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On the Cover

22 Dynamic Navigation for High Speed Craft

John Haynes explains why old school navigation is neither safe nor efficient and that an alternative is required for those tasked with driving high speed maritime security workboats. The story, which describes an innovative, three-pronged "dynamic navigation methodology," begins on ***page 22****.*

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The month of December is typically when we look back to see what went right, what didn't and how our prognostications for the previous 11 months look, all roiled together in our muddy wake. In the interests of transparency, I looked back on this very same column, penned exactly one year ago. Unbelievably, some things didn't happen as I envisioned. That said; some predictions held true, and then some. Why that happened is probably more important, and another topic altogether.

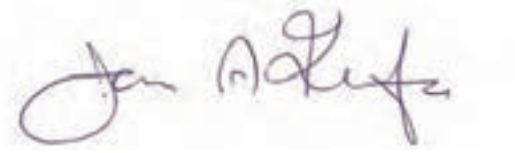
LNG, offshore wind and the Arctic: I predicted big things for all three sectors. With the benefit of 20/20 hindsight, it is clear that offshore wind, at least on this side of the pond, is still deeply mired in red tape. *MarineNews* contributor Joe Hudspeth's September column entitled, *"Waiting for the Windfall,"* surely described it much better than I ever could. We think it has to come, eventually, but often, we're not aware of what we don't know. I think that adage aptly describes the prospects for offshore wind in American waters today.

LNG? It roared early into our collective worlds and today, it continues to plow forward on all fronts, with the proverbial bone in its teeth. As for the Arctic, what seemed like a sure bet quickly faded to a back page footnote, despite the long awaited unveiling of the Coast Guard's Arctic Strategy document in May. In January, we'll revisit the Arctic (again) to see what went wrong, why, and where we might go next. Its future as an energy hub, in the face of a red hot boom in the lower 48, remains in doubt. The hiatus in action perhaps gives the regulatory and response community just a little more time to get into better position for what could come next.

The other big story for 2013, especially in terms of the inland commerce picture, had to be the intense focus on the rapidly deteriorating infrastructure of our waterways. Appropriately then, we finish with a marine construction story that gives clarity to an otherwise obscure, but critically important sector of our marine industry. It begins on page 44 of this edition. As 2013 winds to a close, the Water Resources Reform and Development Act WRD(D)A bill inches its way through the halls of Congress, hopefully to someday yield many similar success stories.

Circling back to present day, this edition also highlights innovation in the market place in any number of sectors – cutting edge maritime security solutions, better methods of delivering products and services and a raft of other interesting and high tech entries to the marine marketplace. So, if 2013 disappointed some in the offshore wind and Arctic frontiers, it certainly made up for it terms of the numbers and quality of innovative technologies introduced to the domestic waterfront.

The final edition of the year is also a time to look ahead. And, right about now you are probably looking for my predictions for the coming 12 months. That'll come in January. See you then.



Joseph Keefe, Editor, keefe@marinelink.com

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Loss of Propulsion Incidents in Emission Control Areas

It's a fact: Emission Control Areas (ECA) clean up the air that we breathe. It's also a good bet that someday, ECA's might be the primary cause of dirtier water. That's because the physical act of switching from fuel oil to cleaner burning distillates on oceangoing craft is anything but a routine event for some vessels. But, don't take our word for it – the State of California does a pretty good job of recordkeeping, and the numbers don't lie.

It's probably a good thing, then, that the U.S. Coast Guard in September published the long anticipated Non-tank Vessel Response Plan (NTVRP) and Other Response Plan regulations. Mandatory compliance will be required by January 30, 2014. This impacts self-propelled non-tank vessels of 400 gross tons or greater that operate in navigable waters of the United States and carry oil as fuel for main propulsion. The heightened level of preparedness should serve the industry well, especially given the troubling numbers coming out the Golden State. Workboats, salvage and response firms in greater numbers than ever will have to be at the ready.

The latest statistics chronicling Loss of Propulsion (LOP) incidents for deep draft vessels entering California waters show a recent (and marked) increase in this type of casualty. Indeed, and if the current trend continues, California could see its highest LOP totals since data on this type of thing began to be compiled in 2004. The numbers are important because California, unlike many places right now, requires ships to switch from fuel oil to cleaner burning distillates when they come within 24 miles of the California coast. But, other ECA's are coming, too. Beneath the raw data lurks troubling root causes and, perhaps, a glimmer of hope, as well.

The local California fuel switching rules have been in effect since 2009. And, although the requirement did not come into effect until July of that year, the number of LOP's almost immediately tripled, as compared to the previous year. Today's LOP numbers remain consistently high, as compared to pre-2009 rates, with the highest number seen in 2011, when it spiked all the way to 93 incidents. That metric was likely due to increased reporting requirements, closer scrutiny from California state regulatory personnel and better recordkeeping by the vessels themselves. Alarmingly, and although the numbers dipped precipitously last year (63), this year's rate of incident reports could eclipse that seen in 2011.

LOP's can occur because of poor fuel quality, incompetent engineroom staff, and/or poor engine maintenance. It's a fact of life that the loss of sulphur in the distillates also equates to loss of lubricity in the fuel itself. Just as the automobile industry had to deal with the loss of lubricity when the elimination of lead occurred decades ago, today's vessels are dealing with similar issues. The differences in viscosity of the two fuels add another variable to the issue. HFO is very forgiving of worn parts due the high viscosity of the fuel while the distillate isn't forgiving at all. If crews are really keeping up their machinery as their paperwork attests, then why are we still experiencing this higher level of LOPs?

California records show more than 300 LOP incidents in CA waters since 2009, with fully one-third of those confirmed as being related to fuel switching procedures. The real danger is where these incidents are taking place – close in and often in pilot waters in proximity to shallow drafts and navigation hazards. More telling, perhaps, is that fully 79 vessels have failed to comply with local fuel switching regulations, citing "safety exemptions," something that should give regulators everywhere pause when they contemplate future and stricter ECA zone(s). In the case of a safety exemption, the vessel remains burning HFO going into the berth and sometimes, going out, too. The practice of switching fuel sources on the fly involves risk and it requires skill. That as many as 100 ships

REPORTED LOSS OF PROPULSION INCIDENTS (2004 – 2013) (*)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
San Francisco	15	11	10	10	12	37	26	54	37	29
LA / LB	8	12	6	14	14	28	25	38	26	32
San Diego	0	1	3	0	0	0	2	1	0	1
Humboldt	0	0	1	0	0	0	0	0	0	0
Annual Totals	**23**	**24**	**20**	**24**	**26**	**65**	**53**	**93**	**63**	**62**

(*) 2013, 9 months through September.

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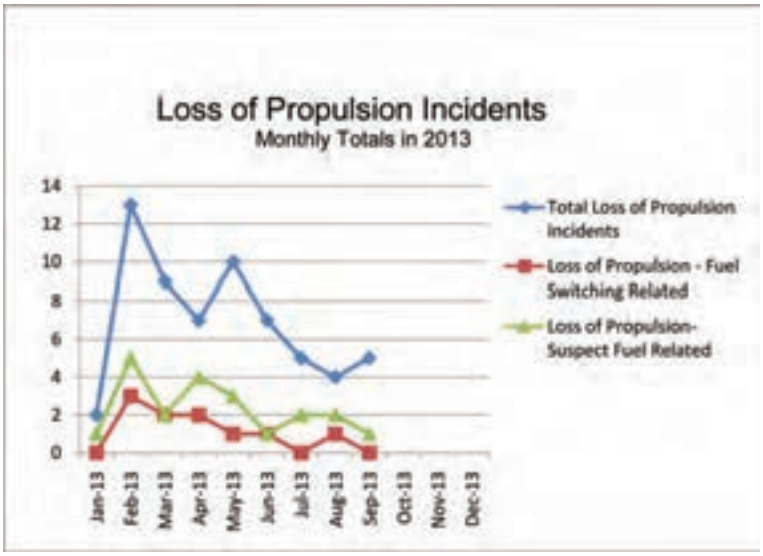
in California waters in the past four years alone haven't gotten it right is ample testimony to that.

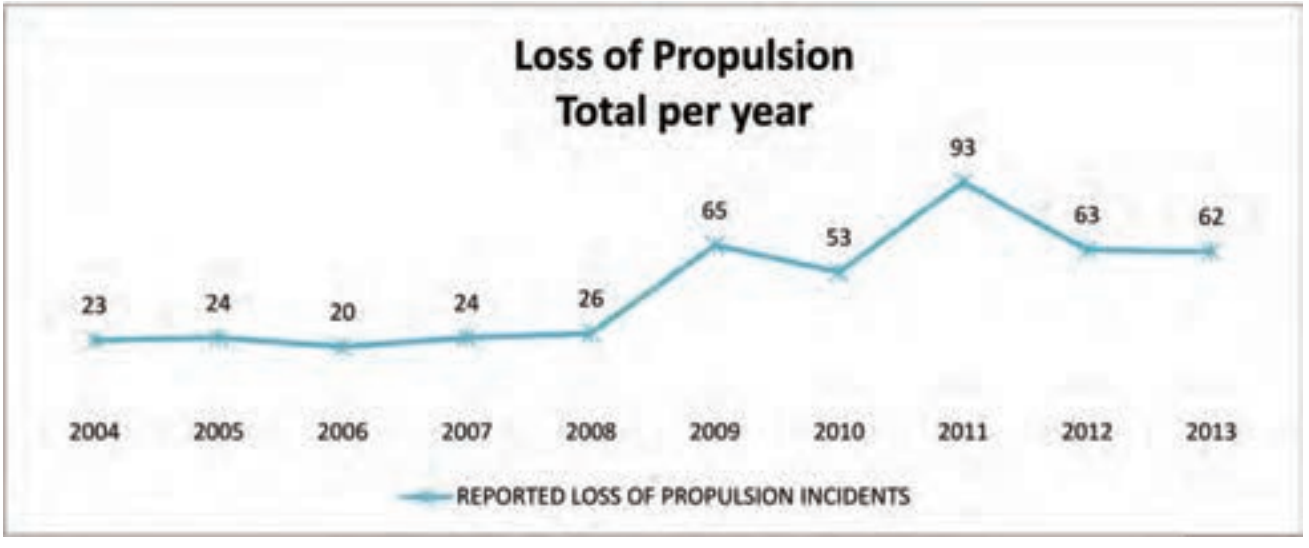
Finally, a more obscure statistic – obtained from reliable sources who did not want to be identified for the purposes of this article – involves the fact that first time visitors to California waters experienced LOP failures when switching over to distillates as much as 30 percent of the time. Hence, like anything else, ship's engineers get better at the procedure with practice. As ECA's come into effect all over the globe, these numbers loom all the more important. Also according to our source(s), the LOP numbers probably have as much to do with maintenance which, although immaculate paperwork often indicates is being done properly, is anything but. Still, and despite the fact that LOP's have increased threefold since 2009, the Coast Guard still maintains that less than half are attributed to fuel. In January of 2015, and when the NAECA comes into play, ships will be switching 200 miles offshore California. So, in many respects, and no matter what you think of the California environmental lobby, the state is the perhaps the leading indicator of what could come next. On one hand, future LOP problems will likely occur some 200 miles offshore in deep water and with time to rectify problems before the vessel begins the all important inbound pilotage leg. That's a good thing.

California's recordkeeping gives insight into quantifying the issues which arise when one regulation, intended to obviate one problem, inadvertently causes another. Global classification society DNV said recently that as much as 50 percent of the world's maritime fleet could be dual fuel-powered, as early as 2020. That's an optimistic look at the future of LNG as a fuel, but also concedes that half of the global fleet will still be running on other fuels. As operators wean themselves from heavy fuel oil, fuel switching within so-called ECA's will remain fraught with danger.



Until we clean up the way we power the vessels that crisscross the seven seas, ECA's and fuel switching will remain as part of the environmental solution. This, and the new nontank rules mean more business for workboats, salvage and response folks. In the meantime, let's just hope that cleaner air doesn't eventually translate into a preventable casualty that means dirtier water.

The rest of the data can be seen on the State of California's Fish & Wildlife website: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=38374&inline=true



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Holiday Cheer for the Waterways?

By Mike Toohey, President & CEO of the Waterways Council, Inc.

On November 8, speaking at the Port of New Orleans, President Obama said "… corn and wheat is coming down from my home state of Illinois down the river, ending up here and then going all around the world. And it's part of the reason we've been able to increase exports so rapidly is because we have some of the best natural resources and waterways and facilities in the world."

This was a victory for the inland waterways industry because while the President has recognized ports, dams, levees, trains, trucks and other transportation infrastructure, he has not, heretofore, underscored the value of the inland waterways.

The President's recognition of the inland waterways comes on the heels of the Statement of Administration Policy in support of House passage in October of H.R. 3080, the Water Resources Reform and Development Act (WRRDA).

Last May, the Senate approved its version of the Water Resources Development Act (WRDA), S. 601. The bills will next head to conference to reconcile the two versions. Senate leaders announced that Environment and Public Works Committee Chairwoman Barbara Boxer and Ranking Member David Vitter will lead the Senate conference committee on the final WRDA/WRRDA bill. Joining Chairman Boxer and Ranking Member Vitter are Democratic Senators Max Baucus (MT), Tom Carper (DE), Ben Cardin (MD) and Sheldon Whitehouse (RI). Republican conferees are Senators James Inhofe (OK) and John Barrasso (WY).

The House named its conferees on November 14 as follows: Transportation & Infrastructure (T&I) Committee Chairman Bill Shuster (R-PA), fellow T&I Committee members John Duncan (R-TN), Frank LoBiondo (R-NJ), Sam Graves (R-MO), Shelley Moore Capito (R-WV), Candice Miller (R-MI), Duncan Hunter (R-CA), Larry Bucshon (R-IN), Bob Gibbs (R-OH), Richard Hanna (R-NY), Daniel Webster (R-FL), Tom Rice (R-SC), Markwayne Mullin (R-OK) and Rodney Davis (R-IL). House Natural Resources Committee Chairman Doc Hastings (R-WA) and member Rob Bishop (R-UT) were also named.

Democratic conferees are T&I Committee Ranking Member Nick Rahall (WV) and T&I Committee members Peter DeFazio (OR), Corrine Brown (FL), Eddie Bernice Johnson (TX), Tim Bishop (NY), Donna Edwards (MD), John Garamendi (CA), Janice Hahn (CA), Rick Nolan (MN), Lois Frankel (FL) and Cheri Bustos (IL). House Natural Resources Committee member Grace Napolitano (CA) was also named.

Once decided, a final water resources reauthorization bill will head to the President for his signature into law that should ultimately make great strides in modernizing our 1920's/1930's-era locks and dams to be ready for 21st century (and beyond) cargoes. It will also modernize our harbors, ports and shipping channels.

One provision likely to be missing from a final bill is an increase in the user fee that inland towboat operators pay that is matched by Federal dollars and spent on new construction and major rehabilitation of the lock and dam system. By regular order, the House must initiate revenue measures, so the provision was missing from the Senate's bill. When the House introduced WRRDA in September, it did not include this user fee increase. The House Ways & Means Committee has said this provision is best suited to be included as part of comprehensive tax reform legislation. Industry hopes it can be added to faster-moving legislation such as a tax extenders bill that may move at year's end. Our locks and dams need greater investment, the industry is willing to pay more of its fair-share, and the time is now.

Let's hope the holidays bring the gift of final bi-partisan water resources reauthorization that can be celebrated every two years, rather than the six years since the last one in 2007. WR(R)DA truly is the gift that keeps on giving to the nation.

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Scott Metzger

President, Spill Control Association of America

Scott Metzger has been with Clean Harbors Environmental Services for more than 22 years. He is the Senior Vice President, Emergency Services and holds an oversight role for the Clean Harbors National Strike Team that manages environmental incidents. When not deployed on an event, Scott is focused on ER preparedness, readiness, training and the strategic development of response teams. And now, as the President of the Spill Control Association of America (SCAA), he's got even more on his plate. Couple this with the advent of the U.S. Coast Guard's recently published Non-Tank Vessel Response rules and it is clear that 2014 looms large as an exceptionally busy year for him. He's more than up to the task.

Based in Massachusetts, Metzger brings almost a quarter century of response experience to the table in his new role as SCAA's chief executive. Beyond this, his response CV includes dozens of major events and his industry-specific professional training covers the full gamut of response disciplines, spanning from diving and vessel operations, all the way to HAZMAT and confined space entry safety protocols. Notably, he participated in the response to Hurricanes Katrina and Rita, as well as the M/V Cosco Busan allision response in San Francisco Bay, CA, just to name a few. Listen in this month as SCAA's President responds to our queries on all things "Response."

