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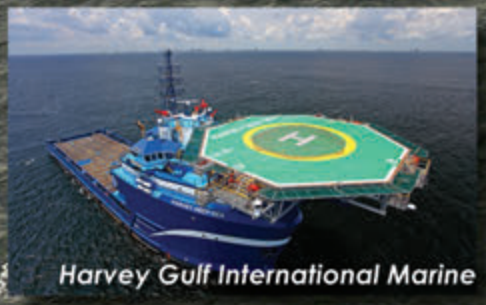
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BPA WORLDWIDE BUSINESS

On the Cover

36 New Tech & Tug Training

A state-of-the-art interactive Transas tug simulator isn't the only training tool in the box of educators at the Massachusetts Maritime Academy, but it may well be its most important. Mimicking a myriad of different tug technologies and control systems, the simulator gives a growing number of aspiring brown water license candidates realistic hands-on experience. ***The story by Patricia Keefe begins on page 36.***

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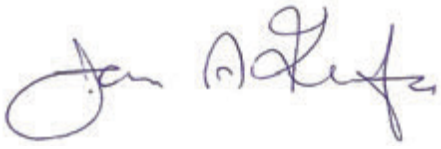
It's actually nice to be able to look forward – and then aft – and realize that for the domestic waterfront, 2013 will be a hard act to follow. We haven't been able to say that too many times in the past ten years. Surely, we can say it now. That's not to say that *MarineNews* readers don't have challenges in the New Year. They do. From where I sit, the task of sustaining the boom in this sector – whether that entails boatbuilding, inland transportation, offshore services and everything in between – is what should be keeping everyone awake at night.

2014 promises a lot of drama. For example, there are very few stakeholders, the Coast Guard included, who wouldn't like to see the subchapter "M" rule finalized prior to the change of command in ADM Papp's c-suite, this spring. That's anything but a done deal. The new rule, when it comes to pass, will change the way some inland players do business, be a non-event for many others and, eventually, inject more juice into the maritime economy in way of repairs, upgrades and yes – some newbuilding. That's just one variable, however.

Sustaining a robust maritime economy will require many things. First and foremost; it will take skilled mariners to operate the very boats that give us a reason to get up and go to work, every day. That will also entail a change in the very way we educate mariners for a domestic employment picture which has changed radically in the past 30 years. For example, you might not know that all but 500 of the 40,000+ hulls that make up the U.S. merchant fleet qualify as a "brown water" vessel. It's true. Starting on **page 36** of this edition, Patricia Keefe gives us a primer on how the U.S. maritime academies are responding to market demand, why that's important and the technologies being used to get there. It's a great way to start off the New Year.

Looking north, the Arctic – despite a less than auspicious year and a quieter aftermath – beckons. Foss Maritime, for example, is one firm that still sees great things ahead there. Also in this edition, Susan Buchanan outlines the ambitious plans of this West Coast-based operator, who with three, state-of-the-art newbuild Arctic class tugs nearing completion and a freshly inked services and response contract in Alaska, is poised to be at the forefront of new business there, when and as it develops. It's a situation worth watching and a story worth reading.

Those of you who know me best also know that I cover the regulatory beat closely. Sure, equipment, commercial concerns, deals and new boats are important. Driving the climate that allows all of that to exist, however, are the existing, developing and pending regulatory regimes that govern how, where, and when we do business. This month, Arctic regulations, winch & davit standards, and even the (more obscure) subject of what to do with obsolete offshore oil platforms all grace our pages. That's the way I like it. You will, too.



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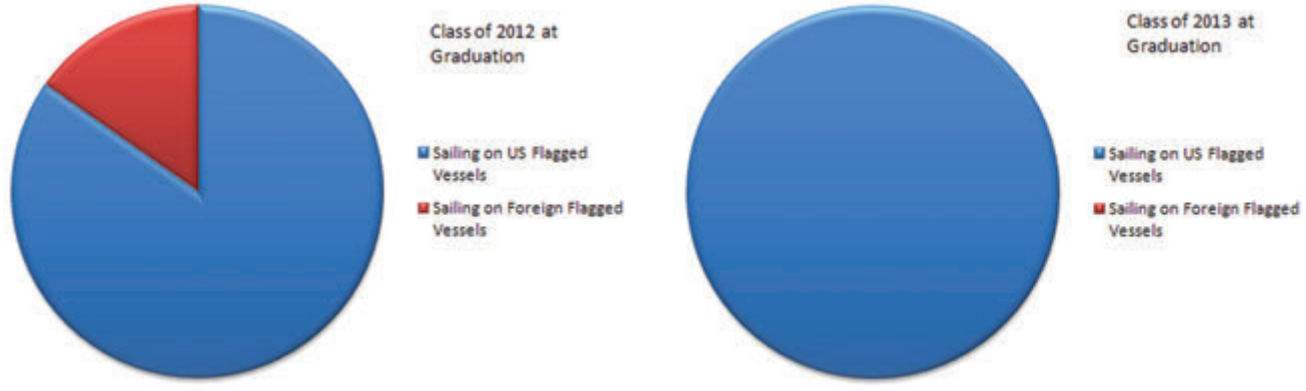
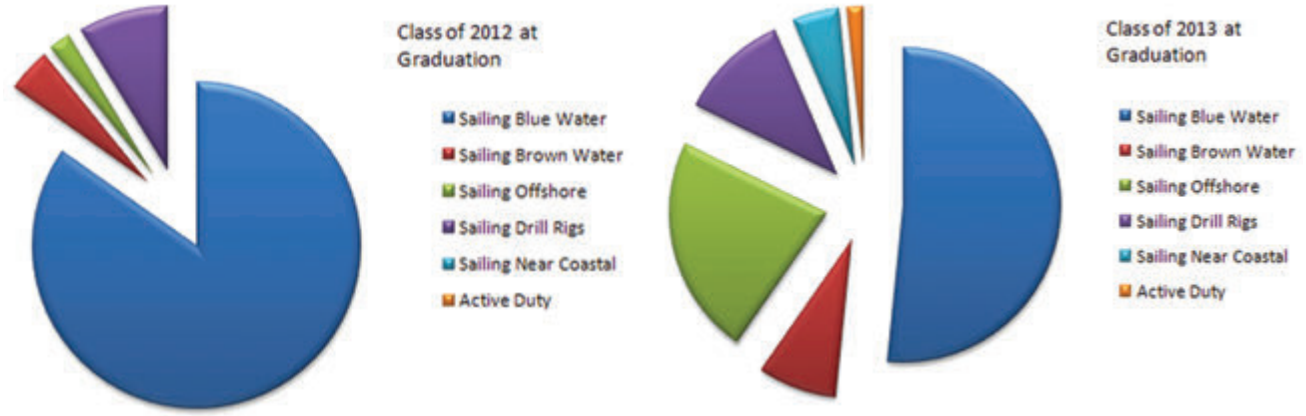
Maritime Academies: Returning to the Water … Brown Water

The latest surge in blue water shipbuilding and the seagoing billets that those jobs create is a welcome change for a domestic maritime sector that had seen nothing but decline for the past four decades. Still, and from a training, demand, and recruitment point of view, the brown water sector is arguably the place to be for today's aspiring mariners. That's because increasingly sophisticated equipment, expanding fleets and a much tighter regulatory regime are creating the demand for ever more mariners. The nation's maritime academies are responding with curriculum that reflects what is actually needed, changing to meet the times. One such place is the Massachusetts Maritime Academy. The industry is desperate for these (brown water) graduates. This year, a fall job fair at the school featured 76 companies looking to fill 550 jobs. A list of 28 recent Marine Transportation (MT) graduates shows 20 going to three companies in particular: Kirby Inland Marine (13), G&H Towing Co. (4) and Crowley (3). These inland companies are also taking the place of the blue water ships that used to provide internships for MAA students.

