the outfitting, completion and delivery of two sophisticated well intervention vessels with an aggregate contract value exceeding EUR 300 million. The 31,000-ton well intervention vessels will measure 122 x 45m and are designed to operate in rough open sea conditions on Brazilian continental shelf. The Vessels have innovative hullforms securing high seakeeping characteristics together with DP3 dynamic positioning system and truster arrangement. Large deck area provides opportunity to arrange all well serving equipment in most efficient way.

MCP Wins Ferry Deal

Maritime Communications Partner (MCP) won a turnkey telecommunications contract with Corsica & Sardinia Ferries.

The five-year contract covers Mobile Telephony, Mobile Internet, WiFi and VSAT for eight passenger ferries and plays a key role in supporting Corsica's ongoing aims to provide crew and passengers with competitive wireless communications.

Pima Valve Recognized for Quality

Earlier this year Pima Valve Inc. was honored by DLA Land and Maritime, Columbus, Ohio, as one of the government's best suppliers. Ryan Gaston accepted the award from Army Brig. General Darrell K. Williams, the DLA Land and Maritime Commanding General, at an award ceremony held in conjuntion with the 2011 Industry Conference and Exhibition. Pima Valve supplies Marine Valves for the Department of Defense (DOD) and other agencies. DLA Land and Maritime is headquartered in Fort Belvoir, Va. and teams with more than 6,000 suppliers of Land and Maritime system parts, encompassing seven million orders and $5 billion annually.

AMOS2 for Sentek Marine & Trading

SpecTec Asia Pacific was chosen by Sentek Marine & Trading Pte Ltd. to design and develop an electronic system, which will attend to their asset & fleet management requirements. Sentek Marine & Trading Pte Ltd is a bunker tanker owning company and one of Singapore's foremost bunker suppliers. Sentek Marine has decided to apply the use of new technologies to upgrade its existing systems.

SHI Awards Noreq Largest Ever Contract

Noreq won the contract for Lifeboats, davits, Fast Rescue Boat and Rescue boat davit for the six drill ships Maersk Drilling are building with Samsung Heavy Industries in South Korea. The contract is valid for all drill ships and is consisting of 6pcs 80-persons lifeboats together with belonging davit and one fast rescue boat with davit for each ship. Thus a total of 36 lifeboats and davits are ordered all together. **www.noreq.no**

Noreq AS Creates Subsidiary in Dubai

Noreq AS continues to expand. The increasing demand for our products has resulted in a new company etablishment, NOREQ FZE, a subsidiary with an office in Dubai. Noreq has been represented in UAE for several years by Chacko John. He is now permanently employed in Noreq, and he looks forward to serve ship owners, yards, consultants and the offshore industry with deck equipment from Noreq. Noreq's new office, contact: information: *NOREQ FZE, attn: P. Chacko John, Office No. 6WA 633, Dubai Airport Freezone, Dubai, UAE.*

Kongsberg Wins Navy Engine Room Simulator Deal

Kongsberg Maritime was selected by BAE and the Australian Defense Force (ADF) to provide a custom engine room simulator for the training of engineers aboard Royal Australian Navy (RAN) Canberra Class Landing Helicopter Dock (LHD) vessels. The new LHD Engineering System Trainer (LEST) is designed to enhance the Navy's ability to train LHD vessel engineering personnel, an important and critical factor in operational availability. The LEST project is scheduled for delivery February 2013, and will include both full mission and desktop simulation systems, with integrated e-Learning facilities.

Wärtsilä Waterjets for LCS Class

Wärtsilä won the contract to supply the waterjet propulsion system for two US Navy's Littoral Combat Ship (LCS) Independence Class vessels being built by Austal USA with an option for an additional eight ship sets expected to be exercised later. The system employs Wärtsilä's axial waterjet technology matching the needs for fast vessel accelerations and high maneuverability. The orders currently on hand are for four WLD 1720SR and four WLD 1500SR Axial Waterjets to be supplied to the first two vessels. The first vessel is expected to be delivered in autumn 2012; the second in spring 2013.

ClassNK: First Approval for Maritime Training

ClassNK issued its first approval for maritime training programs to an Electronic Chart Display and Information System (ECDIS) course offered by NYK Shipmanagement Pte. Ltd. (NYKSM). The approval of the course, which certifies that the course fulfills IMO standards follows ClassNK's entry into the training program certification field as part of a broader expansion of the classification society's activities announced earlier this year.

Coastal Marine Equipment on LCS

Coastal Marine Equipment is continuing its success in supplying marine deck equipment for government and military projects with the latest being equipment for Austal USA's Littoral Combat Ships (LCS) program. This is in conjunction with Austals' Joint High Speed Vessels (JHSV) program and Bollinger Shipyard's Fast Response Cutters (FRC) program. In addition with these multi vessel contracts, Coastal Marine is supplying equipment for the NOAA Fisheries Survey Vessel (FSV) and Alaska Region Research Vessel (ARRV) being constructed at Marinette Marine, among others.

Coastal Marine Expands in Brazil

Coastal Marine Equipment extended its presence into the Brazilian marketplace by teaming with Macnor Marine and Macnor Services to assist in equipment sales and service. This relationship has proven successful as Coastal Marine has been awarded the deck equipment for two Oil Spill Response Vessels' being built in Brazil at EISA Shipyard. Each vessel will receive an ABS approved anchor windlass, two capstans and two tuggers.
www.coastalmarineequipment.com

Type Approval for Hyde Guardian BWTS

Hyde Marine, Inc. said its Hyde Guardia ballast water treatment system (BWTS) received Type Approval from the American Bureau of Shipping (ABS) on September 13, 2011. Hyde GUARDIAN was the first BWTS to receive Product Design Assessment (PDA) certification from ABS in April 2010. PDA is the technical approval for equipment and is the first step in receiving ABS Type Approval. Hyde GUARDIAN was Type Approved in 2009 by Lloyd's Register on behalf of the UK Maritime and Coast Guard Agency (MCA), confir1ming compliance with IMO Resolution MEPC.174 (58) Guidelines. Testing was conducted at the Royal Netherlands Institute for Sea Research (NIOZ), the most challenging ballast water test facility in the world, in accordance with IMO G8 Guidelines and demonstrating reliable performance in difficult operating conditions.
Email: sales@hydemarine.com

ExxonMobil, Greek Ship Owners Celebrate 50-Year Partnership

Ray Pomfret and Mathew Los, Chairman of the Greek Group, at the Yacht Club of Greece in Athens exchanging gifts.