You are the new President of the Spill Control Association of America (SCAA). Tell us about your membership and their priorities?

The Spill Control Association of America was organized in 1973 to actively promote the interests of all groups within the spill response community. Our organization represents spill response contractors, manufacturers, distributors, consultants, instructors, government & training institutions and corporations working in the industry. There are currently 85 Member Organizations that make up SCAA. Our Guiding Principals include making health, safety and environmental considerations a priority in the planning and implementation of our operations and to provide our customers with quality products and reputable service, while responding safely, effectively, and efficiently, in their time of need. We, as an industry, have a direct impact on the quality of the global environment and we will work to improve that quality. To do this, we collaborate with Government entities, customers and other stakeholders in creating responsible laws, regulations and standards to safeguard the community, workplace and environment.

What's Job 1 for you as you take the helm at SCAA? Why? And, how do you hope to accomplish that goal?

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to represent each and every one of our members and to promote the benefits of our organization to prospective members. The strength of the SCAA is in our members. The Networking power of the SCAA is incredibly strong and as President, I will continue to foster these partnerships.

The new Non-Tank Vessel Response rules have been published in the Federal Register. Did SCAA have a role in crafting any part of that document? If so, what was it?

SCAA has been asked to comment and advise on the new Non-Tank regulations and have met with the USCG to discuss how the response rules will affect our membership. The Spill Control Association is a member of a Partnership Action Team with the USCG and is often brought in to comment on proposed changes to maritime response regulations.

In your words, describe the importance of the new rules. What's the bottom line in terms of industry impact – for those operators affected and the service providers who will be called upon to provide service?

The new Non-Tank Vessel Response rules have aided in identifying risk and have helped operators plan for common pollution incidents resulting from groundings and collisions. Responding organizations, including many of our members, are consequently better prepared to service these clients today under the new rules. Through drills and exercises, they will continue, to be ready for the next call to service.

Does industry have the capacity to step in for all the new hulls now required to establish these relationships with firefighting, salvage, and response providers? Where does SCAA fit into the puzzle?

In a word: Yes. The response industry in the United States is well prepared and has the capacity to cover Non-Tank Vessel operators under the new rules. In fact, many of these clients have been previously covered by or serviced from many of our members.

Do you think your firm will need to increase hiring to meet new demand as a result of the new non-tank rules?

Not at this time.

The non-tank final rule also updates the International Shipboard Oil Pollution Emergency Plan requirements that apply to all nontank vessels and certain tank vessels. What advice would you give non-tank vessel operators today as they move forward in a new regulatory regime?

Continue to work with response industry experts to ensure that you and your designated responder can meet the requirements.

From the responder's perspective, what's the most important part of developing an effective team, especially when there can be a lot of down time between actual emergency events?

Many of our members provide a vast range of Non-Response services in addition to Response. Services ranging from on-board tank cleaning, line handling, booming, marine transfers, waste disposal to name a few. Deployment Drills and Table top exercises are also conducted during down time.

Is there an "ideal" CV for the person who is tasked with attending and/or leading an effective response effort? If so, what is it?

In a word: Experience.

Federal regulations: which emerging rules will affect the spill response community the most?

Without a doubt, the issue of Limited Responder immunity is the single biggest issue that is affecting the response community as a whole and could have a drastic effect on the Nation's ability to respond to future events. Initial response to all marine events relies heavily on local responders. Time is always of the essence when it comes to being able to quickly and effectively contain and control a spill. Many of the local responders in ports around the nation are small businesses and as such are extremely vulnerable to the potential litigation costs that so often come from that initial response … just because they were on scene lending assistance. The concern amongst many of our members and the response community as a whole is that without some added protection(s), some of these local responders may choose to take a step back when requested to respond. It's important to note that no one is saying that responders shouldn't be held liable for negligent acts, but there has to be limits.

BSEE's SEM's rules – this is a hot item right now. How will they affect how your members do business, if at all?

Also known as the Workplace Safety rule, the BSEE SEMS rule brings many of the best practices that the re-

sponse community already follows into the off-shore environment. The safety rules that SCAA members use today, under OSHA, fit very well into the new SEMS rules and as such the response community is already poised to follow the new SEMS rules. Impact to our members will therefore be minimal.

Summarize the current situation with regard to Responder immunity, what needs to be done, how you are involved and what's your best case scenario outcome?

The Spill Control Association of America is one member of the Responder Immunity Coalition that was created to focus and align the efforts of the responder community. The Coalition is working with Legal Council in the DC Metro Area to create a resolution to be added to a Bill that will enhance the current responder immunity that was part of the Oil Pollution Act of 1990. Currently SCAA and other members of the coalition are in discussion with various congressional leaders on both sides of the isle to bring this issue to a vote. Although sometimes slow going, we are certain that the current law will be strengthened and the response community will continue to answer the call when needed.

What changes do you see coming in your line of business? Why?

At the recent Clean Gulf conference, it was clear that many new technologies were emerging in the response community. These include spill tracking and response management tools. From an operational standpoint, some SCAA members may be looking towards expanding in different geographical areas. In particular, this might mean deployment of assets in shallow draft and inland areas, in order to properly address risks posed by increased inland traffic at rail crossings, pipelines and other similar areas.

The increased production of energy in the heartland is a good example of potentially bigger "response" markets. There, the shift in transportation of energy from much larger vessels into smaller, but more numerous vehicles is worth watching.

Special Opportunities for Financing Jones Act Vessels

Sustaining the ongoing boatbuilding boom can involve the lawful use of foreign finance streams. James Kearns takes a closer look at the practice.

By James A. Kearns

The citizenship requirements for vessels engaged in the U.S. coastwise trade are generally well-known. Such a vessel needs to be built in the United States; it must have a U.S. citizen crew or operator; and its ownership must meet specified U.S. citizenship requirements, depending on the form of legal entity owning the vessel (corporation, limited liability company, partnership, etc.). With few exceptions, such vessels must have a valid Certificate of Documentation from the National Vessel Documentation Center of the U.S. Coast Guard, with a coastwise endorsement. Vessels meeting these requirements are often referred to as "Jones Act" vessels, since these citizenship requirements are often attributed to the Merchant Marine Act of 1920, which was sponsored by Senator Wesley L. Jones of Washington State, and so became known as the Jones Act.

In fact, the requirements for vessels engaged in the U.S. coastwise trade to be built in the U.S. and to have U.S. citizen owners and crews can be traced back throughout our country's history, in one form or another, to statutes that were passed by the very first U.S. Congress in 1789. In recent years, adjustments have been in the U.S. maritime statutes that continue to protect these fundamental principles, while providing expanded opportunities to tap into foreign sources of capital to finance the construction of new vessels to the Jones Act fleet.

Fine Tuning

The first significant adjustment came in 1996. Prior to that time, a lender who provided loan financing for the construction or purchase of U.S. flag vessel could not secure its loan with a mortgage on the vessel unless the lender was itself a U.S. citizen. However, this limitation began to restrict the availability of loan financing to the builders and owners of Jones Act vessels in two ways. First, there were foreign banks and financial institutions that were willing to provide loan financing for the construction and purchase of Jones Act vessels, but they were unwilling to do so without the protection of a ship mortgage. Second, there was an increasing interest on the part of overseas financial institutions to acquire U.S. lenders. The First National Bank of Maryland, for example, was acquired by Allied Irish Banks in 1997.

To remove this barrier, in 1996 Congress amended the law to permit foreign lenders to secure their loans with preferred ship mortgages. This does not mean that a foreign mortgagee can now become the owner of a Jones Act vessel by foreclosing on its mortgage. The protection for the mortgagee is that, if a foreclosure becomes necessary, the mortgagee will receive the proceeds from a foreclosure sale to the extent of its outstanding loan. Most financial institutions would prefer to receive the cash than to take title to the vessel in any event.

While this increased flexibility helped to facilitate loan financing, it did not address a similar need for another popular financing structure, namely, lease financing. The effective use of lease financing for U.S. flag vessels has been ongoing for more than 35 years. This financing structure has been particularly useful when the source of the underlying credit for the financing has not been a U.S. citizen. For example, Shell Oil Company does not meet U.S. citizenship requirements because of the percentage of its stock that is owned by Royal Dutch Shell. Yet, through lease financing, Shell was able to provide the credit that supported the construction in the United States in the late 1970's of four U.S. flag oil tankers, two of which were used in the U.S. coastwise trade carrying crude oil from Alaska to California.

This was made possible by having a U.S. citizen leasing company own the vessels, a U.S. citizen operator as the bareboat charterer of the vessels, and Shell as the time charterer of the vessels. Under the regulations of the U.S. Maritime Administration, general approval has been given for, among things, time charters to non U.S. citizens. The time charter required Shell to pay charter hire to the bareboat charterer that included the amounts necessary to service the lease financing, and this component of the charter hire was then assigned by the bareboat charterer to the leasing company. This structure protected all of the fundamental interests long embodied in U.S. law. The vessels were constructed in the U.S., thereby creating U.S. jobs

and helping to maintain the shipbuilding capacity necessary for U.S. national security. The vessels were bareboat chartered to a U.S. citizen operator, thereby providing still more U.S. jobs and meeting the national security interest of keeping the vessels in the physical custody and control of U.S. citizens.

Because the financial institutions that offer loan financing for the construction and purchase of vessels also frequently offer lease financing, the same kind of flexibility that was made available for non-citizen lenders was proposed for non-citizen leasing companies. For reasons similar to those leading to the allowance of non-citizen mortgagees, in 1996 and again in 2004, Congress amended the vessel documentation laws to permit a vessel that is documented with a coastwise endorsement to be owned by an entity that does not qualify as a coastwise citizen, so long as several additional conditions are met. This special arrangement is often referred to as the "leasing company exception."

Additional Conditions

The additional conditions are necessary because, in the lease financing of a vessel, the leasing company actually takes title to the vessel. The additional conditions are designed to prevent the leasing company exception from being exploited by foreign companies that are in the business of operating vessels outside the U.S. to enter the U.S. coastwise trade. The additional conditions that must be met to qualify for the leasing company exception are as follows:

First, the vessel must be eligible for documentation with a coastwise endorsement. In most cases, this will mean simply that the vessel has been built in the United States.

Second, the entity owning the vessel must be a "documentation" citizen, in contrast to being a "coastwise" citizen. In the case of a corporation, to be a "documentation" citizen imposes citizenship requirements at the management level of the corporation, but not on it shareholders. In particular, this means that:

- *the corporation must be incorporated in the U.S.;*
- *its chief executive officer, by whatever title, must be a U.S. citizen;*
- *the chairman of its board of directors must be a U.S. citizen, and*
- *no more of its directors may be non-citizens than a minority of the number necessary to constitute a quorum. To illustrate this last requirement: if a corporation has nine directors and its bylaws specify that a majority (i.e., five) constitute a quorum, then the corporation may have no more than two non-citizen directors. The additional requirements to qualify as a "coastwise" citizen are discussed below in connection the demise charter that is required under the leasing company exception.*

Third, the entity owning the vessel must certify, when initially applying for documentation and annually thereafter, that the owning entity:

- *is a leasing company, bank, or financial institution;*
- *owns, or holds the beneficial interest in, the vessel solely as a passive investment;*
- *does not operate any vessel for hire and is not an affiliate of any person who operates any vessel for hire, and*
- *is independent from, and not an affiliate of, any charterer of the vessel or any other person who has the right, directly or indirectly, to control or direct the movement of the vessel.*

Fourth, the vessel must be placed under a demise charter having a period of at least three years and which gives the demise charterer full possession, command and control of the vessel. The demise charter must be submitted in advance to the National Vessel Documentation Center for review and approval as a bona fide demise charter.

Fifth, the demise charterer must certify that it is a U.S. citizen eligible to engage in the U.S. coastwise trade, i.e., that it is a "coastwise" citizen. A "coastwise" citizen must meet all of the requirements of a "documentation" citizen enumerated above plus additional requirements regarding its equity ownership. In the case of a corporation, at least 75 percent of the stock interest in the corporation must be owned by U.S. citizens. If any stock in the corporation is held by another entity, rather than by an individual, then that entity itself must meet the requirements for a "coastwise" citizen, and so on up the chain. When determining the percentage of equity interest in an entity that is owned by U.S. citizens, legal title alone is not dispositive. The law provides that an otherwise qualifying entity may fail to meet equity interest requirements because, for example, the equity is subject to trust or fiduciary obligations in favor of non-citizens; or non-citizens exercise, directly or indirectly, controlling voting power; or non-citizens, by any means, exercise control over the entity. The applicable equity interest requirement is not met if the amount of

equity subject to obligations in favor of non-citizens, non-citizen voting power, or non-citizen control exceeds the percentage of the non-citizen interest that is permitted.

Foreign Financing 101: it's not Rocket Science

Although the requirements to qualify for the leasing company exception might at first appear to be complex and to offer only a narrow opportunity, they are not in fact difficult to meet when a proposed transaction complies with the spirit of what was intended to be achieved. The author has been involved in several transactions in which the leasing company exception has in fact made financing available from foreign sources for the construction of vessels in U.S. shipyards that have been placed under demise charters with U.S. citizen operators for operation in the coastwise trade. One interesting development has been that some financial institutions that would in fact qualify as coastwise citizen owners have nonetheless opted to structure a vessel lease financing under the leasing company exception. They have done this either to preserve the option of later transferring their ownership interest to a non-citizen financial institution, or to avoid complications if they themselves later become the target of an acquisition by another financial institution that is not a coastwise citizen.

Finally, note that a single transaction can take advantage of all of these approaches—mortgagee flexibility, the leasing company exception, and credit support through a time charter—to obtain financing from foreign sources for the construction in U.S. shipyards, and the operation by U.S. citizens, of Jones Act vessels serving the coastwise trade of the United States.

Mr. Kearns has represented owners, operators, financial institutions (as both lessors and lenders), and end users for more than 30 years in the purchase, construction and financing of vessels engaged in both the foreign and coastwise trades of the United States, including compliance with the requirements of the Jones Act for the ownership, chartering and transfer of vessels. This work has included purchase and sale transactions, construction contracts, loan agreements, preferred ship mortgages, bareboat charters, time charters, contracts of affreightment and a myriad of vessel operating agreements. His Bar and Court Admissions include Missouri, New York, the District of Columbia and he is Patent Attorney registered to practice before the U.S. Patent and Trademark Office.

Dynamic Navigation for High Speed Craft

By John Haynes, AFNI, Operations Director of FRC International

FRC International launched the innovative 'DYNAV' dynamic navigation system for high speed craft at Chalmers University of Technology in Gothenburg, Sweden in October. The DYNAV launch event enabled attendees from Scandinavia and Europe to come together with the objective of improving seafarer safety, operational performance and interoperability on fast craft. Professional sectors organizations included Search & Rescue, Navy, Special Forces, Coast Guard, law enforcement, maritime pilots, maritime legislators, training organisation and boat builders.

Dynamic navigation is required for the professional fast craft sector because it is different from other marine navigation requirements. Because of this, the DYNAV system has been developed to manage the high operational pace and dynamic nature of transiting fast craft close to shore. Electronic navigation systems are generally not designed to deal with high octane navigation. Fast powerboats need intuitive information systems that identify where they are now, where they will be and the location of risks. Closer to aviation than sailing boats, navigating in the fast craft sector is another skill altogether.

DYNAV MANAGER was presented by Captain Fredrik Forsman of Chalmers University / Swedish Sea Rescue Society and Dr. Trevor Dobbins, Technical Director of FRC International. The one day course gave decision makers a concise overview of this next generation, resilient navigation system. Attendees were introduced to the development of dynamic navigation and the robust methodology that underpins the system. These standardized navigation procedures are designed to enhance safety, operational effectiveness and support interoperability between maritime units.

Teamwork Taught

Operating fast craft close to coastlines places a high workload on the driver and navigator. They have to work as a team to avoid shallow areas, natural features, energy platforms and other vessel traffic. These tasks are made more difficult by poor weather and adverse sea conditions.