Incoming students have also taken note: MMA's freshman and sophomore classes are showing a significant increase in selecting the USCG license programs. The number of MT candidates stands at 94 for the fourth-class cadets, versus 65 for the seniors, while the number of freshman marine engineering majors (161) contrasts sharply with their senior counterparts (78). Reversing a two decade decline in license-track cadets, 64% of the freshman and sophomores are on a Coast Guard licensing track for both deck and engineering officers; up sharply from 44% of MMA upperclassmen. Looking at recent license-track graduates, 10% of the licensed cadets went ashore at graduation (all engineers), while 55% of the entire 2012 graduating class are working ashore (Power plants, Hospitals, civil





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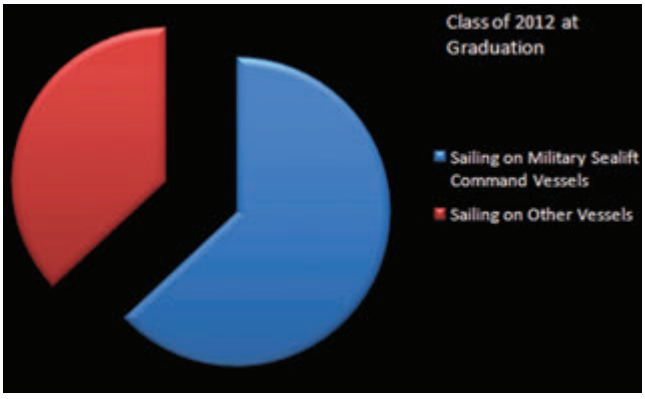
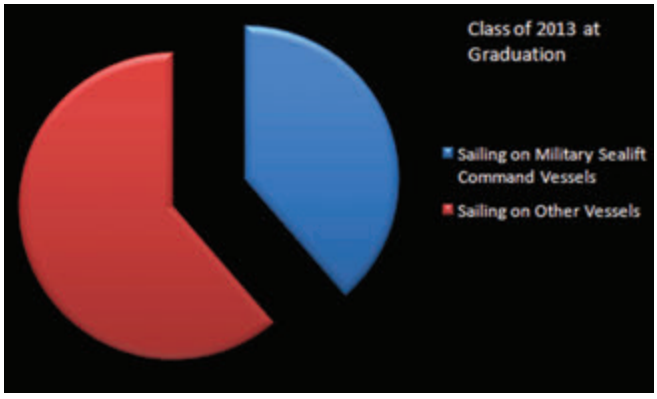
service, environmental cleanup, defense contractors, armed forces). That demographic could well be changing in the very near future. Whereas previous generations of cadets slowly eschewed the life involving long trips – sometimes extending 4 to 6 months or more – at sea, brown water candidates tend to work in much shorter rotations, sometimes as little as two weeks at a time. Rapidly escalating pay scales, pushed by a shortage of qualified officers, is making the brown water sector an increasingly attractive choice for today's graduates.

Comparisons of a shifting employment picture: MMA's gradual change in curriculum to meet industry demand, is telling. The shift from 2012 to 2013, for example shows that while fully 85 percent of 2012 graduates who chose to go to sea did so in a blue water role, that number shrank drastically to just 51 percent for the class of 2013. That number is also reflected in the whopping change in the number of graduates who chose Military Sealift Command billets – primarily blue water service – in 2012 (63%) and 2013 (39%). Finally, another key statistic shows that while almost 15 percent of the Class of 2012's license-track graduates who went to sea, did so on foreign flag vessels, none of their colleagues from the class of 2013 chose that route. The seismic shift reflects a robust U.S. flag demand for qualified personnel – you guessed it – primarily in the brown water sectors. Not only are the cadets at Mass. Maritime returning to the water and the roots of this storied, oldest continuously operating maritime academy in the nation – they are gravitating to brown water billets. The indicators are obvious:

"Go Brown, Young Man (& Woman), Go Brown."





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James Watson

President and Chief Operating Officer
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When ABS, the global provider of maritime classification services, announced that James A. Watson had been named President and Chief Operating Officer of their Americas Division, it wasn't hard to see why. Likewise, there were few if any other candidates for the job with as well rounded a CV, and with the breadth of knowledge spanning the full range of maritime issues. Formerly the Director of the Bureau of Safety and Environmental Enforcement (BSEE) and before that, Watson served as the U.S. Coast Guard's Director of Prevention Policy for Marine Safety, Security and Stewardship, where his responsibilities included commercial vessel safety and security, ports and cargo safety and security and maritime investigations. Notably, he was designated as the Federal On-Scene Coordinator for the government-wide response to the Macondo oil spill in the Gulf of Mexico in June 2010. Beyond this, Watson graduated in 1978 from the US Coast Guard Academy with a Bachelors of Science degree in Marine Engineering and holds Master of Science degrees from the University of Michigan in Mechanical Engineering and Naval Architecture in addition to a Master's degree in Strategic Studies from the Industrial College of the Armed Forces. Based at the ABS Division's headquarters in Houston, Watson hit the ground running in September. Listen in to see what he's been up to since:

You've been on board at ABS now for 4 months and this assignment follows two other similarly high profile, c-level assignments at both BSEE and the U.S. Coast Guard. What's different about each of these posts, what is the same and what "take-aways" from the previous posts will you bring to ABS in your new role?

ABS' mission is to promote the common safety, while the Coast Guard and BSEE naturally follow a regulatory approach. Despite the different approaches, they have similar goals and a similar heritage. They exist to serve the maritime industry and the public interest by working to reduce the likelihood of accidents and improve working conditions at sea. Each is built on a foundation of sound standards, highly competent engineers and field profession-

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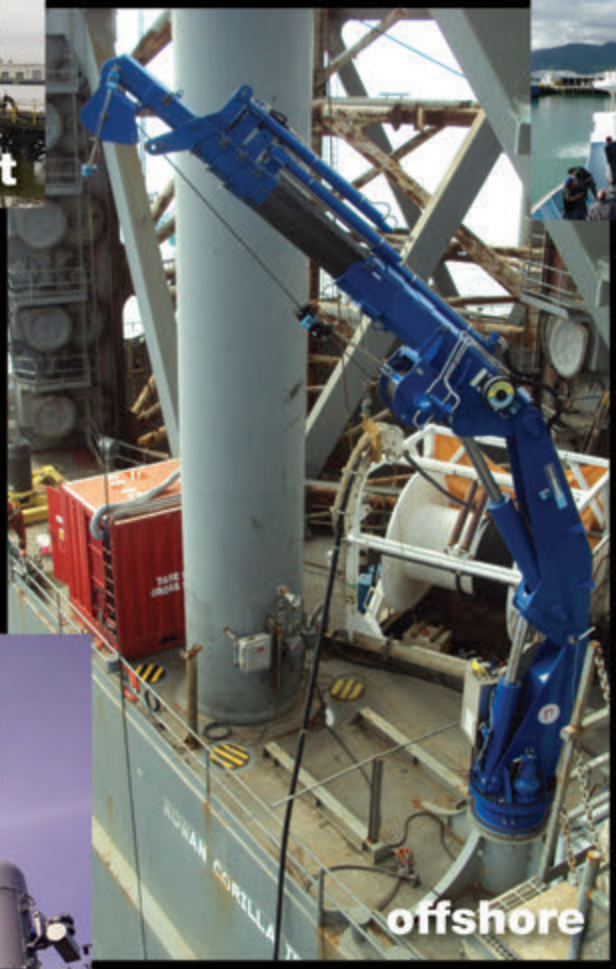

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als, and a genuine interest in the success of the maritime industry. As a Coast Guard officer, my job involved maritime response as well as prevention. While I was at BSEE, I embraced its safety and conservation mission, which is strongly linked to natural resource management. At ABS, I have added the objective of serving the maritime and offshore industries by helping them meet their desire to run a safe ship or rig while managing costs and downtime. Coming from Coast Guard and BSEE, I bring a conviction to achieving safety through a balanced, risk-based approach. I'm convinced that good ship management and seamanship are critical, but I also believe in the value of experienced engineers and surveyors. I believe leading indicators precede every accident; so safety is a matter of collectively reading the indicators and taking action at the right time.

Safety evolves over time – in the Coast Guard, in the commercial world, at BSEE and – at ABS. In all four worlds, safety also involves managing risk. All four approach the challenge a little differently. Your perspective brings them all together. How so?

Maritime professionalism, established standards and protocols, and a constant respect for changing risk conditions are essential for safety. My strategy encompasses all three, and I believe Coast Guard, BSEE, ABS, and commercial operators all have obligations to do their part. Since these organizations are large, widely spread, and usually focused on technical details, there's value in having someone to strengthen the common ground. I envision having that role. My new position at ABS is ideal because of the added responsibility I have to the commercial operators and marine industry leadership. While government leadership is well defined, industry leadership can be pretty diverse. I pride myself in being both a listener and a communicator. So, I hope I can be a good conduit for information and understanding. I believe reason and consensus can prevail in every difficult vessel construction and maintenance decision. Safety, environmental protection, and efficient commerce are in everyone's interest. As president of the ABS Americas Division, I plan to emphasize the many agreements and practices that these organizations already share in order to form the new policies and practices we will need to keep the industry moving forward. When industry moves to new environmental standards or embraces more efficient technology, we have to also consider the safety of the asset, its cargo or the crew. It is essential to fully understand risk tradeoffs as we begin implementing innovative technologies so the best informed decisions are taken across the board.

Give us some examples.