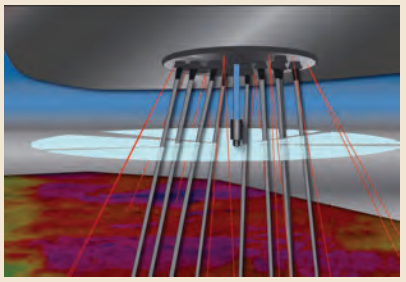
ExxonMobil Marine Lubricants and the Greek Group, a collection of likeminded Greek shipping families, celebrated a 50-year business partnership this summer, representing the oil company's longest-running supply agreement with a Marine customer organization. The Greek Group was established in 1961 when nine shipping family companies formed a fuel and lubricants purchasing group with Mobil Bunker Ltd., London. The original companies, organized as the Prometheus Group, were mainly from the island of Chios in the eastern Aegean sea and had settled in London during World War II. Exxon Mobil Corporation has been serving the lubrication needs of the marine industry since the 1880s. Today, its global marine lubricants organization is a leading supplier of mineral and synthetic oils, providing unsurpassed technical expertise and service for customers worldwide. During the 50 years of the supply partnership between ExxonMobil and these family companies, the Greek Group has grown and now consists of 29 Greek shipping companies. ExxonMobil Marine Lubricants supplies approximately 250 vessels within these companies.

Digital Temperature Transmitters

Omega's new PRTXB and PRTXAL series are 2-wire transmitters that provide 4 to 20 mA signal representing temperature linearized. This product features a 316 Stainless Steel RTD Probe that capture minimum and maximum readings. Selectable units and an auto shutoff time feature is available for battery powered models (PRTXB and PRTXBL). Units with alarm outputs are available too. Ideal for Food Processing, Automotive-Engine Testing, HVAC, Lab Use, water bath temperature monitoring, pressure vessels or any temperature monitoring application. Price starts at $389

Email: info@omega.com
Website: www.omega.com

RAMS for FPSOs



Tritech developed a system for the real-time integrity monitoring of mooring lines, umbilicals and risers on Floating Production Storage and Offloading Units (FPSOs). RAMS (Riser and Anchor Monitoring System) is a 360 degree riser and anchor chain monitoring system for FPSOs that is deployed beneath the vessel and monitors the presence, integrity and position of mooring lines and risers 24/7 from a single sonar head. RAMS has been extensively tested and the accuracy of the system has shown to be 100% effective in its current deployment on Teekay's Petrojarl Foinaven FPSO, operating on a BP deepwater oil field, within the UKCS (UK Continental Shelf), located approximately 190km (118mi) off the West Coast of Shetland. RAMS has been developed in conjunction with BP who had a requirement for an automated system able to monitor the series of bend stiffeners, umbilicals and risers on an FPSO.

www.tritech.co.uk

VOC: New Fuel & Vessel Monitoring Tool

Krill Systems debuts a new management tool, the Vessel Operations Center (VOC), that allows Fleet Managers to monitor entire fleet fuel usage and receive synchronized fleet reports anywhere they are required, automatically, via Internet. Headquartered in Bainbridge Island, WA, Krill Systems is enjoying strong growth in: Offshore Towing, Inland Towing, Ferry and OSV markets, with successful fittings on individual boats of major corporations operating in these fields.

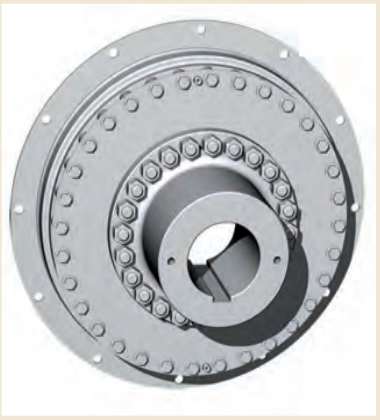
Email: brian@krillsystems.com

First VLCC Order with the New G-Type Engine

Greek ship management company Almi Tankers S.A. is set to establish itself as a market front runner with the new ultralong-stroke G-type engine tailor-made for Very Large Crude Carriers Athens-based ship management company Almi Tankers S.A. will be the first to equip two VLCCs with the very first new 7G80ME-C9.2 engine launched by MAN Diesel & Turbo. The engines will be built by Hyundai Heavy Industries in South Korea with test bed running in January 2013. The vessels will be built at DSME in South Korea, with delivery scheduled for May and December 2013.

www.mandieselturbo.com

VULKARDAN G 84



VULKAN Couplings launched the VULKARDAN G 84 at the Koremarine in Busan. This coupling has especially been designed for generator drives and electric motors in the medium power range. With the arrival of this product innovation, the company has supplemented the VULKARDAN G product range that has been recently launched for marine drive components in order to be able to cater for a higher torque range up to 63 kNm. The couplings in the size range of 54-62 launched so far in the market with a nominal torque of up to 25 kNm have already been successfully used in engines with SAE flywheel connection.

www.vulkan.com

LVDT Linear Position Sensors

Macro Sensors offers its AC-operated LVDTs in different material housings to perform in varying operating environments including those with high and low temperature extremes, radiation exposure, seawater and vacuum pressure conditions.