Captain Forsman explained the evolution of the high speed navigation system, "Until the early nineties the Swedish Amphibious Corps military craft had a top speed of 20 knots, then the Combat Boat 90 (CB90) was introduced with a 40 knot capability. The CB90 was manned by three conscripts and carried up to twenty troops. The Swedish archipelago is a complex environment with numerous unmarked islands. Old school navigation was neither safe nor efficient and an alternative methodology was required. The Amphibious Corps high speed navigation system was then adopted by the Swedish Sea Rescue Society (SSRS) and adapted to their circumstances. After a number of serious accidents with commercial high speed craft, the Swedish Maritime Authority introduced legislation that called for mandatory high speed navigation training."

The dynamic navigation methodology has been developed into a robust system that is straightforward to implement within military and professional maritime organisations. The main components of the DYNAV system are simply designed to reduce risk for fast response craft undertaking dynamic, high-speed operations. First, this involves the methodology to conduct changes in direction and course. Secondly, it outlines the information required

by the navigator to plan and direct the course changes. Third, the communication of information to the helmsman to perform course changes effectively and safely. These three components are then developed into a system that is embedded within a training structure that professional training organisations can deliver.

DYNAV & Simulation

The introduction to DYNAV at Chalmers University Maritime Department included a demonstration utilising three separate full bridge simulators. These simulators are monitored from a control centre. Each bridge can accommodate helmsman, navigator, commander, communications plus supporting crew in a fully equipped bridge. These sophisticated simulators deliver a 180 degree external view with the ability to alter sea conditions, visibility and day / night for each scenario.

DYNAV MANAGER attendees were divided into groups and then assigned a bridge simulator. Lessons learned included the fundamental differences between pre-planned conventional 'ship' navigation and the rapidly changing situations in 'high speed craft' operations. Conventional navigation scenarios included planned port entry that commences with pilot vessel rendezvous at a known time and defined position. In this situation, the navigation is essentially a countdown of timing and course changes to an expected outcome. The difference with search and rescue is the dynamic nature of the situation that requires appropriate response, often at high speed due to the critical and changing nature of the mission. Each group ran a SAR mission with a rapidly evolving rescue scenario set in the challenging environment of the Swedish archipelago.

Human Factors

As maritime operations become more challenging, professional crews need to perform their tasks with spare cognitive capacity to avoid incidents and their consequences. Riding on the knife edge of success or failure is unacceptable at sea. With increasing boat speed 'navigation' is an ever increasing challenge that has to be met in order to maintain an acceptable level of safety for crew and vessel. Firstly, at high speed the navigator has less time to assess the situation and make safe and effective decisions than at lower speeds. Secondly, the navigator suffers reduced display effectiveness due to sea state induced motion that may include repeated shock and vibration. And, if the situation is complex, then the navigator will also suffer a shortage of time to complete the required tasks. At this point, the choice is either slow down or accept a reduced level of safety.

"The Swedish archipelago is a complex environment with numerous un-marked islands. Old school navigation was neither safe nor efficient and an alternative methodology was required. The Amphibious Corps high speed navigation system was then adopted by the Swedish Sea Rescue Society (SSRS) and adapted to their circumstances. After a number of serious accidents with commercial high speed craft the Swedish Maritime Authority introduced legislation that called for mandatory high speed navigation training."

Captain Fredrik Forsman of Chalmers University / Swedish Sea Rescue Society

Dr. Dobbins demonstrated how Human Factors impact on all operations at sea. He showed examples of accidents and explained, "Navigators cannot be trained to cope with every single possible situation that they can expect to encounter. If a situation, environment or location is new then the navigator is unlikely to have had the opportunity to gain the experience needed to make good decisions based on local knowledge. Even an experienced operator will encounter new situations and in that perspective they are a novice. The DYNAV methodology / System supports good decision making in new or unique situations for all levels of operators."

The helmsman's task of driving the boat alters with higher speed. There is a greater responsibility for own craft and other craft that is controlled by the International Regulations for Preventing Collisions at Sea (IRPCS). Slow going vessels may not be expected to keep a lookout to the horizon trying to identify high-speed vessels that they should give way to. Therefore, high speed craft have a greater responsibility when encountering situations with significantly slower craft.

Standardized Methodology = Interoperability

The use of a standardized methodology also facilitates interoperability between agencies and nations. The DYNAV process is primarily designed to support Green Water (littoral / coastal) and Brown Water (riverine / estuary) water environments but can also be used for Blue Water (open sea) operations. DYNAV is designed to work with all vessels in all situations. Due to the nature of current international operations the focus is on Rigid Hull Inflatable Boats (RHIB), planning craft, novel hull forms and hovercraft. The DYNAV standard is designed to be a robust process that may be adjusted for use with specific sectors including military, security, Search and Rescue (SAR).

Equipped with standardized DYNAV information, the fast boat driver is able to conduct the next turn or action with confidence. Captain Forsman explained, "In DYNAV, information is communicated with a standard protocol. The navigator gives the driver a general briefing about the situation then there is a set of standard instructions that gives answers to fundamental questions; Where are they going now? Where and how to execute the next turn? Where are they are going next? Where should they not be? How do they know they are safe?"

The traditional school of navigation recommends knowing the vessel's position at all times. This is simply not possible for high speed craft and the problem is accentuated as speed increases. Conventional navigation has a requirement for Location Certainty. DYNAV recognizes that in high speed operations it can be as important to know where 'the craft is not' as knowing where 'the craft is'.

The cross checking of information sources within the Situation Awareness (SA) process reduces the risk of errors and enhances the navigators Location Certainty to facilitate the 'Plan' phase of the DYNAV method. Gaining and maintaining SA includes the procedure of checking and cross-checking sources of location and environmental information to inform the navigator and enhance the certainty of the crafts current status within its surroundings. These sources of information may include visual, paper chart, radar, electronic chart, heading, course over ground, depth and GPS.

DYNAV Curriculum

The FRC International DYNAV System covers all aspects starting with DYNAV PRE learning that can be delivered as eLearning or in the maritime classroom. DYNAV C2 is on-water training that focuses on Command & Control teamwork skills where the navigator uses the

standard command protocol to communicate with the helmsman. DYNAV SIM allows operators to push themselves beyond their current limits using simulation, similar to flight training. DYNAV ADV increases the tempo and introduces specialist applications such as LCAC and riverine operations. DYNAV MIL deals with poorly charted coastlines, more complex environments and the need to interact with C4i systems plus operate with other craft, aircraft and land based assets.

The standardized DYNAV System can enhance operational effectiveness and support interoperability. In 2007, US Coast Guard Vice Admiral Parker said, "New international training standards are required that address not just the competence of fast boat handling in the vicinity of other platforms, but the capability to be interoperable with other organisations and agencies during maritime operations."

FRC International Training Director, Jon Hill describes best, perhaps, how DYNAV can be incorporated into a standardized training system for fast boat operations. "Standardization For Interoperability (SFI) is a recognized requirement across many professional sectors. The FRC (Fast Response Craft) training and qualifications system supports effective interoperability between both national and international organizations."

John Haynes**, AFNI, is Operations Director of FRC International and a presenter of DYNAV and WBV courses. He is a Yachtmaster Ocean and Advanced Powerboat Instructor. Subject matter expertise includes high speed craft consultancy, product development and specialist training. On the Web: **www.frc-int.com** / E-mail: **info@frc-int.com

Safe & Sound

Marine Engineering and naval architecture students provide a fresh perspective on design, safety and innovation, too.

By Joe Hudspeth

When most of us board a passenger ferry, thinking about the safety and stability of the vessel will rarely cross our minds. Typically, those thoughts are obscured by other "more important" things, along with the distractions of electronic devices that keep us so pre-occupied that we even tune out the essential safety briefing that occurs during departure. While the record of U.S. Coast Guard inspected passenger vessels is outstanding and evidentiary of why we take safety for granted, the loss of even a single life is one too many. Unfortunately, given the condition of the design, construction, and maintenance for many passenger ferries in underdeveloped countries, passengers often jeopardize their lives upon boarding.

The tragic headlines regarding passenger vessels are surprisingly frequent and tend to extend far from home, but the problem still lies in the backyard of our global industry. The solution to ensuring safety on passenger vessels can be found in a simple two-pronged approach. First, the vessel needs to be of sound construction and, of course, the crew needs to be properly trained to implement safety procedures. The World Ferry Safety Association recently sought after a fresh perspective to tackle the foremost issue by initiating an international design competition for students studying naval architecture and marine engineering. While the scenario for the design competition was focused on providing solutions for the ferry service in Bangladesh, the overall premise was to develop a safe and affordable passenger ferry design.

The competition isolated the onerous influences of bureaucratic red tape and kept the focus on safety, functionality, and affordability and in the end yielded innovative yet practical designs. The competition elicited entries from seven student teams hailing from universities in India, Germany, Turkey, Greece, Canada, and the United states. I was pleased to serve in the panel of judges that also had representation spanning the globe.

The Competition

Initiated in February, the Worldwide Ferry Safety Association (WFSA)'s annual student competition for the design of safe affordable ferries to serve developing nations called for ferries to be designed according to specifications of a particular developing and emerging market nation. This year, the country was Bangladesh. A top prize of $5,000 was offered with additional prizes of $3,000 and $1,000, with winners invited to an award ceremony at the annual SNAME conference.

Launched in response to the tragic record of ferry fatalities in parts of the developing world, the competition builds on a ferry safety project initiated by Interferry – a professional organization, in partnership with the International Maritime Organization (IMO). IMO also organized Ferry Safety Information-Sharing Forums in South East Asia and the South Pacific. These experiences indicated that one of the most difficult problems to address was the lack of safe affordable ferries. WFSA's Executive Director, Dr. Roberta Weisbrod, explained, "We decided to emulate design studios addressing other developing world problems and thereby unleash innovation for all. In addition to generating new designs, another goal is to let the maritime community know about the opportunities in emerging markets."

The 2013 competition called for an innovative concept for a ferry prepared to basic design detail. The terms of reference are for a ferry able to transport 500 passengers along Bangladesh's inland river system, between Dhaka, the capital (and a major commercial center) and Barisal, a region 250 km to the south. The ferry had to be safe to operate in the conditions of the waterway and weather, and meet required passenger capacity guidelines. Additionally, the ferry must be affordable to construct, acquire, operate, maintain, and repair. Upon registration, full specifications will be provided. Student teams were encouraged to collaborate among disciplines and across national boundaries.

Ultimately, the WFSA top prize was awarded to the

student team from the University of British Columbia, Canada. The team designed a monohull vessel that had exceptional stability characteristics. The entry was very complete in terms of design features and cost and fuel analysis. Features include CNG fueled engines, modular cabins, and handicapped access. The second prize was awarded to a team from Tolani Maritime Institute, Pune, India, and two third prizes were awarded to teams from Istanbul Technical University, Istanbul, Turkey and University of Applied Sciences, Bremen, Germany.

Tolani Maritime Institute team also designed a monohull vessel that was extremely stable with good under-keel clearance, made allowances for upstream and shallow water effects, with redundancy built in with twin screws and diesel engines. Istanbul Technical University students' submission had good overall design appropriate to the route characteristics and was clearly designed for the comfort of passengers and tourists. The University of Applied Sciences of Bremen students designed a vessel that was stable, with double sides and double bottoms, with redundancy in engine rooms and twin screws, and with bow thrusters for docking.

The Worldwide Ferry Safety Association is dedicated to improving ferry safety in developing nations. WFSA is a not-for-profit Delaware corporation initially founded in 2004, presently waiting IRS notification of reactivation of tax-deductible status.

When Pigs Sail:

In Bangladesh, overloading and poor stability characteristics do not bode well for vessels that venture out into the turbulent waters and aggressive storms that are common to the region. Perhaps you may be able to

... student teams focused on developing unique aspects of their design offering through consideration of various hull shapes, propulsion systems, and stability factors. **Each team intentionally embraced the desire to place equal importance on safety, functionality, and affordability. In the real world, however, buyers often foolishly put their top priority on price,** followed by functionality, and any consideration of safety is either taken for granted or ignored altogether.

relate to an uncomfortable elevator or subway experience, but the concept of vessel overcrowding is typically unfamiliar to most Americans. In countries like Bangladesh, little is done to regulate the number of passengers when operating subsidies do not exist and owners rely solely on any revenue that can be generated through tickets sold. Tabulating the vessel load prior to sailing is complicated by frequent stowaways and is further compounded when contending with the boarding of livestock and an abundance of other extraneous cargo. A simple, well-marked load line may provide the best precautionary indicator as long as operators are required to keep it above water.

Pupil Perspective:

In general, the student teams focused on developing unique aspects of their design offering through consideration of various hull shapes, propulsion systems, and stability factors. Each team intentionally embraced the desire to place equal importance on safety, functionality, and affordability. In the real world, however, buyers often foolishly put their top priority on price, followed by functionality, and any consideration of safety is either taken for granted or ignored altogether. The submissions included a tri-hull, catamaran, and varying shallow draft monohull designs. The proposed propulsion systems ranged from twin screw applications with conventional propulsion, to redundant diesel-electric prime movers, to the top prize winning proposal that featured a single screw, compressed natural gas (CNG) propulsion system. The students also proposed creative solutions to limit overcrowding through restrictive points of embarkation and clearly defined passenger areas – with an emphasis on suitable evacuation routes and survival craft.

The winning entry, submitted by the student team from the University of British Columbia, Canada was comprehensive and viable. The design featured a conventional monohull shape that was optimized for stability with the consideration of a 70% overcrowding factor. The structure was presented in a way that demonstrates ease of construction without the requirement for specialized tools or a highly skilled workforce. Starting with a well structured hull goes a long way, but the UBC students were also able to successfully implement a plan for managing passengers once they boarded.

It was impressive to see innovation that included responsive anti-healing systems, specialized navigation monitoring systems, and even the use of deployable floatation fenders (air bags) that will counteract the heeling moment. In this case, the key is to incorporate advanced technology where it makes sense, while still holding close to the goal of making an affordable design. Actions to implement a safer design are contingent upon a tangible cost. It is unlikely that passengers will be restricted or that that the weather can be tamed, therefore building better boats will have the greatest impact on safer transportation.

Hope on the Horizon

Circling back, vessel safety should never be taken for granted no matter where in the world you board. For example, and only after two tragic and deadly incidents in the United States, policy makers decided to take a closer look at stability. It was only 2 years ago that the U.S. Coast Guard took bold measures to change the way passenger weight was factored for stability calculations from 160 pounds per person to now 185 pounds. Beyond the issue of safety and stability, the move correctly accounted for today's bigger – and heavier – average American. Sure, the new calculation may limit passenger capacity in certain applications, but is simply changing the equation accurate enough? Naval architects now have access to advanced software and computing power to perform damage stability modeling whereby accurate cause-and-effect scenarios can be run to model the flooding impacts of various compartments. Similar software programs are available to model the dynamics of an onboard fire or even illustrate plausible evacuation scenarios.

Looking ahead, and according to the Worldwide Ferry Safety Association, the next student Safe Affordable Ferry design competition will involve the design of an inter-island ferry for challenging waters of the South Pacific, where there have been several major ferry accidents in recent years. Ferries there are generally purchased secondhand and funds for new builds are scarce.

Engineering solutions into a new design is expensive, but value of the investment is much greater than the cost of a lesson learned. The safety factor for vessels cannot be revolutionized overnight and surely one design will not be suitable for the global market. Change can happen and there is hope that organizations like the World Ferry Safety Association increase the potential for improvements in all facets of boat design; one design competition at a time.

Joe Hudspeth *is Vice President of Business Development at All American Marine, Inc., a manufacturer of high speed passenger ferries, excursion vessels, and work boats, in Bellingham, WA. Hudspeth has been involved with maritime sales, marketing and product development since 2000. He currently serves as a regional co-chairman for the Passenger Vessel Association and participates on several committees concerned with marine industry issues. Reach him at* ***jhudspeth@allamericanmarine.com***

Innovative Exports Elevate Expectations

Building patrol boats is big business, especially for foreign defense needs. U.S. yards compete on a global stage in the all-important maritime security workboat arena.

By Susan Buchanan

Patrol boats have continued to enhance bottom lines at many U.S. vessel builders this year through sales that are usually government directed or assisted. Budget cuts are a concern, but the sector's federal funding remains high. Patrol boats are sold to other nations under the U.S. Foreign Military Sales or FMS program, authorized by the Arms Export Control Act to provide defense items. FMS sales of all goods and services were an estimated $25 billion in FY 2013, below a record $69 billion the previous year, but exceeding an average of $10 to $13 billion annually before FY 2006. The U.S. government, with an eye to military-equipment competitors, including Britain, France, Russia, Brazil, China and South Korea, intends to remain a top supplier. For their part, U.S. builders have combined to create an enviable $410 million trade surplus, during last year alone.