An example is mitigating risks that can be unintentionally introduced by installing equipment or systems necessary for compliance with particular environmental regulations or in the interest of energy efficiency. Class is taking a more holistic approach to the role of defining safety. In many cases, that means addressing areas that are not specifically covered by statutory regulations, such as equipment integrity, redundancy, equipment safety, operational safety and aspects of maintenance. Increasingly we are required to provide some type of formal safety assessment as a condition of classification approval of certain onboard installations. Today's technology, knowledge and experience, and the availability of performance data are providing the foundation for a new, more effective approach to safety. We know that the next generation of maritime regulations is going to be driven by data to a degree that has not been seen before. The challenge of big data is selecting the "right" data from the data flow to develop a data-driven classification cycle, which replaces the calendar-based approach to class and regulatory surveys that has been with us for more than 200 years. I am pleased to see and be a part of this transformation. Corporate leaders have the opportunity to act as role models for safety and safety culture. This happens through direct action – providing resources of time, personnel and money as well as empowering workers to work safely. This type of commitment helps to create an environment of mutual trust and is the keystone of a positive safety culture. ABS is this type of leader.

The Arctic is a focus of the Coast Guard, ABS and BSEE, all arguably for different reasons. Change is coming quickly there. Are Class, the regulatory and commercial sectors ready for what comes next?

The Arctic is a frontier. Americans excel in frontier adventures and have played a role in introducing technologies that allow entrance into frontiers. We also need to protect the natural environment in the Arctic – the culture and lifestyle of the people living there – and provide a level playing field for everyone participating in development. The harsh environment, the damaging potential of thick ice, and the remoteness of the Arctic are challenges each organization is addressing. Coast Guard, BSEE, ABS and the marine industry rely on one another to do what they do best in a situation like the Arctic. While more work is needed to improve navigational safety and shipboard safety equipment, the Coast Guard has had success working with Arctic nations on protocols for search and rescue and environmental

response. BSEE is leading the industry and the other Arctic nations in promoting new safeguards for ice scouring, ice management, and blowout prevention and response. ABS joins in the pursuit of safe Arctic operations through investment in R&D, establishing a harsh environment center in Canada for that purpose. And ABS has developed cold weather and ice strengthening vessel construction standards. Certainly, more work will be needed, but it's important that all three service organizations stay in lockstep with industry. The industry is keenly aware of the risks and the rewards of operating in the Arctic. I'm confident that measured, risk-based steps will precede each step in developing the Arctic's potential for more efficient global transportation and for new sources of plentiful energy.

LNG: ABS Americas is already heavily invested in this technology and leading the way in terms of rolling out new, domestic projects. What's the biggest challenge there and how does ABS fit into the equation?

The biggest challenge for introducing LNG as a marine fuel in the Americas is creating an alignment of suppliers and consumers. Market conditions are excellent, and technology is adaptable from the long, successful history of LNG carriage as a cargo. The tipping point for wide adoption of LNG as fuel will be reached when investments for ships that consume LNG align with suppliers' investments in marine LNG fuel distribution infrastructure. From equipment construction, to regulatory requirements, to training and bunkering requirements, there also are many areas of focus that must be addressed for the wide-scale adoption of LNG as a fuel source. The biggest question in meeting these challenges is how to strike the right balance among safety, environmental regulation and operational efficiency. The early adoption of LNG as a marine fuel appears to provide a great opportunity for addressing many environmental concerns. The potential for an abundant domestic supply also presents a tremendous opportunity.

Name some of the firms that you are actively working with on LNG projects

Today, ABS is working with leading companies that are pioneering LNG as marine fuel in the United States – Harvey Gulf's OSVs and TOTE's new construction of two LNG powered container carriers and their conversion of the ORCA class trailerships. Other organizations such as Horizon Lines and Interlake Steamship are working with ABS to look at conversion of existing vessels. ABS also is assisting Staten Island Ferries and BC Ferries as they study the feasibility of adopting LNG as fuel. And other organizations are reviewing the feasibility and requirements to construct "LNG ready" vessels. The newly formed ABS Gas Solutions team is undertaking a wide-ranging initiative to help vessel owners decide if LNG as a fuel is the right choice for their particular needs. This effort looks across issues such as operations, bunkering requirements, and safety considerations for specific vessels. As part of the scope of work, this team also is addressing the larger infrastructure needs and availability, training requirements, feasibility study criteria and economic modeling.

Much of your career has been spent in a regulatory role. Your current billet involves oversight of shipping rules and building standards – just to name a few areas of responsibility. That said; pick out one piece of advice for the domestic maritime industry that would benefit all stakeholders.

My advice to the domestic marine industry is to be leaders. Our maritime industry should want to lead rather than follow as the next generation of ships, rigs, marine terminals and services rolls out. Embrace new ideas to fully reap the benefits that come with being first. The maritime industry is a global industry, so good ideas are surfacing from everywhere. The key is for our domestic maritime industry to keep abreast of potential advancements and strive to make the best ideas a reality for our society to enjoy. We have the capacity and the marketplace to institutionalize new standards for marine trade and offshore energy development. The government agencies and ABS are ready, willing and able to support and validate new designs, innovative management, and frontier development. One of the particular values of a strong US-based class society such as ABS is its ability to support industry leaders with technically skilled people, research, and information sharing – across the public-private sector division as well as among industry competitors with the appropriate sensitivity for intellectual property.

I experienced this phenomenon firsthand as a Coast Guard officer and as BSEE director. Now I have a great opportunity to facilitate this important role of ABS from within. Here at ABS, we are bounded only by the industry's desire to move forward. In my first two months at ABS, I've already had the great pleasure of meeting with some of the captains of our industry. They are optimistic, dedicated and hardworking people. I'm looking forward to assisting them via my role at ABS as we turn another page in the great maritime history of the Americas.

The Arctic Region

An Emerging Maritime Frontier

By CAPT Jonathan S. Spaner

The Commandant of the United States Coast Guard, Admiral Bob Papp, Jr. spoke of the Arctic as an emerging frontier during the 2013 State of the Coast Guard Address in February 2013. He said:

"… one example of what our future holds can be seen in the emerging frontier of the Arctic, where there is a new ocean appearing. In September 2012, we observed the lowest sea ice extent in recorded history, and there are vast areas of open water where there used to be ice…As the receding ice increasingly gives way to commercial ventures, and human and economic presence increases, so do our responsibilities. We must continue to refine our ability to provide–and then support–a persistent operational presence during periods of increasing human activity and environmental risk."

The United States is an Arctic nation with significant equities in the future of the region. As with all U.S. waters, the Coast Guard is responsible for ensuring safe, secure, and environmentally responsible maritime activity in the Arctic. Our efforts are accomplished in close coordination with federal, state, local, tribal, and international partners to facilitate commerce, manage borders, and improve disaster resilience.

Increasing Traffic in Arctic Waters

The Arctic environment is changing. Satellite observations show decreasing multi-year ice and increasing open water during summer. Coastal villages are experiencing environmental changes that make their communities more prone to storm surges, diminishing permafrost, and coastal erosion. Although winter sea travel is still limited, maritime navigation is becoming more feasible during summer and early autumn. Economic development, in the forms of resource extraction, adventure tourism, and trans-Arctic shipping, are driving much of the current activity in the region.

The Arctic region is believed to contain an estimated 13 percent of the world's undiscovered oil and 30 percent of undiscovered gas (pre-shale). Decreasing sea ice and diminishing onshore oil production are creating incentives for exploration offshore. Concurrently, tourism is increasing rapidly in the Arctic. Due to undeveloped landside infrastructure, much of the increased tourism is expected to involve transportation via passenger vessel, which will further increase activity in Arctic waters. Each of these activities carries maritime risk, which must be managed through appropriate maritime governance.

The Arctic region presents numerous operational challenges including extreme weather, limited infrastructure, vast distances, and remote communities. The Coast Guard currently employs mobile command and control platforms such as the National Security Cutter, as well as air and communications capabilities to meet seasonal Arctic infrastructure requirements. Our approach assists in providing border security, environmental protection, community resilience, and other maritime governance priorities.

Overall, activities of economic growth and development are shaping the future of the Arctic. Indeed, there is a new and historic maritime frontier opening right before our eyes, and modern technology and capabilities are helping to ensure deliberate and responsible development. The Coast Guard will remain an important partner in the future of the region.

Strategic Objectives

The Coast Guard published an Arctic Strategy in May 2013. It is focused on three strategic objectives over the coming decade to ensure safe, secure, and environmentally responsible maritime activity in the Arctic:

- ***improving awareness,***
- ***modernizing governance, and***
- ***broadening partnerships.***

Improving awareness: Coast Guard operations require precise and ongoing awareness of the maritime domain. Awareness enables threat identification, information sharing with front-line partners, and improved risk management. Improving awareness also requires close collaboration within the Department of Homeland Security, as well as with the Departments of State, Defense, Interior, Commerce, and other stakeholders to enhance integration, innovation, and fielding of emerging technologies.