Standard configurations of Macro Sensors' AC-operated linear position sensors are constructed of stainless steel with hermetically sealed electronics that enable reliable performance in environments with high temperatures (400°F) or mild radiation exposure. Users can also choose among other optional material housings including:

Email: postionsensors@macrosensors.com
www.macrosensors.com

New Opti-Brite Sunlight-Readable LED LCDs

Comark offers a new LED based, Sunlight Readable LCDs with transflective film enhancements. The Opti-Bright Series is available in 12-in., 15-in., and 17-in. sizes. This Series features 0-100% adjustable brightness control for both night time and full sunlight viewing requirements. These LCDs have a brightness rating of 1000 NITs, and 800 NITs brightness when the touchscreen option is chosen. The transflective film enhancements illuminate the LCD, which is great for applications with sunlight readable requirements. These LCDs are NEMA 4X rated, making them an ideal choice for wet outdoor environments.

www.comarkcorp.com/products/marine_displays.html

New Approaches to Offshore Mooring

Measurement Technology NW (MTNW) implemented its running line tensiometer (RLT) technology with a Samson synthetic rope in an offshore mooring monitoring project engineered by Delmar Systems. This implementation is MTNW's first use of tension measurement technology with 2-in.+ synthetic ropes. Recently, Delmar Systems was contracted to moor an offshore supply vessel (OSV) to a major offshore platform in the Gulf of Mexico. The OSV is being used as a support vessel while dive operations are conducted. The OSV is using a three-point mooring system consisting of two stern hawser lines attached to the platform and a bow mooring line attached to a preset suction pile foundation in 2,900 ft. of water. The mooring system had to be as robust as possible while still maintaining ease of handling and rigging by the vessel crew.

www.mtnw-usa.com

Success for XpressLink from Ship Equip

Two independent international shipping companies acted immediately and ordered 28 XpressLink systems from Ship Equip. "The 28 orders are from two Ship Owners, one located in the Asia region and one in EMEA region," said CSO Gilles A Gillesen. "The Ka ready SeaTel antenna is part of the XpressLink service, and scheduled available early 2012. Deliveries to the above customers will commence before this antenna is available, in which case we will deliver one of our current products which also includes FBB failover from Ship Equip VSAT at a fixed fee. These installations will be upgraded to XpressLink at a later time at no extra cost for the customer." Inmarsat XpressLink was announced in July as the bridge to Inmarsat Global Xpress to be launched in 2014.

As a bridge to the Global Xpress satellite communication to be launched by Ship Equip owner Inmarsat in 2014, Ship Equip is offering a managed service of VSAT from Ship Equip bundled with FleetBroadband. The flat fee service delivers 512 Kbps/512 Kbps with a minimum guaranteed data rate of 128 Kbps.

"This service brings communication speeds for maritime users a long step towards speeds that are common for land based offices, and should open up a new way of thinking about communication ship – shore. I think now is a good time to act for Ship Owners who has been awaiting the development in Maritime Communication" says Chief Sales Officer Gilles A Gillesen.

XpressLink has a suggested retail price of $2,999/month for 60 months.

www.shipequip.no

Two-Stroke Dual-Fuel Gas Engine

Wärtsilä tested its new low-speed gas engine technology in trials conducted at the company's facilities in Trieste, Italy. The tests were carried out on September 19 in conjunction with Wärtsilä's Licensees Conference in Trieste. Wärtsilä reportedly demonstrated that the engine performance fully complies with the upcoming IMO Tier III nitrogen oxide (NOx) limits. The new RTX5 2-stroke test engine is part of Wärtsilä's two-stroke dual-fuel gas engine technology development programme. This is an important part of the company's strategy to lower emissions, increase efficiency and to develop its low-speed engine portfolio to include dual-fuel gas engines alongside its medium-speed dual-fuel engines.

www.wartsila.com

Society of Naval Architects & Marine Engineer's (SNAME)

2011 Annual Meeting and Expo • November 16-18, 2011 • Hyatt Regency, Houston, TX

The Society of Naval Architects and Marine Engineers (SNAME) are set to convent in Houston, TX for its Annual Meeting and Expo. Below are some details for what promises to be three packed days of information and networking.

Wednesday, November 16
8:00 am – 5:00 pm
• Courses
12:00 pm – 5:00 pm
• Student Design Competition
1:00pm – 8:00pm
• Expo
6:00 pm – 8:00 pm
• President's Reception
8:00 pm – 10:30 pm
• Students /Young Professionals Social

Thursday, November 17
8:00 am – 8:30 am
• President's Welcome
8:30 am – 10:30 am
• Panel Sessions 1 and 2

10:00 am - 5:00 pm
• Expo
10:30 am – 3:30 am
• Risk Track: Paper Sessions
10:30 am – 1:00 pm
• Student Job, Scholarship & Graduate School Fair
11:00 am – 5:30 pm
• Technical Program
1:00 pm – 2:30 pm
• Expo Hall Lunch
6:00 pm – 7:30 pm
• Pre-Banquet Reception
7:30 pm – 9:00 pm
• Annual Banquet

Friday, November 18
8:00 am – 10:30 am
• Risk Track: Forum
8:30 am – 12:30 pm
• Technical Program
9:00 am - 12:00 pm
• Expo
9:00 am – 12:30 pm
• Student Congress & Elections
12:30 pm – 2:30 pm
• President's Luncheon
2:30 pm – 4:30 pm
• Panel Sessions 3 and 4
5:00 pm
• Alumni Events

Annual Banquet

Thursday, November 17
• 7:30pm to 9:00pm
Imperial East and Center, 3rd Floor
Cost: $125

Banquet Speaker:
Steven M. Carmel, Senior Vice President Maritime Services, Maersk Line, Limited (MLL)
Carmel is responsible for all technical and operating activities at MLL. He previously held positions in operations and finance for U.S. Marine Management, Inc. and MLL. He began his career sailing as a deck officer and Master primarily on tankers for Maritime Overseas Corp. and the Military Sealift Command. In 1979 Steve graduated from the U.S. Merchant Marine Academy and holds a M.A. in Economics and a M.B.A. from Old Dominion University. Steve is currently pursuing a Ph.D. with an emphasis in International Political Economy.