Domestically, the U.S. Coast Guard has continued to fund Fast Response Cutters (FRC) to replace an aging fleet of patrol boats and conduct search-and-rescue, secure borders, interdict drugs, respond to disasters, enforce immigration laws and prevent terrorism. But with tight state and municipal finances, fewer funds and grants are available to pay for patrol vessels for local government entities.

Abroad, patrol boats are needed to counter terrorism, crime and piracy and to shore up weak maritime defenses. "Large vessels with limited mobility have become sitting ducks for motivated terrorists with small boats," Robert

Stevens, CEO of Tampa Yacht Manufacturing in Florida, said last month. Coastal and littoral protection has been stepped up in response. "Nations are particularly concerned about the possibility of asymmetric threats, presented by countries equipped with a number of small craft, such as Iran," he said. "To combat these threats, similar, small-craft defense is required."

Piracy is also on the rise, contributing to the need for patrol boats. Last year, a record number of boardings by pirates occurred in the Gulf of Aden between Somalia and Yemen, Stevens said. And because today's maritime security missions cannot, by themselves, be performed by traditional bluewater hulls, the smaller workboat model comes increasingly into play. But the cumulative needs of the maritime security workboat sector demand much more than just more hulls. Innovation and cutting edge features therefore trump sheer work volume. Fortunately, there is plenty of the former to go around.

Innovation of a Different Kind: Co-Building Strategies

A 28-meter patrol craft, made of steel with an aluminum superstructure, is Swiftships' best known and most stable Egyptian navy platform, Shehraze Shaw, CEO of Swiftships Shipbuilders, said last month. The Morgan City, La.-based company introduced its parent craft to Egypt in1983 through U.S. Foreign Military Financing, a program providing security to friendly governments--including border and coast guard duties performed by the Egyptian navy.

"Thirty years later, this relationship has grown into co-production to facilitate economic development in Egypt via joint funding," Shaw said. Vessels produced through the liaison are the basis of the company's coastal brigade, 28-meter patrol boat.

Swiftships' 28-meter sales to Egypt are under an International Traffic in Arms Regulations-approved program. The Egyptian Navy has requested up to thirty 28-meter vessels. Swiftships and the Egyptian navy are co-producing these vessels under FMS at Egyptian Ship Repairs and Building Co. or ESRBC in Alexandria, Egypt. The latest six vessels, PB 595-600, were constructed under FMS.

Shaw said the patrol craft's parents are thirty years old and still in operation. Hulls for new vessels are numerically cut and built in accordance with the American Shipping Bureau and High Speed Navy Craft rules. "This vessel has a long service life and utilizes materials and designs that allow it to be produced easily in different yards under proper guidance," Shaw said. "Security advantages include ease of operation, along with minimal training and maintenance needs, thereby limiting off-time or time not patrolling."

In this case, co-production is probably the most significant aspect of the company's relationship with Egypt, Shaw said. "And we intend to promote this strategy globally on numerous vessels of different styles and sizes," he said.

Field Replacement & Repair: Tampa Yacht Packs Value into Each Hull

In Pinellas Park, Fla., Tampa Yacht is in a mid-contract build for ten boats for the Indian navy. Introduced this year, the 11-meter, or 36-foot advanced composite, deep-vee monohull craft was designed and built to strict cost and weight standards. "This craft provides the customer with controlled lifting limits for berthing on mother ships and at the best value for their investment," CEO Robert Stevens said last month. "Follow-on contracts may include a version adapted to air-drop configuration for extended, ready deployment."

For its 36, rigid hull inflatable/hybrid collar boat, Tampa Yacht chose a wing collar assembly. Its universal and adaptable hybrid collar offers many of the advantages of fully inflated collars, without some of the drawbacks. The collar's shape and size is established mainly by a closed-cell polyethylene foam core. That makes the collar robust, shock absorbing and non-collapsible. "A polyurethane skin and neoprene rub guard provide excellent abrasion resistance, yet a soft interface for shouldering other craft," Timothy Chalfant, chief naval architect at Tampa Yacht, said. "And the contained, inner bladder ensures a drum-tight fit to the final assembly."

Field repair and replacement of the RHIB's collar are key features. A deck ring receiver incorporates bolt rope extrusions top and bottom, providing attachment points for sliding the collar assembly on and off the boat. The foam core and sheathing can be installed fairly easily from

Ocean Marine's Riverine Assault Vessel.

Bollinger's Sentinel Class Fast Response Cutter.

bow or stern, Chalfant said. Final insertion and inflation of the entrained bladder completes the installation and provides tightness for service. All parts are standardized and interchangeable among sister craft.

Built to International Association of Classification Societies or IACS standards, like most Tampa Yacht vessels, the 36 RHIB allows for added, storable and deployable crew-ballistic protection panels, along with a manually activated, self-righting bag fixed to the aft-mounted arch mast. Customer-requested features include shock-mitigating seating for 16 passengers, split helm consoles, fore and aft lifting strong points and weapons foundations. The boat is Ultrajet propelled, with power from twin Fiat Power Train Model 560 diesel engines to operate at over 40 knots in Sea State 3 and above.

Bollinger Delivers Proven Design in Sentinel Class FRC's

Lockport, La.-based Bollinger Shipyards delivered its 154-foot, patrol craft CHARLES DAVID JR. to the U.S. Coast Guard on August 20. That boat was the seventh in a 58-vessel, Sentinel-Class Fast Response Cutter program. "To build the FRC, Bollinger Shipyards used a proven in-service, parent-craft design, based on the Damen Stan Patrol Boat 4708," Skip Bowen, vice president of government relations at Bollinger, said last month. The risk-adverse Coast Guard insisted on a proven hull form – and that's what they got.

The CHARLES DAVID JR has a minimum top speed of 28 knots, along with state-of-the-art command, control, communications and computer technology, and a stern launch system for the vessel's 26-foot cutter boat. "The FRC has been described by senior Coast Guard officials as an operational game-changer," Bowen said.

The cutter is armed with a remotely operated 25-mm machine gun mount and with four, crew-served .50-caliber machine guns. "The FRC's design allows enhanced sea keeping for operations in very rough waters," Bowen said. Beyond this, a sophisticated command-and-control system operable with the Coast Guard's existing and future assets, also works with those of the U.S. Departments of Homeland Security and Defense.

Ocean Craft's Newest Output: Riverine Assault Vessels

Ocean Craft Marine's 12.5m riverine assault vessel, OCM 1250-RAV, will be delivered in 2014 and is built in several configurations for customers in the GCC or Gulf Cooperation Council countries and South America, Todd Salus, vice president at

Ocean Craft in Annapolis, Md., said last month. The Gulf Cooperation Council includes Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE.

Built of aluminum alloy and powered by twin, inboard diesel water jets, at 880 HP, the assault vessel can reach a top speed of 42 knots. "With a sharp forward dead rise and shoal draft of 27 inches, it's ideally suited for law enforcement, security and military operations in both inland and riverine environments," Salus said. The vessel has a number of options, including shock-mitigating seating, gyro-stabilized thermal imagery, NVG-compatible lighting, ballistic-protective panels and windscreen, crew-serve weapon mounts, countermeasure launchers, and electro-hydraulic articulating bow and stern ramps.

"Capable of beaching at speed and emergency stops, our assault vessel is transportable by rotary and fixed wing aircraft, and provides unrivaled, close-quarter maneuverability with durable, robust propulsion for prolonged patrols," Salus said. "To date, we have contractual orders in house for fourteen hulls, and we expect to at least double that number before the end of 2014."

Willard Marine: Aluminum Specialty for Foreign Navies

Willard Marine in Anaheim, Calif. is building three patrol craft for the Ukraine navy under the U.S. Navy FMS program. Based on the 7m (23 ft. 9 in.) RIB hull that Willard developed for the U.S. Navy, vessels for the Ukraine are being constructed in aluminum to meet that customer's needs for speed, sea keeping and mission capabilities. The Cummins-powered vessels will be used for rescue and patrol missions and can be launched from larger mother ships. The craft's hull is 5086 aluminum, and the inflatable collar is polyurethane-coated nylon, with seven separate chambers.

Willard has supplied similarly designed, 7m aluminum RIBs to the Iraq navy with Yanmar 430hp diesels and water jet drive. "The Yanmar engines have been designed to function well in the extreme heat and dust that they'll encounter in their operating environment," said Richard Bryson, Willard Marine's director of engineering. The 7m RIBs have a carrying capacity of six people, including three crew. "Our new boats showcase Willard Marine's ability to build in aluminum with the same high quality as our composite boats," Bryson said.

RiverHawk: High-Speed Interceptors on Patrol

SeaStriker 22, operating since October 2012, is a high-speed, patrol interceptor built by RiverHawk in Tampa, Fla. The SeaStriker responds to international demand for affordable and effective answers to surface threats in the lit-

Representative Companies Delivering Patrol Boats

Company	Vessel	Client	Features
Bollinger	Fast Response Cutter	USCG	… state-of-the-art command and communications technology; rough-seas operation.
Euro Marine (*)	PI-65 Patrol Boat	Foreign Client	… lateral stability; on plane quickly; conserves fuel.
Ocean Craft	Riverine Assault	GCC/S.America	close-quarter maneuvers, robust propulsion for long … patrols.
RiverHawk	Patrol Interceptor	Prototypes	… speed; stability; integrated navigation and electronic systems.
Swiftships	Patrol boat	Egyptian Navy	… ease of operation, long life, minimal training and maintenance needs.
Tampa Yacht	36' RHIB	Indian Navy	… robust hybrid collar; convenient field repair; good value on investment.
Willard Marine	7m RIB Hull	Ukraine/Iraq Navies	… aluminum with inflatable collar; functions in heat and dust.

Sources: Company data / (*) hull assembled in Netherlands.

Fast Attack 50 craft from Tampa Yacht.

The Willard 7 meter solution.

torals, Jacob Shuford, RiverHawk's development director, said last month.

In partnership with Raytheon and Rheinmetall, RiverHawk designed, built, outfitted and operates the 22-meter Striker, a 55+ knots full load, high-performance craft optimized for tactical environments. "We built the 22 as an operational prototype," Shuford said. "We bought it ourselves for development."

The Striker 22 is a modern, composite hull form, with a 500 nautical-mile range and accommodations for multi-day operations. Its innovations include speed, stability and integrated electronics to ensure responsiveness and flexibility in missions. The Striker 22 is optimized against multi-axis, multi-wave, high-speed aggressor watercraft. The craft introduces Raytheon's Command Bridge, integrating navigation; tactical planning; EO/IR or electro-optical/infrared sensors; ECM or electronic countermeasures; and missile and gun-fire control functions into one system.

The Striker's platform has twin 12.7 mm advanced, stabilized remote-operated mounts. The craft can accommodate a larger, medium-caliber gun such as Rheinmetall's MLG-27 and a surface-to-surface missile launcher system, like Raytheon's Griffin.

Other features include network-capable communications. Speed and C2, or command and communications, allow the Striker to surge assets and concentrate deterrence in response to intelligence or alerts. Forward, remote-controlled, stabilized mounts and aft-deck crew-served weapons provide accurate, redundant, overlapping, high rates-of-fire. Aft deck supports fast-roping operations and USV/UAV/Comb, or unmanned surface and aerial vehicle combat. Notably, RiverHawk also markets 16-meter and 31-meter craft in its SeaStriker series.

Euro Marine's Maneuverable, Enigmatic PI-65

Euro Marine Ltd.'s 20-meter PI-65 is a high-performance, aluminum patrol boat, operating from land or maritime platforms. With it, the company has redefined an enigmatic, hull-form concept dating to the early 1950's. The PI-65 is designed to combat piracy in international shipping lanes and to protect offshore assets, including oil platforms and wind farms. Arguably, the PI-65 brings together all of the desirable aspects of the maritime security platform, while allowing operations in a multiple conditions.

Amidships, the PI-65's hull flares into an enigmatic form, creating five planing surfaces--a flat box keel, two inner chines and two outer chines. The design allows for a highly efficient lift onto a plane and excellent lateral stability, Bill Rigby of Euro Marine said last month. The aft section provides stability through its relatively flat, wide shape, while its concave form sends clean, non-turbulent water to the propulsion area, creating a slipstream for the props.

The single-engine, propeller operation of the craft's Hydro-Multi-Lift hull form doesn't push against the keel and consequently, vessel steering isn't affected the way it is in deep-V hull forms. As a result, water entering the propeller area is clear of turbulent backwash from the keel. Captains can cut to using one engine on long voyages since the aft-hull shape eliminates the steering action that a single, rotating prop causes.

The Hydro-Multi-Lift hull is on plane quickly, conserving fuel for longer ranges and extended cones of interdiction. The boat has a fuel capacity of 14,000 liters; in itself, a new standard for offshore patrol vessels. Another chief benefit of the Hydro-Multi-Lift design is its shallow draft. The low displacement of newly introduced Alustar high-strength, light-weight, corrosion-resistant marine aluminum, coupled with the elimination of the deep-V amidships, makes it possible to maneuver the PI-65 in areas too shallow for other vessels.

The PI-65 offers the ability to patrol beyond sheltered harbors and bays, in open water and past the Departure Sea Area to operate safely in Beaufort-scale 10 storm conditions. On orders to deploy for interdiction, PI-65 gas-turbine-powered boats can switch from electric APU fuel-conservation, auxiliary power to main turbines running at 75 percent power. The craft can be brought on plane to 50 knots for high-intercept speed.

To date, two PI-65 have been delivered to undisclosed foreign buyers to provide security for offshore and coastal installations, Rigby said.

"As the role of the 600-foot warship becomes less effective in combating piracy, terrorism and other security threats, a new concept is emerging of using a number of small, high-speed vessels capable of speeds of 50 knots," he said. Euro Marine has U.S. offices, but assembles the hulls in the Netherlands.

Demand Continues, Export Markets Strong

"Smaller nations that previously benefited from the presence of larger nation navies are now rethinking their defense situations," Tampa Yacht's CEO Stevens said last month. Because of budget tightening, large navies are reallocating resources closer to home. "Smaller nations are now making serious plans for their own defense, and these plans include a significant coastal element," using patrol boats, he said. When they do, they'll also turn to U.S. builders for quality, price, reliability – and yes – innovation, too.

Non-Tank Vessel Response Rules – and YOU

Long awaited, much hyped, the new rules require compliance in January. Will industry and more importantly, the response community, be ready?

By Joseph Keefe

In September, the U.S. Coast Guard published the long awaited Non-tank Vessel Response Plan (NTVRP) and Other Response Plan regulations. The U.S. Coast Guard cites "Improved preparedness and reaction to an incident, including a worst case discharge, and improved effectiveness of shore-side and onboard response activities" as the primary benefits of the new rule. For all affected vessels, a mandatory compliance date of January 30, 2014 looms large the porthole. The regulations impact self-propelled non-tank vessels of 400 gross tons or greater that operate in navigable waters of the United States and carry any kind of oil as fuel for main propulsion. It is noteworthy that the NTVRP requirements for planning of response services are scaled to oil carrying capacity. Hence, small non-tank vessels with less oil carrying capacities will have fewer functional planning requirements.

The new rule also stipulates that non-tank vessel owners operating in and out of U.S. waters enter into agreements with a Salvage and Marine Firefighting (SMFF) provider and list predefined response resources in the VRP. As many as 14,000 vessels will ultimately be required to comply with the SMFF requirements. The Coast Guard itself says that the NTVRP final rule will impact an estimated 12,000+ nontank vessel users, with foreign-flag vessels comprising the majority of the vessels affected. While the costs of the rules are spread between U.S. and foreign nontank vessels, approximately 40 percent of this final rule's $263 million 10-year cost will ultimately be borne by domestic vessel owners/operators.

Like any other Coast Guard rulemaking effort, questions remain unanswered as stakeholders from all sides of the equation ramp up for increased business, the cost of yet another regulatory burden and the hassle of ensuring compliance. That said; a visit with Lindsay Malen, Director of Business Development at TITAN Salvage and the Marine Response Alliance (MRA) shed additional light onto what is coming, what's already in place, and why you should care.