Modernizing governance: The concept of governance involves institutions, authority structures, and capabilities necessary to provide maritime governance. The Coast Guard will work within its authorities to foster collective

efforts, domestically and internationally, and improve governance. In so doing, the Coast Guard will review its own institutions and regimes of governance to prepare for future Arctic missions. This could include efforts such as developing an Arctic Coast Guard Forum in the future to further implement Arctic Council search and rescue and pollution response agreements.

Broadening partnerships: Operating in the Arctic requires a collective effort among stakeholders, which includes domestic regulatory regimes; international collaborative forums such as the Arctic Council, the Inuit Circumpolar Council and the United Nations' International Maritime Organization; and local engagements in Arctic communities focusing on training and assistance. Success in the Arctic also depends upon close intergovernmental cooperation to support national interests, including working closely within DHS, as well as with the Departments of State and Interior, the National Science Foundation, and other federal, state, local and native partners, as the U.S. prepares to assume chairmanship of the Arctic Council in 2015.

On the Horizon

Beyond these three strategic objectives, there are a number of additional factors that will position the Coast Guard for long-term success, including building national awareness of the Arctic region and its opportunities, improving public/private relationships, and identifying requirements and resources to shape outcomes favorably.

Operating in the Arctic is not a new venture for the Coast Guard. However, adapting to changing conditions will require foresight, focus, and clear priorities. It will also require the closest of collaboration with our partners in Alaska. Improving awareness, modernizing governance, and broadening partnerships will best position our service for long-term success. We have published our strategy and are working on implementation to ensure safe, secure, and environmentally responsible maritime activity in the future.

Access the Coast Guard's Arctic Strategy document here: **http://www.uscg.mil/seniorleadership/DOCS/CG_Arctic_Strategy.pdf**

Alphabet Soup

The USSBA, USDA and USDOT's Loan Programs

By Richard J. Paine, Sr.

As we launch into 2014, the domestic waterfront continues to fire on all pistons; boatbuilding, charter rates, utilization of tonnage, and so much more. That kind of momentum, however, requires funding to sustain. For smaller operators in need of capital to grow and/or maintain their fleets, sourcing those funds can be tricky. Fortunately – and unlike the Department of Transportation's Maritime Administration's Title XI Federal Ship Financing Program of the last few years – the U.S. Small Business Administration and the U.S. Department of Agriculture actually have the funding to make and guarantee loans for the U.S. commercial marine industry. That means that you have options – especially if you find yourself in need of upgrading your fleet due to environmental or subchapter M requirements.

Sourcing Funds

The SBA's Certified Development Company/504 Loan Program and the USDA's Business and Industry Guaranteed Loans are, for certain businesses, viable options for marine industry borrowers. Under the mandate to create jobs (at a stated rate of 1 new job per $65,000 in proceeds), grow small business and promote community development, these programs are well supported by current and prior administrations - with a FY 2014 budget of $949 million and $77 billion, respectively. Both have a healthy capacity for loans, loan guarantees and grants with a total of about $52 billion currently available.

Nuts & Bolts: SBA

A CDC/504 loan finances fixed assets for financially healthy businesses, with a typical loan ranging between $200,000 and $5MM. While there is no stated maximum, a project can be in excess of $20MM with the portion above SBA's $5MM financed by the bank lender. The advance can be as high as 90% with a typical CDC/504 structure being comprised of 10% down payment by borrower, 50% in a guaranteed bank loan and 40% in an SBA CDC/504 loan. Start-up ventures, which are usually difficult to finance due to lack of historic financial performance records, are financeable through a CDC/504 loan. A start-up business should anticipate a lower advance rate of 85% or less in some cases, with personal guarantees required as well.

While amortization periods vary based on the life of the asset financed, the maximum amortization on the CDC/504 portion will probably not be longer than 20 years. The base index rate for the CDC/504 loan utilizes the 10-year Treasury Bill as published in the Federal Reserve H.15 Selected Interest Rate report. Currently the rate is 2.74% (November 27, 2013). Spreads and fees, as appropriate to the credit, are also added to the base index.

Fees and bond sale costs, including a CDC processing fee; the SBA guarantee fee; the funding corporate fee; and the bond broker fee add approximately 3.0% to the project cost. These fees and other soft costs like transportation, surveys, documentation fees, and closing costs are added to the CDC/504 loan portion and are financed over 20 years. Prepayment penalties decline from 3.0% in year 1, to 0.30% in year 10, and 0% thereafter.

CDC/504 loans are securitized and sold as bonds to institutional investors like insurance companies, pension plans and mutual funds. To be considered for a CDC/504 loan an applicant must be "for profit"; operate in the U.S.; have a tangible net worth of less than $15MM with an average net income of <$5MM after taxes for the last two years; be non-speculative or invest in rental real estate; be an "eligible" business using the proceeds for an "approved" purpose; not have funds available from other sources; be able to cash flow the debt from projected operating income; be of "good" character; have relevant management experience and a feasible business plan.

The application process requires the completion of the SBA Loan Application; Personal History Statement; Personal Financial Statement; Business Financial Statements (including P&L and projections); ownership and affiliations statements; business certificates and licenses; loan applicant history; federal income tax returns for prior three years; business narrative; disclosure of leases or loans and other financials and collateral documents as might be required.

USDA: promoting qualified use of water resources

The stated purpose of the USDA's Business and Industry Guaranteed Loan program (B&I) is "to improve, develop, or finance business, industry and employment, and improve the economic and environmental climate in rural communities." It is not intended to guarantee marginal or substandard loans or "for relief of lenders having such loans." Similar to the CDC/504 program, it is available to an existing or start-up business with the goals of providing jobs, improving the economic or environmental climate, promoting qualified use of water resources and promoting renewable energy.

Rural areas are any areas other than (1) A city or town that has a population of greater than 50,000 inhabitants; and (2) the urbanized area contiguous and adjacent to such a city or town, as defined by the U.S. Bureau of the Census using the latest decennial census of the United States.

For those marine businesses fortunate to be in such rural areas, the USDA's B&I loan program opens another door to commercial borrowers for the purchase of equipment, machinery, land, buildings, supplies and other purposes consistent with applicable USDA regulations. The maximum loan guarantee ranges from 60% - 80%, depending on the loan amount. The maximum loan amount to one borrower can be as high as $40MM for "rural cooperatives" with a maximum of $10MM being the norm for a private enterprise. Rates may be fixed or variable and are subject to negotiation between the borrower and lender, with USDA approval. Maximum amortization for real estate is 30 years, equipment and machinery is limited to useful life or 15 years, whichever is less. Working capital must be repaid in a term of no longer than seven years.

In addition to the initial B&I loan guarantee fee (typically 3%), an annual renewal fee is paid to the USDA by the lender to keep the guarantee in effect. he maximum fee is currently 0.50% of the outstanding principal balance as of December 31st of the previous year. It is due annually on January 31st, and may vary at inception based on the amount of cost advanced in the loan; e.g. an advance rate of 70% of cost would carry a 0.35% renewal fee.

Wishful Thinking & Interim Help

At some time in the future, when the importance of the United States commercial marine industry is reestablished in the halls of Congress and the office of the Chief Executive, perhaps we may again have a robust marine lending and guarantee program available from the Department of Transportation. In the interim, viable options from the SBA and the USDA are capable of providing financing support to this vital industry.

On the WEB:

Small Business Administration: **http://www.sbagov/content/cdc504-loan-program**

USDA: **http://www.rurdev.usda.gov/BCP-gar.html**

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LNG – Who Cares?

You say you don't work on an LNG ship? You should care nevertheless.

By Tom Guldner

Just ten years ago, LNG Import terminals were being built and/or contemplated throughout the United States. Then, it was widely expected that Liquefied Natural Gas (LNG) imports would account for a large percent of the energy consumption in the US. Fast forward 10 years and we find that industry has made a complete 180 degree turn around. Instead of the US being one of the world's greatest importers of LNG, it is more than likely that the United States will one way be one of the major exporters of this frigid liquid. This is due, in part, to the vast quantities of natural gas that can be released in the relatively new process of Hydraulic fracturing, a process of creating fissures in underground formations that allows natural gas to flow.

The LNG industry in the US will experience a slowdown as import facilities go through the approval process and are re-built to become export terminals. Many new export facilities are also planned. Attesting to this situation, a substantial list of export applicants can be viewed online at: **http://energy.gov/sites/prod/files/2013/09/f2/LNG%20Export%20Summary_1.pdf**

But what about the title of this article? If you work in the marine industry and are not directly involved in the import or export of LNG, why should you care about this product? Pollution controls and restrictions on the marine industry are mandating a reduction of pollutants and greenhouse gas in the exhaust of marine vessels. This environmental concern along with the relative cost effectiveness of LNG will mean its use in fueling marine vessels will be probably be widespread, within in a few years. Hence, no matter what type of workboat on which you operate, there is a good chance that you may be working with or around LNG.