SNAME 2011 List of Exhibitors

ABS Americas	101,103	www.eagle.org
Advanced Marine Technologies Group	107	www.advancedmarinetechnologies.com
Alaris Companies	506	www.alariscompanies.com
Allied Systems Company	401	www.alliedsystems.com
Altair Engineering	503	www.altair.com
Appleton Marine	202	www.appletonmarine.com
Beier Radio Inc.	111	www.beierradio.com
BETA CAE Systems USA, Inc.	410	www.ansa-usa.com
Boland Consulting Services	515	www.pavcoind.com
Bollinger Shipyards	207	www.bollinger.com
Cambridge University Press	408	www.cambridge.org/us
CD-Adapco	409	www.cd-adapco.com
Click Bond, Inc.	510	www.clickbond.com
Creative Systems	205	www.ghsport.com
Deansteel	313	www.deansteel.com
DNV	400	www.dnv.com
Dometic Marine	406	www.dometicusa.com
DRS Defense Solutions LLC	316	www.drs-ds.com
ElectroMotive Diesel	415	www.emdiesels.com
Formsys	309	www.formsys.com
General Dynamics Electric Boat	308,310	www.gdeb.com
Genoa Design International	413	www.genoadesign.com
GTA Marine	305	www.gtamarine.com
Herbert-ABS Software Solutions LLC	105	www.herbertsoftware.com
Huntington Ingalls Industries	301,303	www.huntingtonindustries.com
Hyde Marine	407	www.hydemarine.com
Hydraquip Custom Systems, Inc.	405	http://www.hydraquip-csi.com
Hydrex Underwater Technology	306	www.hydrex.us
Jastram	212	www.jastram.com
John Deere	507	www.deere.com/marine
Kittiwake Americas	204	www.kittiwake.com
Knowledge Based Systems	511	www.kbsi.com
L-3 Communications Klein Associates, Inc.	314	www.L-3Klein.com
Lloyd's Register	106	www.lr.org
LUBMARINE	505	www.lubmarine.com
MAN B&W	201	www.man.eu
Marin	500	www.marin.nl
Maxim Evaporators, LLC	517	www.maximevaporators.com
MMC Intl Corp	302	www.mmcintl.com Jan 07 11
MRU Instruments, Inc.	209	www.mru-instruments.com
National Shipbuilding Research Program	403	www.nsrp.org
Navware Canada, Inc.	402	www.navware.com
Northern Lights, Inc.	411	www.northern-lights.com
Oceanic Consulting	203	www.oceaniccorp.com Jan 07 11
PolySpec Construction Services	516	www.polyspec-cs.com
PSI Marine Inc.	112	www.tideslide.com
PSI Marine Inc.	110	www.tideslide.com
Quantum Marine	213	www.quantumhydraulic.com
R.W. FERNSTRUM & COMPANY	404	www.fernstrum.com
Robert Allan Ltd	504	www.ral.ca
Rolls-Royce	501	www.rolls-royce.com
Roxul Inc	206	www.roxul.com
Scan Pacific Northwest, LLC	109	www.scanpacificnw.com
Scanjet, Inc.	311	www.scanjetinc.com
Scienco/Fast	304	www.sciencofast.com
Senesco Marine LLC	315	Jan 20 11
ShipConstuctor	502	www.shipconstructor.com
Sika Usa Inc	108	www.sika-usa.com
Sohre Turbomachinery Inc.	307	www.sohreturbo.com
Sound Propeller Services Inc.	414	www.soundprop.com
Strand7 Pty Ltd.	412	www.beaufort-analysis.com
STX US Marine Inc.	208	www.stxmarine.net
Summit Engineering and Design	513	www.sead.com
Techsol	211	www.techsolmarine.com
Thrustmaster of Texas, Inc.	210	www.thrustmastertexas.com
W&O Supply	114	www.wosupply.com
Waller Marine, Inc.	200	www.wallermarine.com
Wärtsilä North America	104	www.wartsila.com

Panel Sessions

Thursday, November 17
8:30-10:30 am
Panel Session 1
"Improving the Competitive Posture of U.S. Shipbuilding ... An International Perspective"
A panel of international shipbuilding experts will convene to discuss how to improve the competitive posture of shipbuilding in the United States.

Speakers:
• Fred Harris, President, General Dynamics NASSCO, San Diego, CA
• Won-Kang Ki, President and CEO, DSEC, South Korea
• Peter Tang-Jensen, Sr. Vice President, American Bureau of Shipping (formerly Executive Vice President, Odense Steel Shipyard, Ltd, Denmark)
• Joon-Sup Shin, Chief Technical Officer, Daewoo Shipbuilding & Marine Engineering Co., South Korea

Panel Session 2:
"Naval Architects, Marine & Ocean Engineers – Key Professionals in the Offshore Industry"
The Panelists are active professionals in different parts of the Offshore Industry and are at varying stages of their careers. They will each give a short description of one aspect of their current work along some background on their education and experience and how they came to their current positions. These short presentations will be followed by a moderated question and answer session.

Speakers:
• Philip Poll, Houston Offshore Engineering
• Guido Perla, Guido F. Perla & Associates
• Evan Zimmerman, Delmar Systems
• Amy Hickey, Transocean
• Chad Petrash, ConocoPhillips

Friday, November 18
2:30-4:30
Panel Session 3:
"LNG Fuel for Ships – Engineering and Regulatory Issues"
Ships using natural gas as the main source of fuel have considerably lower emissions without any requirement for exhaust after treatment, however, gas storage remains as a technical challenge. LNG has been successfully used to store natural gas on gas carriers and now is emerging as a potential new fuel alternative for other ship types.

Speakers:
• James Gaughan, American Bureau of Shipping
• Jim Fernie, Lloyd's Register
• Sulai Fahimi, MAN B&W
• Tony Teo, DNV

Panel Session 4:
"Public Vessel Acquisition in the 21st Century
The objective of this Panel is to share best practices and lessons learned regarding ship acquisitions in the public sector.