Capacity and Wherewithal

Non-tank vessel owners are required to submit their Vessel Response Plan to the Coast Guard by January 30 2014. That much is cut and dried. Looking ahead to see if the response community itself is ready is another thing altogether. According to MRA's Malen, the new rules primarily signal a sea change in terms of how operators do business. "I think that we have been prepared for a long time for the actual volume of business. The MRA has been listed in NON TANK VRPs for the past 20 years and it is just that now the USCG is actually enforcing this regulation and making non tank operators have a contracted Funding Agreement in place. This will mean more paperwork for everyone, the owner/operator, the QI, the SMFF and especially the USCG." According to Malen, then, the tank regulations were a test drive but now, the rules simply involve many different classes of vessels from mega yachts to container vessels. Nevertheless, she adds, "There are five SMFF providers who have been thoroughly vetted by the USCG to adhere to their requirements to qualify as an SMFF. In truth, the US is a very safe place to trade and we do not often see incidents here."

A snapshot: Industry Impact by the numbers

• Non-tank vessels with Worst Case Discharges: 5,547
• Non-tank vessels with Worst Case Discharges under 250 BBL: 3 (exclusive of freight barges)
• Non-tank vessels with Worst Case Discharges over 2,500 BBL: 5,044
• Percent of total Non-tank vessels with Worst Case Discharges over 2,500 BBL: 90.9%
• Average Non-tank vessel Worst Case Discharge: 26,521 BBL

(*) Source: MRA. Taken from a list of approximately 8,530 total self-propelled, non-tank vessels currently listing MRA as its SMFF. As many as 14,000 vessels will ultimately be impacted.

Funding & Agreements: Guarantees & Changes

As non-tank vessel owners are required to enter into funding agreements with salvors and marine firefighting resources, it will be the fine print of those documents that matter most. According to Malen, the bottom line is relatively simple and not necessarily burdensome for cash-strapped operators. "The Funding Agreement is actually a facet to ensure that we as SMFF respond to an incident with no delay in negotiating a contract as that contract (the Funding Agreement) is already in place. The owners must list a provider, but depending on the provider, the cost is relatively low." She adds, "It is more of the time and task as well as cost of vetting the SMFF provider, which is the owner's responsibility."

For the typical nontank vessel operators, some things will change and others will remain unchanged. For example, as operators choose the SMFF provider, they will also have to vet the provider. Unlike OSRO's, which are classified by the Coast Guard, it is the responsibility of the shipowner to verify that the salvor and firefighter have capabilities measured against 15 criteria listed in Annex 2 of the rules. But, this will allow them an opportunity to truly engage their salvor, something which is not usually done. MRA's Malen says, "This is a proactive approach that I think is beneficial to the entire industry. The owner/operators will also have to exercise various drill requirements with their QIs, SMFFs, OSROs, and even random drills with the USCG." From the regulatory side, vessel response plan particulars are now more likely to be enforced.

From MRA's perspective, a proactive approach with clients includes in-house drills and training, as well as additional training through their lightering partner, Marine Pollution Control. At their Red Anchor training school, opera-

NTVRP Requirements

	Vessel Capacity	Specific Requirements
1	>2,500 bbl.	Funding Agreement + Pre-Fire Plan
2	250 – 2,500 bbl.	Must have a contract with SMFF.
3	>250 bbl.	Must list an SMFF, but no PFP is required.

tors can take advantage of various training courses such as OSHA 1910.120 HAZWOPER Courses, Equipment Deployment (Booming, Recovery Techniques, etc.), Incident Command System Training, confined space entry and other customized programs that can also be brought to the owner/operators facilities. Malen emphasizes the point by saying, "This is a great advantage, as you would rather see how your salvors work in a drill situation rather than getting to know how they work during an actual incident. Again the owner/operator is engaging with the salvor."

Technology, too

MRA/TITAN has also developed an exclusive App – the OPA 90 SMFF app – which will allow owner/operators to make emergency requests, reports, and request drills. This app will also give the owner/operator, QI, and USCG secure access to the Pre Fire Plans and Certificates as well as any other vessel documents they need to store. It is a requirement of the USCG to be able to access Pre Fire Plans on line, and now, MRA provides the service in a mobile application. The App's utility goes far beyond the technology, says Malen. "We see it as not only a convenience that saves time and money, but a great tool. Our salvors can utilize it to download the client's vessel documents on the way to a response and have these documents on their device off line, making the response more efficient."

Risked Based & Scaled

The Federal Water Pollution Control Act defines a non-tank vessel as a self-propelled vessel of 400 gross tons or greater that operates on U.S. navigable waters while carrying oil of any kind as fuel for main propulsion. Beyond this, the NTVRP requirements for planning response services are scaled to oil carrying capacity. Thus, for small non-tank vessels with less oil carrying capacities, there are fewer functional planning requirements.

Responders, Providers & Requirements

All of the vetted and approved SMFF providers – the final 5 – must have GSA Geographic Specific Appendices that adhere to the USCG time requirements for response resources and personnel. These GSAs are audited every quarter. Lindsay Malen told ***MarineNews*** in November that, "The MRA owns a majority of the assets listed in our GSAs, with Crowley and McAllister alone, we own over 150 US flagged tugs. We then also have our secondary MOUs or agreements with response resources. The owner/operators have access to our GSAs and we must cover all COPT zones."

As compliance day approaches, many if not most non-tank operators are well on their way to achieving compliance, but the journey still requires help. And, there is a lot of it out there. National Response Corporation (NRC) and RESOLVE Marine Group recently announced the expansion of their 1Call response coverage for all vessels trading in U.S. waters. The service offers tanker and non-tank vessel owners and operators full, single-source coverage in compliance with latest U.S. Coast Guard regulations for Salvage and Marine Firefighting (SMFF), and Oil Spill Removal Organization (OSRO). In operation since 2003, the service offers comprehensive response coverage to international fleets as well as individual ship owners and operators, who trade in the U.S. According to RESOLVE Marine's Joe Farrell, by providing a single point-of-contact for all required response services, 1Call streamlines compliance, response planning, and associated administrative processes while controlling costs. Farrell, President of RESOLVE Marine Group, said in October, "Since this relationship has been such a great experience, it only made sense to extend our 1Call service to all vessels."

1Call team assets include response resources such as oil spill response vessels, aircraft, ocean going tugs, and oil recovery and salvage barges, and a national network of depots with equipment pre-staged to meet planning requirements that provide the best response capability. Steve Candito, President & CEO of National Response Corporation added, "We've had our 1Call response network in place for the past 10 years and are pleased to expand this service to all vessels in light of the USCG's release of Nontank Vessel Regulations."

The Salvage and Marine Firefighting (SMFF) core Geographic Specific Appendices (GSAs) voluntarily submitted to the Coast Guard for review by SMFF resource providers are conditionally accepted as listed below:

SMFF Provider	USCG Revision Number	DATE
Donjon-Smit LLC:	Revision 2013-10	01 May 2013
Marine Response Alliance LLC	Revision 13.1	01 May 2013
Resolve Salvage and Fire (Americas), Inc.	Revision 7.5	01 May 2013
Svitzer Salvage Americas, Inc.	Revision 3	11 April 2013
T&T Salvage LLC	Revision 10	01 May 2013

Source: U.S. Coast Guard

"I think that we have been prepared for a long time for the actual volume of business. The MRA has been listed in NON TANK VRPs for the past 20 years and it is just that now the USCG is actually enforcing this regulation and making non tank operators have a contracted Funding Agreement in place. This will mean more paperwork for everyone, the owner/operator, the QI, the SMFF and especially the USCG."

– Lindsay Malen, Director of Business Development at TITAN Salvage and the Marine Response Alliance (MRA)

Joseph Farrell, Jr., President & CEO, RESOLVE Marine Group, Inc.

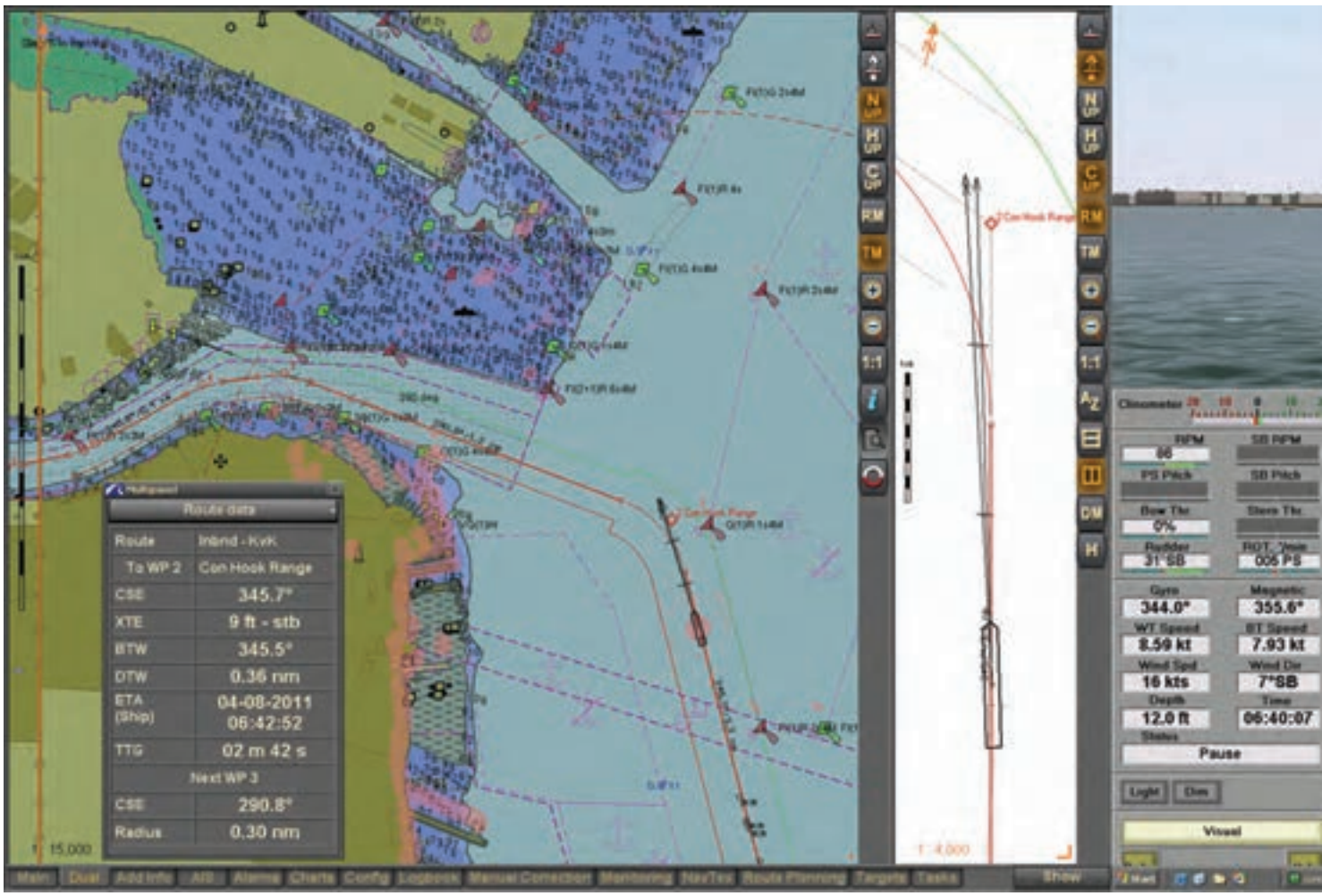
For its part, the Marine Response Alliance was formed in 1994 with the guiding principal (among others) of bringing member owned equipment and top emergency responders to offer OPA 90 Salvage Marine Fire Fighting services. Malen explains, "That is all that the MRA does; we live and breathe OPA 90. It is a bonus for us at TITAN as we are a global Lloyd's listed super salvor and we can then offer our owner operators access to our services on a global basis with offices/depots in the UK, Singapore, Australia, and the largest Salvage depot in North America."

The long awaited Non-tank Vessel Response Plan (NTVRP) regulations are (almost) here. Who you turn to for compliance is your business. On 30 January of next year, it will also be the business of the United States Coast Guard. For domestic operators – a key audience of *MarineNews* – the rules come at a collective cost of more than $100 million. Those entities providing response services will be the initial beneficiaries of at least some of that money, but in the long run, the environment will be the real winner. That's a goal everyone – regulators, responders and nontank operators – can embrace.

Charting Paperless Navigation in U.S. Waters

By Christian Hempstead

Pasha Hawaii, SeaRiver Maritime Inc., and perhaps ConocoPhillips will soon share the practice of paperless navigation in U.S. domestic trades. Each of these three ship owner/operators is managing a transition to paperless navigation at distinctly significant stages. Their progress opens a window into the evolution of electronic navigation, now taking place worldwide. There are other U.S. operators on a similar path, to be sure, but the prominence of these three is exemplary.



Vessel approaching the con Hook range in New York harbor. The image shows a dual display for ECDIS running the official US5NY1CM cell groomed for the tanker in transit. (Transas simulation, real ECDIS)

Early E-Nav Entries …

The M/V Jean Anne (Pasha Hawaii) and the five-ship Polar Tankers fleet (ConocoPhillips) have been equipped for some time with ECDIS/Planning networks conforming to SOLAS standards for paperless navigation. The M/V Jean Anne has been operated without paperless charts since delivery (2005), and Marjorie C, due to enter trade in 2014 will certainly follow suit. Meanwhile, Polar Tankers is in early stages of discussing the value and/or need for choosing either paper or ECDIS instead of both means, which is their current practice.

In 2014, SeaRiver Maritime will take delivery of two new Aframax tankers fitted with fully integrated bridges including ECDIS/planning networks. These new ships, the S/R Liberty Bay and S/R Eagle Bay, will replace two older tankers, and join two others presently fitted with presently only with a single ECDIS meant to support paper-based navigation. But the newbuilds are creating a change in perspective for an existing SeaRiver ship, the S/R American Progress.

Based on recent internal analyses, SeaRiver management has determined that there is less risk to navigational safety by using one or the other, paper or ENCs, than using both at the same time. SeaRiver management has now decided to transition their updated fleet to paperless navigation. This means the ships to remain in service will be retrofitted with SOLAS-compliant ECDIS/planning networks by 2015. All four ships will be operated without paper.

Separately, Polar Tankers is presently embarking on a similar internal navigation safety risk analysis. The direction that they will take with their fleet is not finalized yet.

Charting the Way Forward

The navigational safety issues being managed by these three companies raise a discussion that is pertinent to domestic maritime operations. For example, physical installations may exceed international requirements despite the absence of domestic implementation of these requirements, and despite the complexities of retrofitting new network technologies and sensor interfaces into older bridges.

Mariners go on watch intending, like most professionals, to carry out their duties correctly. When workloads become unmanageable, equipment is unfamiliar, and procedures unclearly defined (often undefined over the years in the case of ECDIS), then corners are cut. Position plots and DR's and 'set & drift' calculations may be left undone, with the assumption that the ECDIS/ECS has the solutions, leaving decision making deceptively less informed when the digital systems are poorly set up.

Training issues must be identified and addressed prior to a full transition. These require a fleet wide scope. They also point to an apparent incompleteness of prior so-called generic ECDIS training, and invite the prospect of an ECDIS refresher course on a repeating cycle.

Exceeding the current IMO standard, such a course would likely focus on the development and practice of bridge procedures, risk mitigation, comprehensive proficiency in ECDIS-based navigation in solo as well as team modes, and total familiarization with the ECDIS network as installed. Again, this will arise despite the absence of domestic training regulations or guidance. In fact, unofficial projections for implementation of STCW-2010 training requirements may not occur before 2016.

So Many Variables: no easy answers

Navigation practices that are presently commonplace with Pasha Hawaii will immediately apply to SOLAS-compliant newbuild deliveries in 2014. But these practices also include the inevitable replacement, and probable loss, of manual paper plotting skills. The replacement skills, in general, amount to visual-electronic correlation skills. These are not yet, or ever likely to be, included in domestic licensing examinations. With regard to safe navigational watchstanding, the relevance of such traditional licensing diverges ever further from needed competence.

On the other hand, paperless navigation leaves little or no opportunity to practice traditional analog backup methods. Without paper charts on board, the only rehearsal can occur on an ECDIS display with manual LOP functionality. This would have limited practicality in daily operations, somewhat akin to radar transfer plotting.