On the Horizon

LNG is coming on the water on this side of the pond – that much is certain. Harvey Gulf International Marine has ordered the first of at least six liquefied natural gas-diesel dual fuel offshore supply vessels and may order as many as 10. Tote's recently announced plans to build the first container ships to use LNG as a "primary" fuel source and the Matson contract With Aker Philadelphia Shipyard for Two New "Aloha Class" dual fuel powered Containerships will lead the way for others to dips their toes into the water. But, even if your own vessel is not powered by LNG, you may still be in close proximity to this type of fuel. LNG bunkering facilities and bunkering vessels are also in the works. Away from the marine environment, many trucking companies, railroads, factories, and power plants are also investigating the use of LNG.

Physics & Firefighting

LNG is the cleanest burning fossil fuel and is the liquid form of natural gas. It is reduced in size 600 times as it is cooled to minus 260 degrees Fahrenheit (-1600 c) which makes it cost effective to ship. It is lighter than water and also lighter than air (after warming). A colorless and odorless liquid, it is stored and shipped at atmospheric pressure. Due to its clean burning properties, LNG may extend engine life and engine performance may be increased. For most workboat operators; gasoline or diesel fuel is still the fuel of choice. Blue water sailors may (still) be working with heavier bunker fuels. In all cases, these mariners have been trained to handle fuel fires with foam, CO2, Halon, and water.

LNG requires a change in thinking. Dry Chemical is the extinguishing agent of choice if the fire is to be extinguished. Once LNG reverts back to a gas it is the same natural gas marketed for home use, except that it is virtually odorless because all impurities have been removed prior to liquefaction. If extinguished, the remaining liquid will continue to vaporize into an odorless and colorless natural gas. If it accumulates in a confined space and finds a source of ignition it could explode. LNG will not explode when unconfined. For that reason alone, and when feasible, it may be best to allow the fire to consume the LNG while protecting and cooling exposures.

Those working directly with the LNG transfer during bunker operations you will need to know much more about the product and the bunkering process. LNG is almost pure methane. Prior to any bunkering several steps will need to be taken to ensure that the transfer lines are purged of contaminants and cooled. Remember, LNG is a cryogenic liquid meaning that it is super-cooled to -260 F. At that temperature the liquid would cause severe injury to any exposed flesh that it contacts. It would also cause any common steel to become brittle. For this reason, all piping

for LNG transfer and fuel lines within an LNG powered vessel must be made of stainless steel or high nickel content steel. The piping itself will not only be made of these special alloys, it will have to be of a special design in certain areas of the vessel.

The International Maritime Organization (IMO) will be issuing regulations regarding LNG fueled vessels in the near future but for now the "Interim Guidelines" call for specific pipe design in various areas of a vessel. In certain areas, the fuel lines will need to be doubled walled with either an inert gas present in the outer chamber or air circulation through this chamber.

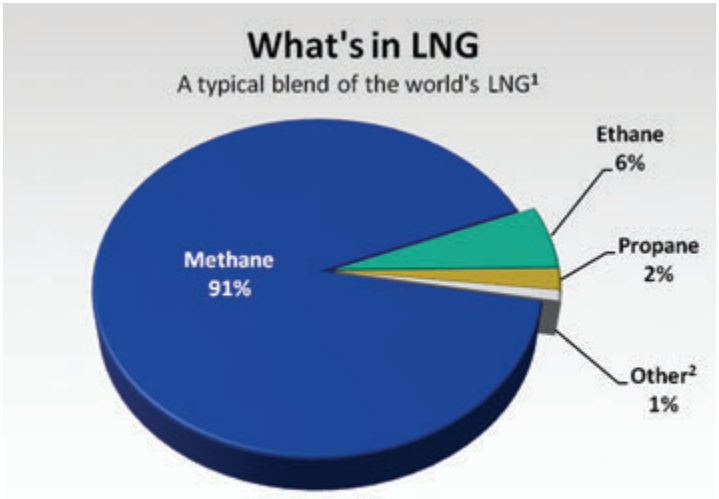
There will be many new fuel handling procedures as well as new types of equipment with which the vessel's engineer must become familiar. There will be numerous safety and emergency shutdown systems installed which should stop the fuel transfer immediately if any of the redundant precautionary systems detect an emergency or are not operating properly.

Training & Regulations

It is being suggested that several different levels of training be provided for all members of the crew aboard an LNG powered vessel. Just what this training will consist of and how it will be provided will be decided in the very near future. To be sure, at the very least, all crew members will have to know the properties of the fuel which is going to propel their vessel. But, LNG powered vessels are so new that the regulations and design specifications are struggling to keep pace with new innovations and technologies. As the IMO works on "interim guidelines" with hopes of issuing final guidelines next year, so too is the U.S. Coast Guard is being tasked with approving new LNG powered vessel designs. While permanent guidelines are being worked out, each new request for an LNG powered vessel design is being handled on a vessel by vessel approval process.

Still to be hashed out completely be the location of any LNG storage tanks aboard an LNG powered vessel. Some designs are proposing locating these tanks below accommodation spaces whiles others want this area excluded. Separately, LNG powered vessels in Norway, which have been operating LNG powered vessels for several years, have some of the LNG fuel tanks in that location. For those with security concerns, the location of LNG tanks on an exposed, open deck might signal an inviting target for terrorists. LNG transport vessels have, in the past, been able to rely on the safety of their double hulls. Arguably, though, a Rocket Propelled Grenade (RPG) might breach an LNG tank but would not cause an explosion. More likely, it would ignite any leak and just burn at the source of the leak. On smaller LNG powered vessels will this still be the case and will the crew and passengers be at risk as the leak burns.

As the use of clean LNG as a fuel for vessels, locomotives, power plants, trucks, and cars ramps up, this is an exciting time in the history of marine propulsion. From oars to sail, to wood, to coal, to diesel and bunker fuel, and now to LNG, the prospects for a significantly cleaner and more efficient maritime industry are bright. For its part, the new IMO regulations will address safety concerns as the maritime industry embraces this new era in energy use. LNG enjoys an unprecedented safety record on the water. That said; and regardless of where you are on the waterfront – ashore, afloat or training to get there – greater awareness of LNG is needed.



[1] Each country's mix is a little different. Methane content last year ranged from 83% in Libya to 99.7% in Nikiski, Alaska.
[2] Mostly butane

Vestdavit: Out Ahead on Innovation – and Safety, too

By Joseph Keefe

New regulations for davits used in the Norwegian offshore industry will not come into force until 2015, but in the meantime, they are already raising the safety bar. In fact, Norwegian-based davit manufacturer Vestdavit already has a NORSOK-compliant davit. Like so many things in the offshore oil game, many industry standards – LNG propulsion and executive style accommodations on OSV's, just to name a few – emanate from the North Sea and Norwegian operators.

For those domestic operators not familiar with these rules, NORSOK standards are developed by the Norwegian petroleum industry to ensure adequate safety, add value and with an eye towards cost effectiveness for petroleum industry developments and operations. Beyond this, NORSOK standards are as far as possible intended to replace oil company specifications and serve as references in the regulatory process.

The NORSOK Standards were established by first exploiting the deep experience of the Norwegian Petroleum Industry. They reference internationally recognized standards while adding requirements found to be effective in battling the stringent environment and stress of the North Sea. Rolf Andreas Wigand, Vestdavit managing director, explains, "It is not just NORSOK, which is Norway-specific. In US waters API 2 will apply and it has many of the same requirements. These new standards are driving operators to raise the safety bar, and they are coming to us with new orders."

NORSOK for Davits

According to Vestdavit, NORSOK regulations apply to davits and lifting appliances used on offshore installations and specify many new design features and safety systems must be employed. For its part, Vestdavit has invested heavily to ensure that its davits comply with NORSOK standards. Today, it boasts a 6 ton NORSOK-compliant davit and claims that orders from major offshore operators are coming, in response. A Korean shipyard building a unit for the Norwegian sector of the North Sea for a major operator is the latest to contract a 6 ton SWL NORSOK R002 davit from Vestdavit.

The PLR-6000 pivoting A-frame davit includes all mandatory safety features. The HPU, valves, control systems, electronics cabinets and back up accumulators are all mounted on a separate skid. The system will be fully FAT tested with DNV verification prior to delivery. This greatly simplifies yard installation, saving time and cost, says Wigand.