Speakers:
• Kevin Baetson, MSC
• Craig Schnappinger, ABS Consulting Group

Autoship

www.autoship.com
Email: sales@autoship.com

Autoship Systems Corporation (ASC) of Vancouver, Canada announced in September a new installation of its naval architecture and ship production software to Estaleiro IIha (EISA) of Rio de Janeiro, Brazil. EISA has chosen 'The AutoSHIP WORKS Package' which will allow them to carry a new project from hull lines right through to nested parts in a shorter time frame and with more accuracy. 'The AutoSHIP WORKS Package' consists of Autoship (hull design), Autopower (resistance & power prediction), Autohydo (hydrostatics & stability), Autoplate (shell expansion), Autostructure (internal structural design) and Production Manager (nesting & parts management). This system offers robust functionality with the best in GUI (graphical user interface) design, resulting in better use of the user's time. Autoship Systems continues to see strong growth amongst shipyards who realize that bringing their marine engineering in-house will allow them to have faster, better and lower cost results.

AVEVA, Inc.

http://www.aveva.com
Email: mark.mckee@aveva.com

Last month AVEVA announced that SungDong Shipbuilding & Marine Engineering Co. Ltd. (SungDong) has extended its contract for the use of AVEVA Marine to drive the design of commercial vessels. The new licenses will be used throughout its four shipyards in Korea for the design and production of vessels which include bulk carriers, container carriers and FSOs (Floating Storage & Offloading). SungDong selected AVEVA as its key solution partner due to its outstanding record in hull and outfitting solutions as well as the suitability of the AVEVA solutions for offshore design and production. Additional benefits include the protection of SungDong's legacy data and AVEVA's onsite engineering support team based in Busan, which can provide responsive local support.

Beta CAE Systems

www.ansa-usa.com
Email: sales@ansa-usa.com

The flexibility of ANSA fits well into the unique CAE requirements of Marine engineers. The 64-bit version of ANSA is a refreshing remedy for the many issues encountered when creating highly accurate and complex marine vessel models. The advanced CFD and Structural mesh algorithms, developed indigenously, work well with the fully integrated batch meshing tool. ANSA is capable of handling large – scale model building geared towards:

- Structural and CFD analysis of rotating machines
- Heat and Mass Flow analysis
- Wave Load analysis
- Ship-to-Ship collision analysis
- Component and Assembly modeling of HVAC systems
- Drag analysis of race boats
- And a host of other marine structures

CD Adapco

www.cd-adapco.com
Email: info@us.cd-adapco.com

CD-adapco has a 28 year history of providing state-of-the-art flow, thermal and stress simulation technology to the marine industry. From large shipyards to suppliers of small components, the use of our technology has become a standard feature in the marine design and safety assurance process. Using cutting edge solver technology, CD-adapco's customers have been able to tackle some of the most demanding problems that the marine industry has to offer, allowing engineers and designers to predict how designs will react in operation, before budget is committed to the construction of expensive prototypes. Recent successes include: ship keeping, slamming and sloshing; wave and wind loading on offshore and underwater structures; oil and pollutant dispersions; cavitation control and propulsion system optimization.

Dassault Systemes

www.3ds.com

Dassault Systèmes (DS)' Product Life Cycle Management (PLM) solutions are comprised of applications, services, and methodologies that address the unique needs of the industry. The solutions leverage the strengths of our brands (CATIA for defining the virtual product, SIMULIA for realistic simulation, DELMIA for digital manufacturing, ENOVIA for collaboration and business process management, 3DVIA for consumer experiences) and can be complemented by offers from our partners.

Genoa Design

www.genoadesign.com
Email: info@genoadesign.com

Genoa Design International Ltd. is a marine production design company based in St. John's, Newfoundland and Labrador, Canada. Genoa provides production lofting and detail design services to marine and offshore industries around the world. Established in 1995 as a one-person operation, Genoa has experienced steady growth based on a solid reputation as an innovative firm that pursues quality and efficiency on behalf of its clients. Many of Genoa's employees are graduates of the Marine Institute, a recognized world leader in naval architecture and marine systems technology training.

Herbert Engineering

www.herbertsoftware.com
Email: info@herbertsoftware.com

Earlier this year, Herbert Engineering Corp. (HEC) and class society ABS entered into an agreement to form a joint venture company, Herbert-ABS Software Solutions, LLC (Herbert-ABS). Herbert-ABS will offer leading edge loading and salvage analysis software packages as well as software design tools to the maritime and offshore industries. Herbert-ABS will own, market and support the existing suite of Herbert software products including its shipboard loading software (CargoMax), salvage response software (HECSALV), and load management software for offshore structures (LMP). Herbert-ABS will leverage the resources of ABS as well as HEC's offices in China and Europe to provide its clients worldwide service and support.

HydroComp, Inc.

www.hydrocompinc.com
E-mail: ashleyk@hydrocompinc.com

HydroComp NavCad is a software tool for the prediction and analysis of vessel speed and power performance. It also provides for the selection of suitable propulsion system components – engines, gears and propellers.

New technical development

HydroComp has been working since late 2009 on the development of a new architecture for NavCad, and improvements to the interface. This new platform was developed with an eye to the future, and will provide a new structure for future development.

New development leading to the initial release of NavCad 2011 includes:

- Improvements to the NavCad interface, with a more table-oriented data entry.
- A new file format, based on HydroComp's new common file standard that was first implemented in our PropElements detail propeller design software.
- Advances in the Method Expert, derived from internal R&D projects.
- Extensive improvements to existing prediction methods, such as our work on planing hull resistance prediction (with the addition of spray drag, effect of propulsor lift, and more).
- New prediction methods, including bare-hull drag for barge forms and added resistance in seaways for workboats.