Going paperless depends on ENCs for the areas transited, not only the completeness of coverage, but also with regard to survey quality and currency in critical areas, but also in presentation. Metric conversions can create hesitant understanding on ENCs built from U.S. survey data. Older surveys typically lack sufficient depth contour resolution or density for deep draft ships entering U.S. ports, most of which are estuarine. New York harbor surveys, for example, offer depth contours of 2, 3, 5 and 10 fathoms, which leaves a challenging safe water portrayal on an ENC set up of a draft of 6 fathoms. NOAA's Marine Chart Division is presently discussing the addition to critical ENC cells of a 15m curve. But, this would require painstaking review of original survey data. Beyond this, other curves may be more useful, metric or imperial.

Among many other considerations for the replacement ENC portfolio is the operational decision to procure cells through a SENC service linked to the ECDIS Planning unit in the bridge network, complete with licensing pass-through and regular updating, potentially through a satellite link for full automation, or to procure cells through a more manual means. Either way, consistency across a fleet is an important consideration.

Hybrid practices – ECDIS used to support paper navigation – already include the use of Print on Demand (POD) paper charts, where subsequent corrections are applied manually, and routes are drawn in pencil rather than inked and taped over. Given the shorter lifecycle of the POD in service on board, there is little surprise at the sunset of lithograph paper charts next April. The concern with hybrid practices is that neither the paper-based navigation nor the ECDIS-based support is being done thoroughly. There are apparent gaps occurring in both, and the gaps vary across the population of watch officers. Management sees this as raising the probability of a safety-critical incident. This can be controlled by detailed fleet procedures for a single navi-

gational method applied fleet wide. With the investment in integrated bridge systems on their newbuilds, SeaRiver has opted to fit out the other two like the new ones.

This decision could be viewed as tacit recognition that adding ECDIS navigation to traditional paper-based practices is both burdensome to the watch, and does not necessarily add safety in a consistent manor. Although scientific studies on this effect are rare, anecdotally, this is no surprise amongst navigating mariners since the mid 1990's, especially with the advent of ECS and raster or proprietary vector charts.

Real Life: actual practice

Mariners go on watch intending, like most professionals, to carry out their duties correctly. When workloads become unmanageable, equipment is unfamiliar, and procedures unclearly defined (often undefined over the years in the case of ECDIS), then corners are cut. Position plots and DR's and 'set & drift' calculations may be left undone, with the assumption that the ECDIS/ECS has the solutions, leaving decision making deceptively less informed when the digital systems are poorly set up.

To develop and rehearse paperless navigation procedures and skills, SeaRiver management intends to take on ECDIS refresher training in a 5-year cycle. Considering what is in store for the advancement of ENC data transfer standards, as S-101, such refresher training will likely gain a relevance not seen before in the maritime profession. In 5-7 years, the transition will begin from S-57 to S-101. The new ENC format will allow many technical changes directly affecting the usefulness and presentation of chart-related information. Besides making readable external files such as dredged channel survey depths, S-101 will contain the facility to allow continual development of additional applications. What this means to ECDIS manufacturers is the development of an updated version that meets an as-yet unwritten new Performance Standard to adopt S-101. What this means to hydrographic offices (HO) is that existing S-57 data will be provided to the user pre-converted to S-101, so as to be readable in the new ECDIS version. At the same time, HO's will be facing the prospect of creating new S-101 cells, however incrementally. Refresher ECDIS training will be an understatement.

Regulatory Uncertainty

In 2004, Congress amended the Ports and Waterways Safety Act of 1972 broadly requiring the use of electronic charts in navigable waters of the U.S., allowing for individual vessel exemptions and waivers, and directed the USCG to implement this addition to the law before 2007 (33 U.S.C. 1223(a)). The USCG implemented portions of the PWSA beginning in 1983 as 33CFR160 with amendments as recent as 2011, but without addressing the use of electronic charts.

In the absence of such rulemaking, the USCG, ironically, is able to grant waivers to allow for paperless navigation by SOLAS classed ships sailing domestically under US flag. The rule that would allow this has been in place (33CFR164.55) since 1977 for navigation safety regulations in general, and since 1951 for waivers of navigational compliance (33CFR19.01). Soon there may be some prominent shipping companies who will make use of this. All of it will impact domestic operators – no matter where and on what platform they sail on.

(Captain) Christian Hempstead *sailed for 19 years as junior and senior deck officer with SeaRiver Maritime Inc. on all manner of tank vessels, including 5 years responsible for type-approved ECDIS and other electronic chart systems as watchstanding navigation officer. Upon coming ashore, he was instructor & developer at PMI & MITAGS in Seattle for 4 years, followed by 9 years as Professor at United States Merchant Marine Academy, teaching integrated navigation and was director of nautical simulation. A principal contributor to the ECDIS training requirements in the 2010 Manila Amendments to the STCW Code and Guidance, he is the author of the revised ECDIS Model Course 1.27 (2012 edition). Today, he manages his consultancy Hempstead Maritime Training, LLC, full time.*

Engineering Change on the Water

West Coast-based Omega Morgan tackles marine infrastructure challenges with unique engineering solutions.

By John McCalla, President and CEO, Omega Morgan

Infrastructure renewal and engineering combine to provide an obscure, often under-appreciated, but nevertheless critically important aspect of marine operations. In the Pacific Northwest, for example, the waterway abundant geography provides engineering and specialized moving company Omega Morgan with all sorts of challenges that involve bridges spanning rivers. Whether crossing or moving these spans, Omega Morgan, faces particularly unique engineering challenges. Of particular interest to marine operators, bridge renewals involve potentially severe waterway delays and a marine component that affects all marine commerce. Minimizing waterway delays and downtime there is at the very heart of what Omega Morgan does every day.

Omega Morgan started in the machinery moving and industrial contracting business in 1991, but the firm experienced its most rapid growth during the past six years, partly as a function of aging and critically deficient infrastructure assets. Omega Morgan's vice president of engineering, Ralph DiCaprio, is no stranger to these challenges, having successfully engineered recent high profile Northwest bridge moves including the Sauvie Island Bridge, the Sellwood Bridge and the Skagit River Bridge. His experience also involves managing the Third Avenue Bridge project in New York City, moving two 900-ton spans on the Hood Canal Bridge, the transport and launch of the Kalama River Bridge, as well as more than a dozen Utah bridge overpass moves.

Jack & Slide: New Nomenclature

The jack and slide method of translating, or moving,

bridges provides specific advantages over the destruction and rebuilding of temporary spans until permanent spans can be built. If the river is deep enough, barges or flexi-floats systems can also be used to move pre-constructed bridges or bridge components into place. A flexifloat system allows for modular sections to be connected quickly in various shape and size barge configurations that can support various types of heavy equipment.

Omega Morgan has been able to not only save commuters big headaches due to lengthy down time, but has also been able to quickly and efficiently get important infrastructure up and running so that there is minimal impact on neighboring businesses – like yours, on the water. Rather than closing down main thoroughfares, being able to slide over existing spans and detour traffic back onto them while construction of new spans take place means just days of traffic detours and/or disruptions to inland marine commerce, rather than months or even years.

Omega Morgan isn't the only outfit in this country that has been able to master this method of translating bridges, but remains as that has been able to do so on a massive scale, as was the case with Portland's Sellwood Bridge. While each of these bridge moves posed their own unique set of challenges, some common themes included the structural limits of the bridge being moved, water depth and specialized insurance considerations.

Sauvie Island Bridge, Portland, OR

The old bridge was classified as functionally obsolete and structurally deficient according to federal and Oregon state standards, scoring 8 out of a possible rating of 100. However, even with temporary repairs, it was not near adequate enough to meet the needs of Sauvie Island's farmers and industrial businesses. The bridge had a supporting capacity of only 40 tons, and was very near the end of its service life. Construction of the new Sauvie Island Bridge began in early 2006 and was completed in 2008.

The main arch that spans the Multnomah Channel of the Columbia River is 350 feet long and weighs 1,600 tons. The arch is comprised of hundreds of steel components joined by tens of thousands of bolts. It was assembled at Terminal 2 in Portland, loaded onto a barge using a combination of a skidding system and self-propelled dollies. Once the bridge was loaded onto the barge the jacking towers were used to jack the bridge 65 feet into the air. The bridge was secured at height on the barge and moved down river. Once at the final location, the bridge was rotated into place. A special mooring system was used to hold the barge in place while the new bridge was jacked onto its bearings.

The Sellwood Bridge, Portland, OR

Here, again; engineers were faced with the daunting task of moving a bridge, this time Portland's 87-year-old Sellwood Bridge. Weighing 6.8 million pounds and measuring more than 1,100 feet long, the Sellwood Bridge was one the longest, most complex bridge structures ever contemplated for relocation.

The plan was for the Sellwood Bridge to be slid over to make room for the construction of a new bridge. If successful, the old Sellwood Bridge would be used by motorists as a detour during construction. The bridge would be closed for just under one week, rather than needing to divert traffic for years until the new bridge is completed in 2016. Omega Morgan was selected by Slayden/Sundt Joint Venture as a subcontractor for the $307.5 million bridge replacement project.

Months of planning and meetings concluded on January 19, 2013 as the bridge was slid horizontally into a temporary location dozens of feet away, inches at a time.

As opposed to a traditional vertical pick-and-move, which certainly would have destroyed the existing bridge, engineers developed a horizontal slide method using 14-foot long, ski-shaped steel units that slid on Teflon pads inside track beams.

What made the move even more complex was that the bridge truss needed to be moved twice the distance at the west end than on the east end. Imagine an arc motion much like a windshield wiper, sliding 66 feet on one end, and just 33 feet on the other. Highly specialized lasers and GPS surveying were used by the engineering teams to ensure that the bridge truss was not bent or twisted beyond its tolerance limits so that it was not damaged during translation.

In just 12 hours – a remarkably short time for this type of operation – the bridge was slid over to its new home and opened up just 5 days later for motorists' use. The alternative to the move, building the new bridge span in two phases, would have cost millions more.

Skagit River Bridge, Mount Vernon, WA

After a truck struck the Skagit River Bridge on May 23, 2013, a portion of the bridge collapsed into the Skagit River near Mount Vernon, Washington. That particular section of I-5, which sees more than 71,000 drivers each day, was out of commission for four weeks until temporary spans were put into place (also by Omega Morgan). Max J. Kuney Construction of Spokane, Washington was awarded the contract to build the permanent bridge, which included the contractual deadline to open the new span by October 1 2013. It was crucial to get the new permanent span in place as quickly as possible as the bridge is a critical economic link on I-5.

Omega Morgan was subcontracted by Max J. Kuney to

translate the 915-ton span into place, moving it upriver using flexifloat barges and setting it upon original concrete piers that were retrofitted with new pedestals installed to accommodate the new concrete beam arrangement. The new span was slid into place in just hours, not days, reconnecting the main link between Seattle and Vancouver, BC two full weeks ahead of schedule. The Skagit move was particularly precise, as Omega Morgan had less than two inches of clearance on each side of the 162-foot long bridge.

Special Projects mean Special Considerations

Before any project can take place, specialized insurance underwriting and risk mitigation services must be considered carefully. That's because the definition of what entails "marine" work and what does not has to be carefully considered. For that reason alone, inland marine insurance underwriting is a specialty unto itself. Many potential exposures exist for marine contractors and subcontractors, like Omega Morgan, when engaging in commercial construction, transportation and heavy lift activities on and around the water. Sometimes liability protection needs to be a combination of marine and non-marine coverage(s) to ensure that each phase of the project is appropriately protected in the rare case of an incident.

As state departments of transportation begin evaluating bridges for replacement or repair, they work closely with contractors and bridge designers to determine the best possible solution for each situation.

Critical Infrastructure, Critically Deficient

The need for specialized engineering and construction methods on and around the waterfront isn't likely to go away very soon. The most recent federal National Bridge Inventory from the Federal Highway Administration includes 607,380 bridges that are subject to uniform bridge inspection standards. Among those bridges, there were 66,749 classified as "structurally deficient." A bridge is "structurally deficient" when it is in need of repair or replacement because at least one major component is considered in poor or worse condition, or because it has insufficient load carrying capacity.

As of December 2012, the last time the report was updated, in Oregon, of the 7,633 bridges in existence, 433 are structurally deficient. The story in Washington is very similar: of the 7,839 bridges operating, 366 are structurally deficient. With those kinds of numbers, the need for solid performers in this interesting business sector is clear. Likewise, the future appears to be bright for Omega Morgan.

There's an APP for That

Marine product providers turn to high tech tools to enhance service, information and – yes – their bottom lines.

By Joseph Keefe

There's an APP for that. You've heard it before and in many contexts. Increasingly, the global waterfront is getting into the act, too. Typically available for iPhones and/or any kind of smart phones, these Apps are perfect for the busy executive. Putting information at your fingertips, when you want it and no matter where you might be; is at the heart of it all.

Like New Wave Media, ***MarineNews*** magazine's parent, many companies are harnessing the utility of a well-designed App to deliver clear, concise data. Where Maritime Global News brings the latest news, updated regularly, marine vendors of all kinds are using Apps to deliver the good news about their products.

Sherwin-Williams

Sherwin-Williams Protective & Marine Coatings' SeaGuard, an app that provides users with protective coating recommendations for VLCC/VLBCs, chemical tankers and OSV/PSVs, debuted in October. The app is optimized for both iOS and Android. A first for any coating manufacturer, SeaGuard provides on-the-go coating recommendations from stem to stern. Designed to help port engineers and fleet managers access accurate and up-to-date coatings information via mobile technology, it's also a convenient alternative to bulky binders stuffed with outdated product data sheets. If a new product is introduced, or an old product is no longer manufactured, SeaGuard has the updated information.

SeaGuard's home screen allows the user to select the type of vessel in need of coating. Once the vessel has been selected, labeled areas of the vessel appear. SeaGuard recommends the coating system for each area. The recommendation includes both a primary and alternative system, providing information on the generic coating system (primer, intermediate and top coat), stripe coat (if needed), dry film thickness for each coat and total mils for the system. Surface preparation and application equipment tips are included in the recommendation. Clicking on a product name brings up a detailed product data sheet.

"SeaGuard provides our customers with stem-to-stern coating solutions," says Tim McDonough, Sherwin-Williams regional marine market segment director. "Port Engineers and fleet managers alike will have, at their fingertips, the latest, detailed Sherwin-Williams' coating specifications to meet their specific and unique need – anywhere in the world, 24 hours a day, 7 days a week. To be assured that you

10,000 & Counting ...

Pictured is our own Martime Global News App, which includes daily news from MarineNews and sister publication Maritime Reporter, has more than 10,000 downloads since its inception.

Maritime Global News

have the latest, most up-to-date information at your fingertips is incredible."

www.protective.sherwin-williams.com

Harrington Hoists

Harrington Hoists, Inc., a supplier and manufacturer of electric and air powered chain hoists, electric wire rope hoists, lever hoists, manual hand chain hoists, push and geared trolleys, overhead cranes, crane accessories and a full line of replacement parts, has created its own new mobile technology in the form of the Harrington Mobile APP. According to Harrington Hoists, the Harrington Mobile is the quickest way to find all of Harrington's market leading products including images, descriptions, individual product specifications and dimensions, and outline drawings on your mobile device. There are also links to Harrington's full web site, social media and contact information in the application. Users of Harrington Mobile can now conveniently get all the information they need while traveling or on a sale or service call. Harrington Mobile is a free APP available through the App Store and Google Play. It is customized and compatible with iPhones, iPads, iPod touches, Androids and Tablets. Scan the QR codes and "Join The Revolution."

www.harringtonhoists.com

Brennan Industries

Not to be outdone, Brennan Industries Inc., a supplier of a wide range of more than 30,000 standard and special hydraulic fittings, has expanded its already successful, existing mobile application that provides easy access to the Brennan product catalog and product cross-reference tool, to include pressure ratings for more than 6,000 parts in more than 330 popular series. The mobile app, optimized for iPhone and Android devices, now includes pressure ratings in PSI or bar units for many Brennan products, as well as the ability for users to search for ratings by series or part number.

The mobile app, originally introduced in 2012, gives users quick access to more than 30,000 Brennan products, product comparison information and the company's contact information. "Pressure ratings are important for our customers' applications, so putting that information at their fingertips is one way that Brennan can make their jobs a little easier," said Bill Jarrell, vice president of marketing and operations at Brennan Industries. "Especially when they are using their smartphones out in the field."

The pressure rating product search is also available on mobile and desktop browsers by visiting brennaninc.com/pressure-ratings/ directly as well as through the mobile app which is available at brennaninc.com/mobile.