Workboat Safety Initiative

Global integrated geoscience company CGG is leading a joint industry project to improve workboat launch and recovery safety. Vestdavit is the key equipment supplier in the project which also involves DNV and Wilhelmsen as vessel manager. CGG operates a large global fleet of seismic vessels, all of which regularly launch and recover workboats. This operation is critical to the performance of the vessels and by the nature of the task will always pose hazards for the personnel involved.

A task force was set up to evaluate and report on safety, technical status of equipment, maintenance status, spare parts status, operational procedures and practice, certification status and operational qualifications of personnel. It recommended setting up a joint industry project to develop rules and regulations that will improve safety during launch and recovery of seismic workboats. The project, says Vestdavit, will deliver a new industry standard/guideline for seismic workboat launch and recovery equipment, maintenance and annual testing and davit operator qualifications.

"We are very happy to bring our experience with high quality workboat davits and training operators of these to the project," says Bjørnar Dahle, key account manager, Vestdavit. "These standards and guidelines can help raise the standard across the industry to the level of best practice which already exists. We supply the best equipment, but it must always be maintained and used correctly. This project will help to ensure operators maintain and use launch and recovery equipment safely, which will reduce risks and downtime." DNV will manage the project, which should complete its work by the end of 2014.

NORSOK Verification

Vestdavit recently received DNV verification of its PLR-5000 NORSOK davit. "This is an important milestone which proves that the newly developed system is in compliance with these strict requirements for davits," says Vesdavit technical director Helge Gravdal. Commercially available now, Vestdavit is, in this case, out in front for safety, and innovation.

Kirby Christens ATB in New Orleans

Inland and coastal giant christens ATB duo Jason E. Duttinger and Winna Wilson in an October New Orleans ceremony.

By Susan Buchanan

(All photos credit to Robert Montero, Kirby Corp.)

The crew of the Jason E. Duttinger took a break from hauling coal between Plaquemines Parish, Louisiana, and Florida on Oct. 30 as Kirby Corp. of Houston christened the articulated tug-and-barge unit in New Orleans at the dock of the Hilton Riverside Hotel. Both units were named in honor of two special individuals.

Jason Duttinger was a senior transportation specialist at North Carolina-based Duke Energy when he died of cancer in 2011. Winna Wilson was the wife of Archie Wilson,

president of Dixie Carriers, Inc., which was acquired by Kirby in 1969.

At the ceremony which took place alongside the Mississippi River, Joseph Pyne, Kirby's president and CEO, told dozens of guests about the company's longstanding relations with Duke Energy and Dixie Carriers. Employees, friends and family are the fabric of any flourishing business, he said. Duttinger's wife Cheryl said her husband valued his colleagues, and always had his laptop and cellphone by his side so co-workers could reach him during the couple's getaways with their two children. A Duke Energy colleague described Duttinger as "a bulldog, an advocate of doing the right thing, not just the easy thing."

Winna Wilson's daughters remembered their mother as "a super wife," and said they were delighted that she now has "a super barge" named after her. Members of the Duttinger and Wilson families said they were pleased to be able to meet for the first time. Cheryl Duttinger smashed a ceremonial bottle of champagne over the side of the tug, and Wilson's daughters christened the barge.

The Jason E. Duttinger carries coal from Louisiana to power plants in Florida and then returns to Plaquemines Parish, making four round trips a month, Captain Carl Brennecke said from the deck before the ceremony. He clambered up and down stairs as he showed visitors the vessel's wheelhouse and spacious, well-appointed living quarters. Brennecke pointed to television and internet connections and private baths, and said living conditions on vessels have improved greatly since his career began 38 years ago. The Duttinger has a crew of eight, but can sleep up to ten people. The crew was present for the christening and escorted visitors around the vessel.

The Duttinger, coupled with the Winna Wilson, is more than 600 feet long overall. The ATB was built at Signal International's Orange, Texas facility. When they were constructed, Signal also built the Captain Donald Lowe Sr., with the barge Margo Dale, for Kirby, Brennecke said.

The Duttinger tug is 125 feet long, with a beam of 42 feet and a maximum draft of 22 feet, and it is powered by twin EMD 12-710G7C-TC 3,000-hp engines. The tug has an EMI hydraulic steering system and triple NautiCan rudders. The deck holds a 12,125-pound-capacity crane. The Winna Wilson barge is 490 feet, with a 90-foot beam and maximum draft of 36 feet. Ocean Tug & Barge Engineering in Massachusetts designed the Duttinger, the Margo Dale and their matched barges.

Jason Duttinger's mother, Marlene Cavellier, who drove down from upstate New York in October, looked out from the tug's wheelhouse, and said that her son loved his job at Duke Energy. He was also fond of New Orleans and would have been moved by the event at the port, she said. After the vessel tour and the ceremony, relatives, friends and coworkers shared stories about Duttinger and Archie and Winna Wilson at a buffet dinner at the Hilton as the sun set over the river.

Under the guidance of Joseph Pyne, Kirby has swelled from a medium-sized, inland-tank barge firm in the 1980s to a diversified company, offering inland and offshore transportation services, along with engine systems. The company's transportation subsidiaries operate inland tank barges, inland towboats, coastal tank barges, coastal tugboats, offshore dry-cargo barges, offshore tugboats and a docking tugboat. Today, Kirby's inland fleet represents more than a quarter of U.S. inland tank barges, and its coastal vessels comprise over one-fifth of U.S. coastal tank barges.

Development of Standards for Arctic Operations Moves Ahead

Improving and updating Arctic design standards for material, equipment, and offshore structures for the petroleum, petrochemical and natural gas industries.

By Andrew Safer

Seventy representatives from seven countries met for two days in St. John's, Newfoundland and Labrador in early October to further the creation of standards for resource development in the Arctic. The countries represented included Canada, UK, France, Italy, Norway, Netherlands, and Russian Federation. It was the third annual meeting of the International Organization for Standardization's (ISO's) Technical Committee on Arctic Operations (ISO TC 67 SC8) which focused on advancements in standards with regard to (1) ice management (led by Canada), (2) escape, evacuation and rescue (Russia), (3) environmental monitoring (Russia), (4) working environment (Norway), (5) land extension and Arctic islands (Netherlands), (6) Arctic materials (Russia), and (7) physical environment (Norway). This technical committee is a follow-up to ISO 19906, which established Arctic design standards for material, equipment, and offshore structures for the petroleum, petrochemical and natural gas industries.

Out in Front

Recalling his first involvement in an ice management program in the Arctic in 2000-2001, Stephen Green commented on the current push to develop operations standards. He is Canadian chair of the ISO Canadian Mirror technical committee and general manager of Provincial Aerospace's Environmental Services Division in St. John's. "Now, with better technology," Green said, "we are in a position to more effectively utilize oil and gas reserves, and with the reduction in Arctic ice, there is a commercial opportunity for shipping using the northern sea routes. The Arctic train is leaving the station," he observed, "and you can't stop it. You have three choices: You can either be on the train and influence its course, you can stay behind at the station, or you can be under the train." He added that the technical committee's focus is to be proactive and work together to develop standards for the protection of people, the environment, and assets. "Even if Canada decides not to drill in the Arctic," Green said, "there's drilling in western Greenland. We have an obligation to make sure that risk is minimized. When someone is drilling outside your borders, it becomes a global issue."

The International Oil and Gas Producers Association (OGP) has championed the development of Arctic standards since the committee was struck in 2011, noted Green. Industry representatives at the meetings included individuals from OGP, Husky Energy, Statoil, BP, Chevron, Shell, Gazprom (Russia), ENI (Italy), and TOTAL

SA (France). Representatives from Petroleum Research Newfoundland & Labrador, Canada-Newfoundland and Labrador Offshore Petroleum Board, BN Petrole AFNOR (France), and the Petroleum Safety Authority (Norway) also participated in the meetings, as did the Canadian Standards Association and Standards Norway.

The technical committee convenes plenary meetings twice a year. The first meeting was in Moscow in November 2012, the second in Rotterdam in April 2013, and the next meeting will be in Paris in April 2014. The work groups continue to collaborate between meetings.

Progress & Planning

On October 2, the work groups with representatives from each country reviewed their progress to date, outlined the work that needs to be completed, and began to develop work plans. Votes were cast in a plenary session on October 3, with each country having one vote. "Bringing together international experts face to face is an essential part of the international standards development process," said Paul Steenhof, project manager for CSA Group (Canadian Standards Association). "By meeting together, we're able to start developing the work plans. This often occurs through a negotiation process where face-to-face time is critical." Once a New Work Item has been accepted by the Subcommittee, the standard for that item is typically scheduled to be completed in three years, said Steenhof. If a four-year development track is required, ISO is notified.