Intergraph

www.intergraph.com
E-mail: lebron.miles@intergraph.com

Three marine engineering companies based in Asia and one in Brazil have earned the top prizes in the annual Golden Valve and Platinum Pipe Awards customer competitions sponsored by Intergraph. COSCO Shipyard Group and Keppel FELS Ltd. tied for Best of Show in the Golden Valve Awards Competition – the first tie for the top position in the

MARITIME REPORTER AND ENGINEERING NEWS

2012 Editorial Calendar

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January **Ad Close: Dec 22**	**February** **Ad Close: Jan 26**	**March** **Ad Close: Feb 23**
US Navy Report	**Cruise Shipping Annual**	**The Ship Repair Edition**
Market: Floating Production Systems	Market: Ports & Logistics	Market:Training & Education: Facilities & Systems
Technical: Ballast Water Treatment Systems	**ROUNDTABLE:** Satellite Communications	Technical: Software Solutions
Directory: Marine Propulsion Equipment	Directory: Marine Electronics Buyer's Guide	Directory: Coatings & Corrosion Control
	Special Report: Germany	
ASNE Day Feb 9-10	**Seatrade** Mar 12-15	**CMA** Mar 19-21 **CIMPS-Europort** April 25-27
April **Ad Close: Mar 22**	**May** **Ad Close: April 26**	**June** **Ad Close: May 24**
Offshore Deepwater Annual	**The Green Ship Edition**	**Annual World Yearbook**
Market: Offshore Wind & Renewable Energy	Market: Patrol, Escort Craft & RIBs	Market: Military Might: Innovative Designs
Technical: Offshore Service Vessels	Technical: The Integrated Bridge: Modern Bridge Technology & Technique	**ROUNDTABLE:** Information Technology & Software Solutions
Directory: Deck Machinery, Winches & Ropes	Directory: Posidonia 2012 Preview: New Technology Guide	Directory: Maritime Fuels, Lubricants & Additives
Special Report: The Netherlands	Special Report: Middle East Maritime Cluster	
OTC April 30 - May 3	**RoRo** May 22-24 **MACC** June **Posidonia** June 4-8	**Don Sutherland Photo Contest**
July **Ad Close: June 2**	**August** **Ad Close: July 26**	**September** **Ad Close: Aug 23**
Arctic Operations	**The Shipyard Edition**	**Marine Propulsion Annual**
Market: Oil Spill Response & Recovery	Market: Maritime Communications	**ROUNDTABLE:** Diesel Engine Manufacturers
ROUNDTABLE: Coatings & Corrosion	Technical: Maritime & Shipbuilding Tools	Technical: Marine Salvage & Recovery
Directory: Training & Education – Facilities & Systems	Directory: SMM 2012 Preview: New Products & Technologies	Directory: Insulation, Pipes, Pumps & Valves
Special Report: Brazil	Special Report: Singapore Maritime Cluster	
	SMM Sept 4-7	**Rio Oil & Gas** Sept 17-20
October **Ad Close: Sept 20**	**November** **Ad Close: Oct 25**	**December** **Ad Close: Nov 22**
Marine Design & Construction	**Workboat Annual**	**Great Ships of 2012**
Market: Maritime, Port & Harbor Security	Market: Offshore Service Vessels (OSVs)	Market: Port & Harbor Dredging Annual
Technical: Deepwater Floating Production Systems	**ROUNDTABLE:** Workboat Academy: Training & Education	Technical: Maritime Fire & Safety Products & Systems
Directory:CAD/CAM & Other Software	Directory:Heavy Lifting: Deck Machinery & Cranes	Directory: World Shipyards: Newbuild, Repair & Conversion
	Special Report:Turkey	
SNAME Oct 24-26 **MAST Americas** Nov 14-16 **Inmex China** Nov 21-23	**Int'l Workboat Show** Dec 5-7	* Please note that the publisher reserves the right to alter this editorial calendar. All planned features are subject to change in light of changing industry trends and developments.

11-year history of the art-meets-technology contest. Both images were of semi-submersible drilling ships designed using Intergraph SmartMarine 3D and rendered with Intergraph SmartPlant Review. Samsung Heavy Industries and Promon Engenharia of Brazil received first prize in the Platinum Pipe Awards Competition for most innovative automation ideas for SmartPlant and SmartMarine Enterprise solutions in the 3D and Engineering & Schematics categories, respectively.

NEi Software

www.neisoftware.com
Email: info@neisoftware.com

NEi Software (formerly Noran Engineering, Inc.) is a world leader in CAE innovation. Our main product, NEi Nastran, is a powerful, general purpose Finite Element Analysis (FEA) tool with an integrated graphical user interface and model Editor.

Nupas-Cadmatic

www.cadmatic.com
Email: sales@cadmatic.com

Nupas-Cadmatic ship design software was developed through a joint venture between Cadmatic Oy and the Dutch software design company, Numeriek Centrum Groningen B.V. By combining our resources we have created a design software package that provides better design solutions than traditional market offerings.Nupas-Cadmatic is a unique CAD/CAE/CAM design software package for shipyards and design offices interested in improving their efficiency, design and production. The open software lends itself to efficient hull-, machinery-, piping-, outfitting-, and interior design while efficiently creating the required production and maintenance information. The software supports concurrent and distributed design leading to more cost efficient and effective design.

Sener

www.sener.es

LA NAVAL Shipyard has recently installed the new FORAN V70, launched by SENER in November 2010, in order to take advantage of the new improvements and innovations. Engineers are receiving training courses of the new developments while new modules and applications are being installed. With a great engineering capacity, including basic and detail engineering, the shipyard can afford the design of sophisticated vessels demanded by the market. LA NAVAL Shipyard, the largest private shipyard in Spain which came out from the stated-owned organization IZAR in 2006, counts with a long and successful shipbuilding tradition with more than 100 years of history and more than 250 vessels.

ShipConstructor

www.ShipConstructor.com
mark.waldie@ShipConstructor.com

ShipConstructor Software Inc. (SSI) recently released a new version of its AutoCAD based CAD/CAM software. ShipConstructor 2012 enables users to work in the most advanced CAD environment by adding AutoCAD 2012 compatibility. AutoCAD 2010 and 2011 are still supported but the latest version of ShipConstructor empowers users to take advantage of several new tools and improvements such as enhanced surface modeling, enhanced point cloud support for laser scanning, direct access to AutoCAD WS, and in-application access to AutoDesk Exchange.

The speed of ShipConstructor has been increased yet again. The load times for distributed system model drawings have been reduced by up to 10% and the load time for viewing distributed system part property data has been cut in half. Several new features and tweaks to the interface also enable increased productivity.