The app features an easy-to-navigate product catalog that is broken down by categories and includes specifications for each product. The app also offers a product cross-reference tool that allows users to compare Brennan products side-by-side with competitors' products to determine the best value. Users who want more information about Brennan or how to contact the company can find their nearest location, contact phone number and email address and a Brennan overview video conveniently through the app.

www.brennaninc.com

Download the apps here

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For Droid users

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The Ideal Biodegradable Marine Lubricant

US EPA Approved EAL's: Anhydrous Water Soluble Polyalkylene Glycols (PAG's)

By Ron van Wachem

In December 2013, the EPA through its Vessel General Permit (VGP) will introduce the mandatory use of "Environmentally Acceptable Lubricants" or EAL's. These products include the lubricating oils that are directly used in applications referred to as "oil to sea interfaces" where the only thing holding the oil from entering the water is a simple seal or gasket. Understanding what this all means to you is important. For starters, the criteria for EAL's are as follows:

- *Bio-degradability rating of 60% or more in 28 days (the minimum criteria to also be classified as "readily biodegradable"). Products marketed as "inherently biodegradable" or "environmentally considerate" mineral oils or white oils offered by many major oil companies are not included in this category;*
- *the lubricants have to meet or exceed very low aquatic toxicity criteria in order to have the lightest possible impact to the marine environment;*
- *lubricants must not be bio-accumulative to any organism or any part of the food chain*

The US EPA has determined that four major types of lubricants meet all the necessary required criteria to be classified as an "approved EAL" are as follows:

- *Vegetable Oils (such as canola or soy oil based)*
- *Synthetic Esters (esters derived from bio-based sources)*
- *Polyalkykene Glycols PAG's (can be either water soluble or water insoluble)*
- *Water (referring to water lubricated and cooled stern tubes)*

Regulatory Compliance Regarding "Oil" Spills or Discharges to Water:

The US EPA "Clean Water Act of 1990" clearly prohibits the discharge of any oil (mineral or vegetable), accidently or otherwise in any water of the contiguous USA. The "non-sheening rule", or 40 CFR 435, which states that any substance that makes a visible sheen on the water is a violation of the "Clean Water Act of 1990" and 40 CFR 435, as that is the basic determination of what is actually discharged "oil."

In Canada, the "Canada Shipping Act" Pollution Prevention section clearly states that petroleum hydrocarbons (oil) are clearly defined "pollutants" as are "any substance that can have detrimental effects on humans, animals and plant life." This includes any oil that can interfere with marine wildlife, including a vegetable oil, even if they are non-toxic. In Canada and the US, marine pollution offenses are often met with heavy fines and cleanup costs. The major problem here is that other than PAG's, virtually all US approved EAL's are some form of oil so any subsequent spills will usually be met with fines. A look at the performance aspects of US EPA Approved EALs is therefore illuminating:

Vegetable Oils - Natural Triglycerides (HETG):

Can exhibit good lubricity but when temperature is increased they fall short on performance. Have poor thermal and oxidative stability leading to varnish and solid deposits. Short fluid life span. Poor cold weather performance. Poor hydrolytic stability - vegetable oils react quite readily in the presence of moisture and water leading to excessive acid and sludge formation that can damage a system. Can turn rancid and cause terrible odors in a system.

Synthetic Esters (HEES):

Improvement in performance and life than vegetable oils. Still prone to oxidation and varnish at elevated temperatures and pressures. Even synthesized hydrocarbons (inorganic or inorganic based) such as PAOs, as well as synthetic esters have their upper limits for heat tolerance and will oxidize to form varnish over time.

Chemical reaction with moisture and water referred to as "hydrolyzing" still occurs producing acids and gumming/varnish (The maximum amount of water ingression tolerable by most oils, mineral or synthetic is 200 ppm, rendering the products unusable).

Polyalkylene Glycol (PAGs) (HEPG)

PAG's do not sheen the water, are non-toxic and not clas-

sified as "oil" by the US Coast Guard and Transport Canada. PAG fluids are approved by the US EPA as acceptable EAL's due to both the rate of biodegradability and low aquatic toxicity.

Superior oxidative stability; PAG hydraulic and gear fluids offer superior oxidation resistance when compared to any other type of synthetic or conventional lubricants. (**see figure A**)

Lubricating ability; PAG's produce less friction than even other synthetic fluids such as synthetic esters or PAO's. (**see figure B**)

Not only do PAG fluids resist oxidation adding to a much longer fluid life, they are incapable of forming solid deposits such as varnish or coking. (**see figure C**)

The Case for PAG's

Beyond these obvious benefits, PAGs demonstrate Superior load carrying ability, Superior thermal stability (withstanding temperatures up to 250 F), Material compatibility, are fire resistant and are not only heavier than water (specific gravity of approximately 1.03), but also dissolve readily when mixed with water. Since these products completely dissolve and dissipate when discharged into water, they do not form an oil slick that can contaminate seabirds, beavers, otters or foul shorelines and contaminate marshes. The slick itself, regardless of the toxicity or biodegradability of the oil in the event of a spill accounts for much of the initial mortality in marine wildlife in the initial stages of the discharge.

One of the reasons the US EPA enacted the 'Clean Water Act of 1990" and the "Non-sheening regulation 40 CFR 435" was to try to reduce the environmental impact of any type of free oil floating in the surface of the water. If the fluid is neither a hazardous chemical and is not considered oil, it is exempt from this act as well as OPA 90 oil spill cleanup regulations. This will not only reduce or eliminate fines but can dramatically reduce the scope and costs associated with aquatic oil spill cleanup procedures and remediation.

PAG's can be designed and tailored achieve certain characteristics or capabilities in order to perform very specific functions or performance requirements to suit the application ("designed", not refined).

Finally, PAG fluids are suited to the marine environment. They have very minimal or a negligible reaction to the presence of moisture or water, so corrosive acids and gums are not produced,

as they would be with hydrocarbons and especially vegetable oils and vegetable esters. They can accept up to 1.5% water contamination (15,000ppm) before any performance degradation. There is no saturation point as there is with conventional hydrocarbons (maximum saturation point of most mineral oils is 200 ppm), but viscosity and lubricity will slowly be reduced as the water content is increased. PAG fluids also offer excellent corrosion protection if affected by water; after all, water glycol hydraulic fluids used in the steel and smelting industry contain up to 45% water.

Bottom Line

Ship Owners are now all looking at the new EPA VGP regulations which come into effect at the end of this year. They need to realize what they are trying to achieve now and in the long run. Environmental compliance should be at the top or near the top of that list. Next should be cost effectiveness and performance. In the past, many ship and equipment managers avoided using vegetable oils and mineral oils as they are viewed as costly and inferior lubricants that require much more maintenance and bring their own set of problems.

PAG's, on the other hand, reduce or eliminate many of the other issues created by conventional EAL's such as shorter fluid life, increased maintenance intervals, and machinery damage. Ship operators have long complained that even when using biodegradable oil, they still got fined fine when they spilled it. To that end, they asked, "What is the point in converting our equipment if we are still going to get fined?" Would it not make sense to avoid using oil-based EAL lubricants in applications such as "oil to sea interfaces" in the first place if there is a viable alternative? PAG's offer that viable alternative.

The petroleum and lubricant industry often dismiss PAG's because they are not compatible with other conventional oils and are not produced by major refiners. The main reason for this reluctance of acceptance is lack of knowledge of PAG fluids and unfamiliarity of the major differences in both environmental compliance reasons and the performance advantages of these fluids.

PAG fluids such as Dow's UCON Trident AW, BASF Plurasafe Enbio TC, and American Chemicals Technology's Neptune (including EP and XP) lubricants are anhydrous, or contain no water, and offer the performance characteristics listed above. PAG fluids have already solved high heat and varnish issues in harsh applications such as compressor and turbine fluids, where even PAO's were failing due to the severe heat and friction (American Chemical Technologies have now received approval from GE to use PAG's in their turbines). Ship owners are now realizing that PAG's can offer more than just a solution to the VGP issue but also the benefit PAG's can have to their compressors and other equipment that are subject to harsh operating conditions in marine environments.

PAGs are often said to be very costly but take into account their performance characteristics, their long life, their environmental footprint, etc., and they can be proven to be less expensive to purchase than most any EAL on the market.

If you are worried about having the best performing EAL and worry about your lubricants entering the water or water entering your lubricants, then the use of PAG's might be for you. Summing up: if water–soluble PAG fluids are not the perfect biodegradable lubricant, or EAL, they come as close as anything that has been developed to date ever will.

Figure A

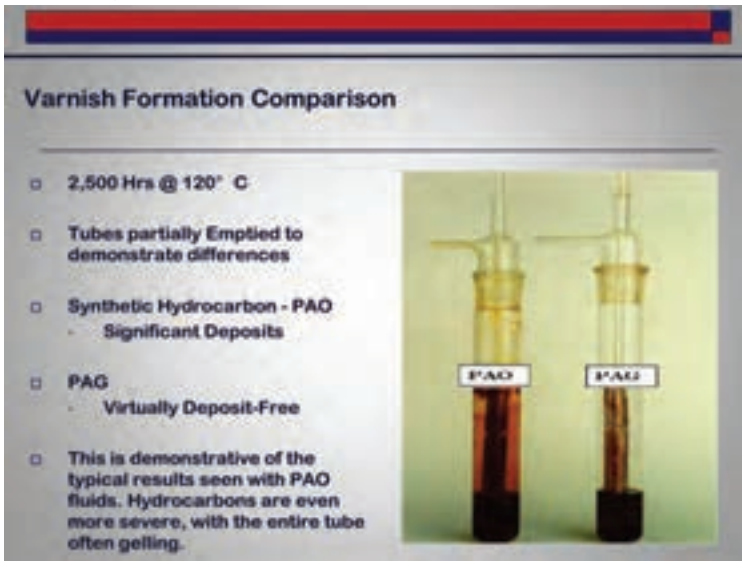
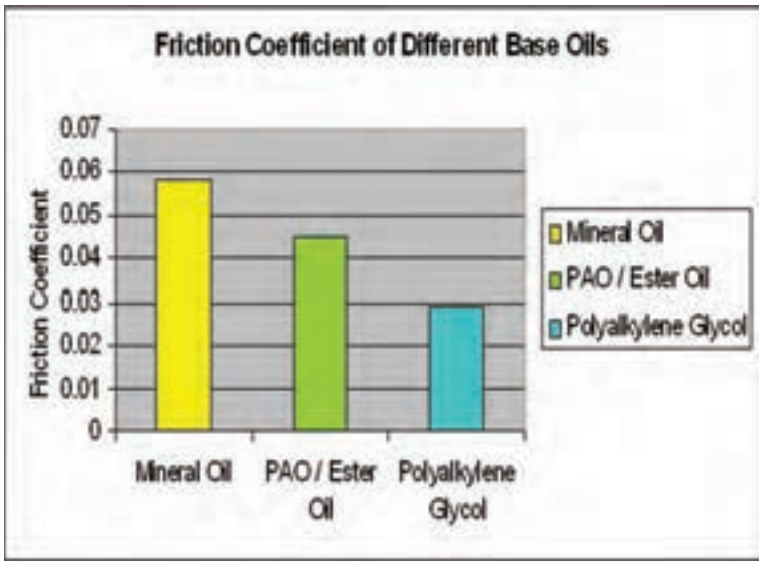


Figure B




Riva


Korpus


Wärtsilä & (SUNY) Chancellor's Society


Lindstrom


Moore

Riva to Serve as Chief Surveyor of ABS

ABS appointed Joseph Riva to the position of ABS Vice President and Chief Surveyor. This role is responsible for guiding and overseeing all ABS survey activities. Riva will succeed Linwood "Lenny" Pendexter, who has held the position for 10 years.

ABS Appoints Chief Scientist for CFD

ABS appointed Dr. Richard Korpus as Chief Scientist, Computational Fluid Dynamics (CFD). In the Chief Scientist role, Korpus will support the Chief Technology Officer (CTO) and the organization through his focus on developing and applying CFD technology.

SUNY Honors Wärtsilä

Wärtsilä has been honored at the State University of New York (SUNY) Chancellor's Society. In recognition of the strong partnership between Wärtsilä and the SUNY Maritime College, the University nominated Wärtsilä to be inducted as a '2013 Transformer' of the Chancellor's Society. This level recognizes donors that have been major supporters of SUNY programs; contributing $1 million or more cumulative lifetime gifts to advance higher education in New York. Frank Donnelly, Managing Director, Wärtsilä North America, accepted the tribute on behalf of Wärtsilä and was joined by the Consul General of Finland in New York, Jukka Pietikäinen and administration from SUNY, Maritime College.

Lindstrom to Chair NMEA Board

The National Marine Electronics Association (NMEA) announced that Johnny Lindstrom will become chairman of the NMEA board of directors effective January 1, 2014. Lindstrom will succeed David Gratton, who is completing a three-year term. Lindstrom began his career in the marine electronics industry in 1977 and is currently a design engineer for Westport Shipyard. Lindstrom has served as a dealer member and an officer on the Board of Directors of the NMEA since 2008.

Moore Takes the Helm at POLA

Gary Lee Moore, who has served as Los Angeles City Engineer and General Manager of the city's Bureau of Engineering for the past decade, has started his duties as interim executive director of the Port of Los Angeles. Moore replaces Geraldine Knatz, Ph.D., who served as the Port's executive director for almost eight years before announcing her retirement in October. Moore is an experienced executive and professional engineer.

WISTA: New Leadership Roles

At the recent global Women's International Shipping & Trading Association (WISTA) annual meeting, Jeanne Grasso, a partner at Blank Rome LLP, was elected to the Executive Committee of WISTA International. Jeanne has been the President of WISTA USA for the past five years, during which time its membership has increased by nearly 30% to become the largest in the global Association. Grasso relinquishes the Presidency of WISTA USA to Alexandra Anagnostis, President and Owner of Total Marine Solutions.


Daniel B. Branch

The Navy League of the United States last month mourned the death of its past national president, Capt. Daniel B. Branch Jr., USN retired. He died on Oct. 21, 2013, of complications from mesothelioma cancer at the age of 75. Branch was a 1959 graduate of the U.S. Naval Academy and a distinguished graduate of the Naval War College and received a Master's degree in International Affairs from George Washington University. He received many awards during his naval career, including numerous Letters of Commendation, the Meritorious Service Medal, the Legion of Merit, the Defense Superior Service Medal and several Battle Efficiency, or "Battle E," awards. He held the honor of being the youngest captain of a nuclear submarine at age 34.


Anagnostis


Grasso


Zervas


Mehltretter


Engle


Muller

TSGI Continues To Expand

The Shearer Group, Inc. (TSGI) announced five new additions to its naval architecture and marine engineer practice near Houston. Joshua Sebastian, P.E., Engineer Manager, Michael Capitain, Naval Architect, Ronald Sikora, Designer, Jacqueline Ellis, Designer, and Jo Ann Pitzer, Administrative Assistant have all joined the firm. Sebastian graduated in 1999 from the U.S. Coast Guard Academy with a degree in Naval Architecture/ Marine Engineering. Capitain graduated in 2008 from the University of New Orleans with a B.S. in Naval Architecture and Marine Engineering. Ellis obtained her Associates Degree in Applied Science from San Jacinto College in 2012.

Zervas Joins Seakeeper

Gyro stabilization system manufacturer Seakeeper has appointed Kevin Zervas as global service manager. Zervas has 20 years of marine industry experience in management and service positions. For Seakeeper, he will oversee a global team of technicians, continue to enhance service training programs, and expand the company's superior customer support via key partners, distributors and dealers.

NG Names Mehltretter

Northrop Grumman Corporation has appointed Robert J. Mehltretter as vice president of Navigation and Positioning Systems (NAPS) business unit. Mehltretter joined the company in 1982 and has held a variety of technical and program leadership positions.

URS Appoints Engle National Director

URS Corporation has named Gary Engle its National Director of the Federal Business Line for Infrastructure & Environment. A URS Senior Vice President, Mr. Engle joined the company in January 2007 following a 28-year military career. A Rear Admiral, Civil Engineer Corps, U.S. Navy (Retired), Engle currently serves as National President of the Society of American Military Engineers (SAME). He is a Registered Professional Engineer and a member of the Design-Build Institute of America (DBIA). He holds a master's degree in civil engineering from the University of Michigan and is a graduate of Carnegie Mellon's Advanced Management Program.