The Ice Management standard, for example, is set to be finalized by the end of June, 2016. Stephen Green is vice-chair of the ice management work group (Robin Browne of Chevron Canada is chair), which encompasses ice, currents, meteorology, and icebreaking and ice management operations utilizing remote sensing, aircraft sensor, and radar data. Their work will culminate in the creation of a manual that will include checklists that oil companies will use in the development of their ice management plans.

António Simões Ré who is Canadian vice-chair of the ISO technical committee and also working group lead of the escape, evacuation, and rescue work group, likened the decision making process to that of the United Nations. "Countries have different approaches to legislation," he said. "For example, traditionally, the Russians tend to be more prescriptive while Canadians are more oriented towards performance-based, so you have to work through that." Simões Ré, who is a senior research engineer at the National Research Council of Canada's Ocean and Coastal Rivers Engineering facility in St. John's, noted that the biggest challenge for his work group is addressing the requirements of both onshore

Representatives of the ISO's Technical Committee on Arctic Operations attended meetings in St. John's, Newfoundland and Labrador.)

and offshore operations. Whereas winter conditions are severe in the offshore areas, onshore operations may benefit from temporary infrastructure such as ice roads which facilitate evacuation. He doesn't think the hazards and challenges of working at the different latitudes in the North can be addressed by improving on existing technologies.

"A step change is needed," said Simões Ré. "We need new ways of doing things, due to the remoteness and lack of infrastructure. The solutions will need to be more self-sufficient and robust." He foresees either the development of designs that are fitted for all hazards and conditions that work in all seasons—but that do not do anything exceptionally well—or multiple types of evacuation technology that will be tailored for each season. While Arctic operations won't provide a high-volume market for new technologies, Simões Ré sees this as an opportunity for companies to showcase their design capabilities, which will likely lead to applications in less challenging environments.

St. John's was chosen as the venue for the meetings in Canada due to the high concentration of harsh-environment expertise residents here. "This has been an opportunity for Newfoundland and Labrador to truly become the Arctic gateway," said Green. "If we can survive on the Grand Banks, it's a great testing ground for the Arctic." He added that Newfoundland and Labrador has the highest per capita involvement on the technical committee internationally.

Companies located in the province that were represented at the meetings include: Provincial Aerospace, AMEC Environment & Infrastructure, AKAC Inc., Iceberg Logistics Inc., Rutter Inc., Oceans Ltd., Oceanic Consulting, Deltaradar, and Virtual Marine Technology. OceansAdvance, the organization that represents the ocean technology cluster in the province, coordinated the event. "The entry of the International Organization for Standardization into the Arctic equation can be seen as a strong affirmation that the region is on the cusp of major development," said Les O'Reilly, executive director of OceansAdvance, "especially across the oil and gas industry, including the ocean technology sector." The National Research Council of Canada (NRC) on the Memorial University campus hosted the event. Financial and logistical support for the October meetings was provided by NRC. Atlantic Canada Opportunities Agency and the Government of Newfoundland and Labrador's Department of Innovation, Business and Rural Development provided financial support, and the City of St. John's provided logistical support.

Bottom Line: Standards + Cooperation = Safety

Characterizing Canada's effort with regard to the technical committee, Green said, "When it comes to the Arctic, we have the federal and provincial governments and the private sector working together. We're all on the same oar, which does not happen in a lot of countries." Steenhof said the Arctic is "a huge priority"—not only because of its high concentration of natural resources, but also because of the necessity to ensure sustainable economic development as well as environmental protection—noting a recent protest by Greenpeace in the Russian Arctic. "I attended a meeting last week with senior representatives of oil and gas producers," he added, "and they emphasized the need for safe operations in the Arctic. Operational standards are of critical importance in this regard—to the oil companies in particular. They need the social license to operate in the Arctic, and standards help them achieve that."

Upbeat on the Arctic

Foss Maritime Builds New Ice-Class Tugs as it embarks on a new Arctic Challenge.

By Susan Buchanan

To support growing Arctic business, Seattle-based Foss Maritime Company is building three ocean-going tugs at its Rainier Shipyard in Oregon on the Columbia River. These 132 feet-long, Ice Class vessels will have strengthened hulls designed to withstand the harsh, Arctic climate conditions into which they will eventually be deployed. Work on the tugs began in July, and the first in the series will be delivered in December 2014. With roughly 1,000 employees, Foss now has 175 people working in Alaska and the Arctic, servicing oil and gas, mining and other sectors. The company has a positive, long-term view of the region's business climate.

Founded in 1889, Foss maintains one of the largest U.S. West Coast fleets of tugs and barges, and has transportation operations in all major ports there. The company runs two shipyards and offers maritime services and project management to customers in the Pacific Rim, Europe, South America and around the globe.

Last month, *MarineNews* spoke to Mike Lauer, Foss's director of marine transportation; and Dan Cole, project manager for Arctic tug construction, about the new vessels and the environment where they'll work. Lauer said Foss decided to build the three boats as part of its ocean-tug-fleet replacement and modernization program. "We chose this class of tugs based on our view of immediate demand and where they'll fit in our fleet mix," he said from Seattle. The Foss world fleet contains over 150 vessels, including twelve vessels in the Arctic. Eight of those are Arctic tugs.

Expanding Shipyard Capabilities

Dan Cole said the company's Rainier shipyard expanded to build the new tugs. "Through improvements to the yard, we increased our fabrication areas and have hired additional staff," he said. "We started cutting steel in June of this year and laid all the keels in July. We're proceeding with construction for deliveries in December 2014, Dec. 2015, and Dec. 2016." As for customers, "we have oil and gas projects we've been awarded, and plan to use these three, new tugboats for those projects," Lauer said. "Primary, initial areas of deployment will be projects associated with Alaska and the Arctic." Cole noted that the three tugs under construction are designed to work anywhere around the globe.

State-of-the-Art, Built to Last

The tugs have special environmental capabilities. "They are classed with the American Bureau of Shipping, including Ice Class and Green Passport," Lauer said. "Ice Class means these tugs can operate in light ice conditions. They can negotiate through light, first-year ice. But they aren't designed to break ice. They're able to operate in cold ambient air and sea water temperatures." The tugs will have Green Passports or inventories of hazardous materials. Those documents are intended to keep workers on board, or when a ship is decommissioned, free from exposure to asbestos, PCBs and other threats.

"The tugs will be certified for SOLAS, the International Convention for the Safety of Life at Sea requirements," Lauer said. SOLAS requirements include on-board rescue boats and maritime, electrical and fire safety systems and devices. Beyond this, the new tugs will incorporate the latest technology for harsh Arctic conditions. "To reduce the exposure of employees who are working on deck, making or breaking tows or handling anchors, we've added shark jaws, tugger winches and tow wire hold-down hooks," Lauer said. Notably, the three tugs will have Markey double drum TDSD-40 diesel towing winches and have a bollard pull of 100 metric tons.

"These winches integrate safety features, like the slip-brake mechanism that accommodates momentary high loads in the tow wire, along with a back-up, electric come-home feature that allows us to always safely haul in the tow wire," Lauer said. Cole said the vessels will be certified by the U.S. Coast Guard in accordance with 46 Code of Federal Regulations, Subchapter C, for uninspected ves-

"Foss is bullish on opportunities in the immediate and long term with regard to resource extraction of oil and gas, mining and minerals. Precious and industrial metals and rare minerals are mined in the Arctic. These are areas in which we provide marine support."

– Mike Lauer, Foss director of marine transportation

FOSS

FOSS Arctic Class Ocean Tug

Vessel Type: Twin Screw Tug	Fuel: 122,000 gal.	AUX 1: CAT C
Service: Ocean Service	Lubes: 1,200 gal.	AUX 2: CAT C
Name: Arctic Class (3) TBD	Hydraulic: 500 gal.	AUX 3: (Emergency) CAT C
Builder: Foss Shipyard	Potable Water: 1900 gal.	Rated BHP (kW): 7,268 BHP (5,420 kW)
Reg. Length: 123 ft.	Non-potable Water: 6,900 gal.	Tow Winch: Markey Double Drum TDSD-40
Reg. Breadth: 41 ft.	Fuel Type: MGO	Tow Wires: 2 ea. 2.25" x 3,000' (57mm x 914m)
Max Draft: 18 ft.	Flag: U.S.	Bow Winch: Markey WEWD-22
Reg. Depth: 20 ft.	ME [#]: 2, CAT C280-8 Tier 2	Bollard Pull: 221,000+ lb (100+ mt)
Length Overall: 132 ft.	Delivery: December 2014	Class: ABS A1 Towing, AMS, ABCU, Ice Class D0
Height: 60 ft from waterline	Built Keels Laid: (All) July 2013	Fire Pump: 2 ea. Goulds Model 3996 or equal

sels, and will meet the (pending) proposed safety rules of Subchapter "M" for new towing vessels.