New features include:

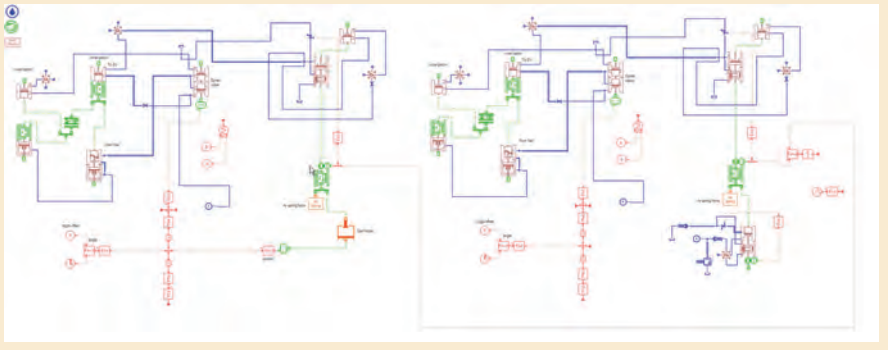
- AutoCAD 2012 Support – Support for the latest version of AutoCAD tools for enhanced 3D design, model documentation and collaboration.
- Enhanced Offset Construction Lines – Addition of geometrical constraints to individual offset construction lines without losing parametric associatively with source geometry.
- Enhanced Endcuts – Reduced number of endcut definitions required to populate a catalog with industry standard endcuts.
- One-Step Package and Deploy Project – Quickly create isolated versions of the entire ShipConstructor project for archiving or transferring.
- Side-by-side Installation – Now supported with ShipConstructor 2008, 2009, and 2011.
- Increased Speed - Load times of distributed system drawings have been significantly reduced.

Simulation Assists Wärtsilä in 2-Stroke Development

Wärtsilä, a Finland-based company, develops its two-stroke engines at the company's Center of Excellence in Winterhur, Switzer land, where specialized engineering teams work on concepts for new engines as well as redesigning and retrofitting existing models. Previously, engineers developed hydraulics, fuel injection and lubrication systems using a set of 10 specialized Fortran programs.

Each code computed only one type of variable, such as injection flow and were not linked, so results had to be manually combined to determine overall hydraulic circuit behavior. Computational models were time-consuming to set up, and pressing deadlines usually permitted only a limited number of alternative designs to be evaluated.

These issues were resolved when Dr. Frank Wrona, Team Leader for Fuel Injection and Hydraulics Analysis, converted to LMS Imagine.Lab. With this tool, the team could create a unified physics-based model that showed the interrelated behavior of hydraulic, mechanical and electrical signals of the entire system.



Complex operation of the exhaust valve drive was modeled with LMS Imagine.Lab AMESim to optimize the design of a hydraulic brake on a valve test rig that replicates gas forces.

"Instead of many separate numerical programs giving individual approximate answers, we now have all effects accurately represented in one graphical solution," said Dr. Wrona. "This unified multi-domain approach is not only more convenient and easier but much faster and more accurate."

Rather than performing differential equation calculations, engineers use a graphical interface to select and interconnect icons of valves, springs, piping and other familiar components. The resulting working sketch shows how different parts will operate together in the real world.

Output plots display predictions including fuel flow, injection pressures for various loads, generated power and pressure losses at key points in the hydraulic circuit.

Once models are validated by comparing predictions with experimental data, engineers perform parametric studies in which a built-in optimization routine automatically varies individual parameters, such as valve and pump sizes, injector cam shapes, and piping diameters. The program tries out numerous different values until performance targets such as power output are reached for the injector system and related hydraulic circuit.

The parametric optimization process is fast and saves considerable time.

"Modeling an injection system from scratch can be done in just a few days with LMS Imagine.Lab AMESim instead of months needed by highly experienced engineers dealing with all the necessary details of numerics. Moreover, the built-in optimization routine compares hundreds of different part sizes instead of only a dozen or so with the former code. We arrive at an optimal design much faster than before."

Optimization is particularly useful in refining the hydraulic system to meet tight requirements for precisely controlling injection timing and fuel quantity – key parameters impacting diesel engine emissions and efficiency. In one project, the approach was used to maximize exhaust quality and engine performance by developing a system for varying fuel flow rate over the injection cycle – a big improvement over an ordinary flat on/off injection profile.

E-mail: info.us@lmsintl.com
http://www.lmsintl.com

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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

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Minimum license required: Chief Engineer (Limited Oceans) of Motor or Gas Turbine Vessels of Any Horsepower: Second Assistant Engineer of Motor and Gas Turbine Vessels of Any Horsepower. US Citizenship required.

Compensation dependent upon experience. Benefits available. Please call: 850-249-1066 and ask for the "marine department" or forward resume to: cricket@greateasterngroup.com.

Marine Department
Great Eastern Group

FL USA
Phone: 850-249-1066

Email: cricket@greateasterngroup.com

Chief Naval Architect
Job Location: USA, Mobile, AL

Reports T0: Engineering Manager

SUPERVISES: Department Engineers, Designers and Draftspersons

AUTHORITIES / RESPONSIBILITIES:
• Responsible for the management of specific department to include work assignments, work quality, meeting project schedule and budget, personnel reviews,

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• General:
• Minimum 5 years of supervision of Engineers, Designers and Draftspersons.
• Minimum 15 years of shipyard design and construction experience or equivalent work experience
• Excellent written and oral communication skills
• Thorough knowledge of CPM scheduling
• Demonstrated ability to meet cost and schedule goals
• Experienced in interacting with Production, multiple design teams from several companies, customer representatives and equipment manufacturers.
• Computer literate and familiar with AutoCAD and Microsoft Office products.
• Thorough knowledge of ship and propulsion systems
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• US Citizenship
• Required to acquire and maintain a security clearance
• Chief Naval Architect:
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Technical Manager
Job Location: USA, Concord, CA

Responsibilities

• Performs as the Customer's main point of contact for vessel management and technical issues.
• Manage daily operations of the Fleet, ensuring that the vessels are being operated in a safe and cost effective manner while meeting all program contractual requirements.
• Performs overhaul specification development and award evaluations.
• Responsible for daily performance of all assigned fleet Port Engineer's / Vessel Superintendents.
• Ensures Safety and Quality Management policies and procedures are followed on all assigned vessels and within all levels of the applicable program organization.
• Develops budgets and business plans to accommodate regulatory requirements, mission readiness, and life cycle planning.
• Ensures that fleet purchasing activities are in accordance with approved procedures and that all contracts are in accordance with company and US Government ethical and business standards.
• Assists on or undertakes on behalf of the Program Manager specific special projects including development and implementation of new government and commercial business.
• Member of the Incident Response Team for any vessel casualty occurring in their assigned fleet.
• Member of the Human Resources Committee, which is responsible for Senior Officer assignments.