Muller, Witte in ISU Leadership Roles

Leendert Muller, managing director of leading towage and salvage specialist Multraship, has been appointed the new president of the International Salvage Union (ISU). Muller, who has been a member of the ISU Executive Committee since 2008, and vice-president since 2011, succeeds Andreas Tsavliris, who will continue as a member of the ISU Executive Committee. Additionally, John A Witte Jr, of Donjon Marine Co Inc in the US, was confirmed as vice-president of the ISU.

Wagner Elected to Boards

MTN managing director of yacht services, Derik Wagner, has joined the Boards of the U.S. Superyacht Association (USSA) and International Superyacht Society (ISS).


Jesse M. Calhoon

The Marine Engineers' Beneficial Association (M.E.B.A.) sadly announced that Jesse M. Calhoon, the M.E.B.A.'s longest serving President who is widely credited with ushering the Union into the modern era, died on Tuesday October 22. He was 90 years old. Calhoon served as a powerful and visionary leader, and a tough negotiator who employers viewed as a formidable but trustworthy adversary. His dynamic service as M.E.B.A.'s top executive and Chairman of the Board of Trustees spanned over 20 years and six U.S. Presidencies. Wages and benefits for members rose dramatically during his tenure. By 1949, Jesse had worked his way up to Chief Engineer. In 1954, Jesse began his climb up the political ladder in M.E.B.A., eventually reaching its top rung as President.

Baddock Named Pellerin Account Manager, Marketing Chief

Pellerin Energy Group (PEG) has named Cheri Baddock as an account manager within Pellerin Water Solutions (PWS) for the greater Houston region and as head of marketing for PEG.

U.S. DOT Opens CA Green Corridor; Releases $1.4 million LNG Grants

The U.S. DOT Maritime Administration (MARAD) has dedicated the California Green Trade Corridor, designed to help take freight traffic off California's I-580 by offering shippers an option to move cargo along the waterways between the Ports of Oakland, Stockton and Sacramento. The project received a $30 million grant from the DOT, as well as $5 million from local sources. "This $30 million investment in public infrastructure is an important part of President Obama's national initiative to double America's exports by 2015," said DOT Secretary Anthony Foxx. "This Marine Highway will help get cargo off the highways and onto our waterways, improving traffic on our roads while providing an efficient, environmentally-friendly option within our freight system." Separately, MARAD also announced a total of $1.4 million for two projects supporting the increased use of alternative fuels and technology in the maritime industry. The funds will be used to collect information on use of liquefied natural gas (LNG) as a marine propulsion and study the issues and challenges associated with shore side storage and fueling of LNG vessels. MARAD will provide Horizon Lines, Inc. with $900,000 to assist in conversion and monitoring of their vessel, Horizon Spirit, to operate on LNG. The second project is a $500,000 funded LNG study conducted by the U.S. subsidiary of DNV to analyze the issues associated with bunkering.

Witte

Wagner

Baddock

Foxx

ChartWorld's eNtM – a new digital tool

ChartWorld eNtM delivers digital Notices to Mariners (NtMs) on a weekly basis. The service includes paper chart tracings and corrections for all other publications previously delivered in the paper NtM format. eNtM is integrated with ChartWorld's digital chart catalogue ChartBrowser. The user-friendly tool with low volume data transmission is a breakthrough method on the market. Vessels are provided with three years of digital NtMs, allowing autonomous management of paper chart and nautical publications. eNtM can be used stand-alone product or with the compliant eSeries service, ChartWorld's solution for ECDIS.

www.chartworld.com

Interlogix Video, Fluidmesh & Pantascene Protect Ferry Passengers

8 million annual passengers travel New York Harbor on NY Waterway ferries, protected by an extensive, state-of-the-art video surveillance system. The system includes hundreds of Interlogix IP and analog cameras, transmitted from moving ferries to a land-based security command center via a fast-roaming wireless mesh network based on multiprotocol label switching (MPLS) by Fluidmesh Networks. Paid for through a grant from the U.S. Department of Homeland Security, deployed Interlogix cameras connect via Fluidmesh's MPLS-based wireless mesh network. The service provides seamless connectivity to transmit live video from the ferries, terminals and landings.

www.interlogix.com/nywaterway

WatchStander Non-Lethal Antipiracy System

WatchStander LLC has introduced a fully automated system designed to prevent pirates and other unwanted individuals from boarding ships. The video and data from all incidents will be archived for subsequent transmission to the shipowner and WatchStander for training and evidential purposes. The fully automated WatchStander system combines intelligent software with a range of non-lethal countermeasures. The system uses cost-effective high resolution radar to automatically identify surrounding traffic and assess behavior over time to identify hostile targets. The system then operates non-lethal countermeasures to respond to the threats.

www.watchstander.com

Videotel's Computer Gaming Driven Training

Videotel is pioneering a radical new form of training delivery, designed to respond to the demands of the post internet age. The ultimate in interactivity, Videotel uses gaming technology to put the learner into a real life scenario, enabling them to apply their knowledge to specific situations under realistic time pressures. The first serious game deals with Entry into Enclosed Spaces, which lends itself ideally to this unique format, putting the learner into a realistic scenario which enables them to apply their knowledge to specific situations, for both training and assessment.

www.videotel.com

SmartVIEW: Microprocessor-based Control System

SmartVIEW allows Carlisle & Finch Products (NightFINDER Systems and Standard Searchlight Products), to be controlled from on board the ship, or from a remote PC ashore. The system includes Proportional-Speed Multi-Functional Joystick, Joysticks which "intelligently switch" from searchlight to searchlight, an Ethernet Connection allowing digital control throughout the Ship's IT Network, and Remote Internet Control. NightFINDER is the combination of a high Intensity Searchlight and Night Vision Camera integrated onto the same Pan/Tilt Base. SmartVIEW technology allows NightFINDER, as well as any other standard searchlight products to be controlled through the Ship's Integrated "Glass" Bridge.

www.carlislefinch.com

Ohmsett Training

As the new nontank rules take effect and vessel owners develop plans to respond to oil spills, plans should include response training. Ohmsett has partnered with Texas A&M National Spill Control School to offer Oil Spill Response Strategies and Tactics Training. The course is designed to assist oil spill response and management personnel in the development of skills necessary to make quick and informed decisions during oil spill incidents. In addition, it provides hands-on spill response equipment handling and oil recovery training using full-scale equipment with real oil in the Ohmsett test tank.

www.ohmsett.com

Raymarine's LightHouse II User Interface

Raymarine's LightHouse User Interface is the ninth release of Raymarine's multifunction display user interface, and has been redesigned to give owners a simpler, more user-friendly experience. Users will notice the new home screen with easy-to-read icons for all their favorite apps; now enhanced by completely new, high-contrast color scheme options for added clarity and readability in all light conditions. A new LightHouse II menu system allows quicker access to frequently used features and controls, the improved visual indicators and touch-friendly slider controls, making navigating LightHouse II as easy as using a smart phone.

www.raymarine.com / www.FLIR.com

NAUTIS Simulators for Amsterdam Tug & OSV Training Center

Iskes Towage & Salvage has signed an agreement with VSTEP for the delivery of two NAUTIS Tug and Offshore Supply Vessel (OSV) simulators. These simulators are the first units purchased for the new Iskes / Damen Training Center in Amsterdam. VSTEP will provide a 360-degree NAUTIS Full Mission Tug Simulator and a 240-degree NAUTIS Desktop Trainer. These Tug and OSV simulators will be expanded with another 360-degree Full Mission Tug Simulator so that a complete exercise scenario with the assisted vessel and two tugs (one at the stern and one at the bow) can be conducted.

www.nautissim.com

Wichita Clutch AirMaKKs SSB Brakes for Offshore

Wichita Clutch has added air cooled, spring-set, air released AirMaKKs SSB high torque brakes to its AquaMaKKs family of clutches and brakes. AirMaKKs SSB models utilize the basic, easy-to-maintain, pin-style, modular design of AquaMaKKs including the brake housing with torque plates installed instead of water jackets. Units feature three-part epoxy marine-grade paint and corrosion-resistant coatings for added protection on offshore rig applications. AirMaKKs brakes, featuring stainless steel torque plates, are also available for marine deck applications where sea spray and direct seawater splash are prevalent.

www.wichitaclutch.com

Imtech Marine introduces SeaPilot 76

Imtech Marine's new multifunctional SeaPilot 76 can be turned into a fully approved combined sea and river pilot and can be connected to both proportional and on/off valves. This makes the modernized Seapilot 76 a good addition to the Sigma-line of Radio Zeeland. The SeaPilot 76 is suitable for the fishing industry as well as inland, coastal and deepsea shipping. The SeaPilot 76 is designed with clear graphical displays and easy to use control buttons. By connecting a rate of turn indicator and a FU steering handle, the SeaPilot76 becomes an approved riverpilot system.

www.imtechmarine.com

IHC Sealing Solutions introduce SUPREME Athmos zero-pollution seal

The SUPREME Athmos seal enables vessels – with limited draft up to five meters – to prevent oil from being emitted into the environment. An innovative system has been developed to provide a safe and sustainable operation by capturing every possible drop of oil. Water is prevented from entering the system by collecting any leakages from the seal into a drain tank. Once full, this tank is automatically drained into the vessel's general waste oil tank. The SUPREME Athmos seal has a fail-safe option, incorporating a condition-monitoring function. In the unlikely event of the system failing, it switches to the normal sealing mode, the drain tank captures the little oil that the seal uses and the tank indicates when it should be emptied.

www.ihcmerwede.com

Canada's Most Powerful Tug Built With ShipConstructor

As a 100 ton bollard pull ice class tug, the OCEAN Tundra is the most powerful harbor tugboat ever built in Canada. SSI's ShipConstructor CAD/CAM application was used to construct this vessel. Robert Allan Ltd. produced the design and SSI's dealer, Navware, and the associated marine engineering firm, Navtech, worked with OCEAN Industries during the production design and engineering of the tugboat. The project was so successful that OCEAN Industries decided to standardize on using ShipConstructor for future projects. This is a natural evolution from the company's previous reliance on generic AutoCAD products.

www.ssi-corporate.com

Marine News 2014 Editorial Calendar

ISSUE	EDITORIAL	BONUS DISTRIBUTION
JANUARY **Ad Close:** Dec 12	**Tug Boat Technology** Market: Training & Education Technical: Arctic / Cold Weather Operations Product: Winches, Ropes & Cranes	**Arctic Technology Conference** Feb. 10-12 – Houston, TX **PVA/Maritrends** Jan. 18-21, Houston, REGIONAL FOCUS: Gulf Coast
FEBRUARY **Ad Close:** Jan 15	**Combat & Patrol Craft Annual** Market: U.S. Coast Guard Technical: Outboard / Thrusters & High-Speed Propulsion Product: Fire & Safety Equipment	**ASNE Day** Feb. 20-21 – Arlington, VA
MARCH **Ad Close:** Feb 13	**Fleet & Vessel Optimization** Market: Naval Architecture & Design Technical: Propulsion & Emissions Management/Control Product: Water Treatment & Technology MaritimePropulsion.com	**CMA Shipping 2014** March 17-19 – Stamford, CT **AWO Spring Convention & Meeting** April 1-3 – Washington, DC
APRIL **Ad Close:** March 13	**Shipyard Report: Construction & Repair** Market: Push Boats & Barges Technical: Marine Communications MarineElectronics.com Product: Oil Pollution: Prevention & Response	**Workboats Exchange** April 13-16 – Bonita Springs, FL **Sea-Air-Space** April 7-9 – National Harbor, MD
MAY **Ad Close:** April 15	**Offshore Annual** Market: Fire, Patrol & Escort Craft Technical: Maritime Security Product: Interior Outfitting / Design / HVAC	**OTC Houston** May 5-8 – Houston, TX **SeaWork** June 10-12 – UK
JUNE **Ad Close:** May 15	**Dredging & Marine Construction** Technical: Salvage & Response Product: Marine Training Facilities Special Section: Marine Photo Contest	**HiperCraft Show** June – Virgina Beach, VA REGIONAL FOCUS: Great Lakes
JULY **Ad Close:** June 13	**Propulsion Technology** MaritimePropulsion.com Market: ATB Technical Trends Technical: Deck Machinery & Cargo Handling Equipment Product: Marine Coatings & Corrosion Control	REGIONAL FOCUS: East Coast
AUGUST **Ad Close:** July 15	**MN 100 Market Leaders** Market: Passenger Vessels & Ferries Technical: Navigation & E-solutions MarineElectronics.com Product: Safety & Prevention	
SEPTEMBER **Ad Close:** Aug 14	**Inland Waterways** Market: Specialty Workboat Missions Technical: Cordage, Wire Ropes & Rigging Product: Inland Boat Builders	
OCTOBER **Ad Close:** Sept 15	**Innovative Products & Boats – 2014** Market: Security Workboats Technical: On Board Communications MarineElectronics.com Product: CADCAM Software	**SNAME** Oct. 22-24, Houston **ShippingINSIGHT** Stamford REGIONAL FOCUS: Inland Rivers
NOVEMBER **Ad Close:** Oct 15	**Workboat Annual** Market: Lubricants, Fuels & Additives Technical: Pumps, Pipes & Valves Product: Marine Propulsion MaritimePropulsion.com	**International Workboat Show** Dec. 3-5 – New Orleans, LA **Clean Gulf** Dec. 2-4, San Antonio REGIONAL FOCUS: U.S. West Coast
DECEMBER **Ad Close:** Nov 15	**Salvage & Spill Response** Market: Software - Fleet Management Technical: SATCOM for Workboats Product: Workboat Supplier's Guide	

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Assistant Buyer

Job Location: USA, Seattle

Lake Union Drydock Company, a Seattle shipyard, has an opening for a motivated Assistant Buyer. Only candidates with the required experience will be considered for the position. Local candidates or those able to self relocate are encouraged to apply.

Responsibilities for the Assistant Buyer
- Ensures adherence to Lake Union Drydock Company's procurement policies and procedures.
- Manages appropriate levels of stock to ensure that proper material is available when needed.
- Ensures that the material received matches the shipping documents and works with vendors to remedy any discrepancies.
- Identifies and recommends suppliers by investigating potential vendors and their pricing/delivery structures.
- Responsible for scanning items, printing barcode labels, entering new items into the inventory management system, and distributing materials with the proper requisition.
- Works with the accounting group to ensure accurate and timely cycle counts of inventory.
- Maintains an organized and clean work environment.
- Works with others in the department to ensure cross-training in all areas.
- Assists the Purchasing Manager and fills-in during absences.
- Other duties as assigned

Requirements
High School Diploma or GED Certificate is required. AA degree in business related field or equivalent work experience is preferred. Minimum two (2) years buying experience, preferably in ship repair or heavy industry. Experience using software package for a medium sized purchasing department. He/she must maintain professional and technical knowledge. Experience with all phases of procurement cycle is required.
Job Profile
- Non-union, non-exempt
- Salary range: $36,000-43,600, depending upon qualifications
- Benefits offered: Medical, dental, vacation, paid holidays, paid sick leave, 401(k) plan, profit sharing after one year of service, and life insurance

To apply: email resume and cover letter to jobs@ludd.com. NO PHONE CALLS PLEASE.
Lake Union Drydock Company is an Equal Opportunity Company.
Email: jobs@ludd.com

Electronics Technician Ship's Electrician

Job Location: USA, Castine

Maine Maritime Academy is a co-educational, public college in Castine, Maine offering 18 degree programs in engineering, management, science and transportation. For more information, visit mainemaritime.edu. Maine Maritime Academy currently seeks to fill the following full-time position:

Electronics Technician/Ship's Electrician – TS State of Maine

The successful candidate will be responsible for the maintenance, testing, and repair of modern shipboard electrical equipment as well as shipboard electrical laboratory equipment. Experience with programmable logic controllers is required. The successful applicant must possess a valid U.S. Coast Guard certificate or be able to obtain one, appropriate trade licenses and or military equivalents. Position is subject to Random Drug Testing and pre-employment Drug screening. Strong computer skills and ability to troubleshoot Programmable Logic Controllers, Network Communications and motor control to include the ability to do PLC hardware configuration and program modifications. Knowledge and experience with 3 Phase 460 Volt systems, GE FANUC and Cimplicity systems is a plus.

For complete job listings, please visit our web site at: **http://jobs.mma.edu/**

Interested persons should send a letter of application, resume, and copies of all applicable certifications, transcripts, and/or licenses, and a list of at least three professional references to:

Director of Personnel Administration ~ Box C – 3 ~ Castine, ME 04420

For an online application form, go to About Us at **www.mma.edu and click on jobs@mma**.
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