Qualifications
• BS Degree in Marine Engineering or equivalent education/experience
• US citizen, eligible for DOD security clearance at SECRET level
• Vessel repair experience as:
- Government Port Engineer or
- Commercial Port Engineer/Superintendent or
- Ship Repair Facility Superintendent or
- Regulatory class experience, USCG, ABS, DNV or other IACS body
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• Contract management experience
• Ability to apply business models for budget prioritization
• Strong communication skills, verbal and written
• Solid organizational skills and adaptability to ever changing environments
• Willingness to travel 25% of the time
• Desired
- USCG Chief Engineer, Unlimited Horsepower License
- Experience with Federal Acquisition Regulations
- Commercial ship management experience

Email resume and cover in pdf format or fax.

Lance Bardo
Patriot Contract Services, LLC
1320 Willow Pass Rd, Suite 485
Concord CA 94520 USA

Fax: 925-609-7392
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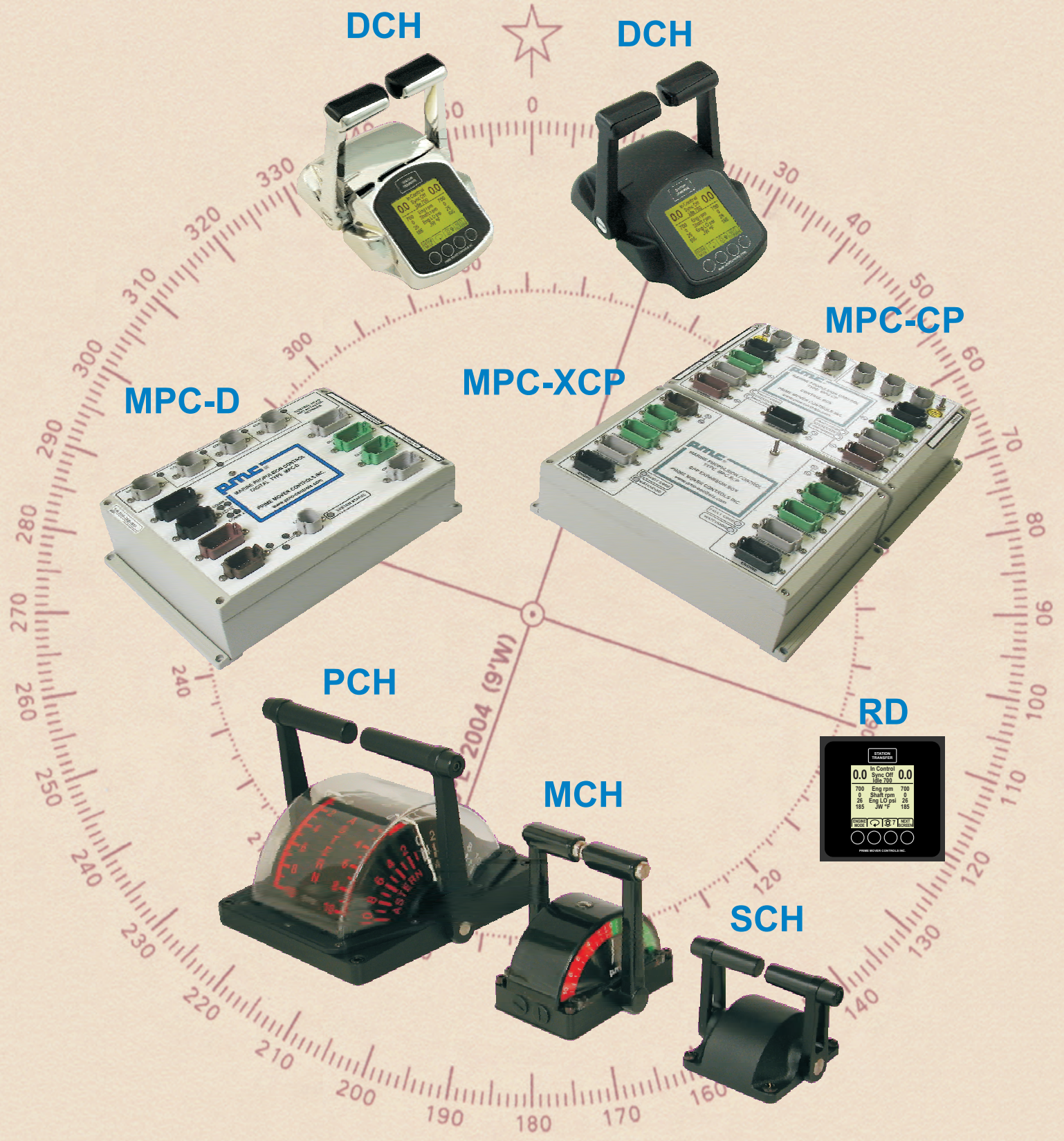

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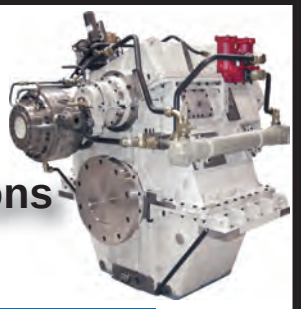

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