Foss: Looking Up and Heading North

Lauer said the Arctic business climate is favorable. "Foss is bullish on opportunities in the immediate and long term with regard to resource extraction of oil and gas, mining and minerals. Precious and industrial metals and rare minerals are mined in the Arctic. These are areas in which we provide marine support." He added that the company makes decisions based on the long haul. "If it's an oil project, we might work on it for 15 years before the specific oil field comes into production. The near-term outlook for oil prices doesn't necessarily correlate with our current level of activity."

In recent years, Foss has expanded its project work to Arctic, particularly Alaskan, oilfield services. Last summer, the company dedicated four tugs and two barges to delivering oilfield modules to a development project near Point Thomson, 60 miles east of Alaska's Prudhoe Bay. An estimated 8 trillion cubic feet of natural gas reserves exist at Point Thomson, along with lesser quantities of a natural gas liquid called condensate. Pools of oil lie near that field. ExxonMobil is the owner and operator of the largest share in Point Thomson, BP is a significant owner and ConocoPhillips has a smaller stake.

Foss vessels have worked with Spartan Offshore in its search for oil in Cook Inlet, and the company's Marine Transportation Division assisted Shell Oil in exploratory drilling in the Arctic. Royal Dutch Shell Plc, however, said last February it wouldn't drill for oil in Alaska's Arctic seas in 2013, following setbacks in 2012. Shell sent its two Arctic offshore rigs to Asia for repairs and upgrades last year. Arctic oil nonetheless remains appealing, particularly given political unease and safety concerns in many other producing regions.

Separately, and since 1990, Foss has transported tens of millions of tons of concentrated ore for Red Dog Mine, one of world's largest zinc concentrate producers, located 200 miles north of the Arctic Circle. Foss developed self-loading barges to transfer that ore to bulk carriers from a shallow-draft port. The mine operates under an agreement between the NANA Regional Corp., Inc., a Native company owned by the Inupiat people, and Teck Alaska Inc., a subsidiary of Teck Resources Limited in Canada.


Foss Arctic Class Tug hull 1

Foss Arctic Class bow Profile

To that end, Foss has a seasoned Arctic workforce. "Our Arctic crews are a mix of Pacific Northwest and Alaskan people," Lauer said. "The vast majority have many years of experience operating in Alaska. A very large part of our ocean transport projects are Arctic or Alaska related, and a majority of our ocean force can work in that region."

New Frontiers: New Business, Distinct Challenges

In December, Foss entered a joint venture with ASRC Energy Services Response Operations, LLC. "AES-RO is owned by the Arctic Slope Inupiat and is a leading provider of energy and resource-development services in Alaska," Lauer said. "We look forward to providing our customers with new offerings combining AES's strengths in contingency response and onshore services with our offshore and near-shore marine fleets. And we see this venture as a way to provide professional maritime careers to the Inupiat people, who truly understand and respect Arctic challenges." The Inupiat are native Alaskans, comprised of two groups: the Tagiugmiut or "people of the sea," living on or near the north Alaska coast, and the Nunamiut or "people of the land" in interior Alaska. The joint venture, called AES-Foss Marine, LLC, will be headquartered in Anchorage.

Compared with its other business sectors, Foss's Arctic operations require much greater planning and preparedness. "If something goes wrong, the Arctic's remoteness makes a big difference," Lauer said. "If a crew member is injured, it could be days before we can get him to a medical facility. There is no infrastructure and no local vendors to assist. You have to prepare for what might arise and outfit the vessel in case a piece of machinery breaks down. We need to have extra equipment on board. The extreme climate is unforgiving. We must have people who can work in that environment."

As for climate change, "scientific evidence shows the ice-free season is increasing and the extent of summer sea ice is declining, but we're still going up at the same time and coming back at the same time," Lauer said. "In practice, nothing has changed. Our crews cross the Bering Strait in Alaska in early July during the ice breakup, and come back in mid-to-late October when things start to freeze."

In the regulatory arena, "we're monitoring new Bureau of Safety and Environmental Enforcement rules related to offshore drilling, along with discussions about implementing the Polar Code, which is in draft format now," Lauer said. BSEE is part of the U.S. Dept. of Interior. The Polar Code is a proposed, international regime for safely operat-

ing ships in frigid waters.

Foss anticipates other participation in the Arctic. "But most of our projects are covered by nondisclosure agreements so we're not at liberty to talk about much of what we're planning," Lauer said. "Our customers release the details first."

Last July, Foss Marine Holdings merged its operations and resources under the name Foss Maritime Company. According to its mission statement, Foss intends to meet customer needs and expand globally, while providing quality work and pursuing safety with a world-class workforce nurtured by respect. The last part will be especially important in the unforgiving environment of the Arctic, where protecting the environment of the people who call it home is arguably Job ONE. With state-of-the-art equipment, years of deep cold weather operations experience and a seasoned workforce, that shouldn't be a problem for Foss.

Temporarily quiet in the frozen North, even as the lower 48 energy situation overheats, Foss patiently is laying the groundwork for what they believe will come next. That's because – and no pun intended – Foss is in for the long haul in Alaska. With their new response and services partnership just getting underway, that's reason enough for everyone to be upbeat on the Arctic.

New Tech & Tug Training

Mass. Maritime responds to industry demand, reloads with cutting edge Transas equipment, and moves to the head of the brown water training queue.

By Patricia Keefe

It was a dark and stormy night with choppy seas. I didn't hit anything, but I did run aground twice while at the helm of the tug boat simulator at the Massachusetts Maritime Academy (MMA) in Buzzards Bay. But then that's the point – to let students safely make mistakes and get the closest thing to the real-life experience they need – and would have a limited shot at otherwise on the equipment they'll be handling where the jobs are today; on tug boats, barges, ATBs and other inland and coastal vessels.

There was a time when young men seeking to make their mark in the world were told to "Go West," and then later, to think "Plastics." In the nautical world, ocean-going vessels gave the siren call.

Nowadays, those eying a marine career would be better advised to "go shallow and think small." As the blue water, deep-draft job market has dried up, brown water opportunities have surged to the point today where combined they make up the vast majority of the nation's merchant marine, with over 4,000 tugs and 27,000 barges.

Seismic Shift

It used to be that MMA, like its sister academies, cranked out deckies and engineers primarily for ocean-going posts, back when there were hundreds or even thousands of U.S. flagged deep draft vessels. Not anymore. A quick glance at traffic on the Cape Cod Canal alongside MMA, where 90% of the boats going by are commercial tugs and barges, is telling, notes Capt. Bradley K. Lima, MMA's dean and vice president of academic affairs. His colleague, instructor Captain David Mackey, estimates that deep water U.S-flagged commercial vessels make up less than 1% of world tonnage today.

Brown water, conversely, has seen aggressive growth as tugs and barges replaced conventional cargo ships, and offshore energy and liquid natural gas exploded. "There has been extreme growth in the offshore segment of the vessels of limited size, driven by offshore oil exploration," says Scott Craig, director of marine development and compliance at Crowley Maritime Corp. "Every one of those oil rigs has four support tugs commanding very high wages.

[Yet] It's hard to find mariners to crew those vessels."

And then there are the environmental and marine regulatory bodies, which are forcing owners to update their fleets with new technologies and specific skill sets, and the impact of an aging workforce eyeing retirement. The increasingly stringent regulatory environment means that traditional sailors on these boats are being asked to do more and more, at a faster pace. It's driving people out of the industry, according to Timothy Park, sales manager, marine technologies for Transas USA, Inc., which supplies all of Mass Maritime's simulation systems. The boats are becoming so complex, he says, that "there is a renewed emphasis on getting very highly trained crews to run the equipment." What's more, "It requires a completely different level of training in the engine room and wheel house," emphasizes Crowley's Craig. And that means students are going to have to get more specialized training in order to get hired, says Mackey.

The market shift has dovetailed nicely with waning student interest in spending long months at sea, and the fact that the smaller crewed, shallow draft vessels afford new third mates the opportunity to take on more responsibility more quickly, and offer a shorter path to captaincy. "What appeals to me is that you are the one driving and making the maneuvers yourself. You are solely responsible for your vessel in your job," says MMA First-Class Cadet Michael Rezendes, a marine transportation major from Sandwich, MA. Piloting a vessel along narrow channels is more challenging than steaming across the ocean and just standing watch or keeping things on course, adds Second-Class Cadet Justin Berendes of Lincoln, RI.

Driven by Demand

None of this has been lost on Mass. Maritime, where the change in job opportunities has triggered a corresponding shift in its educational offerings and tactics – some by choice, some mandated, for example, by the IMO treaty, the Standards for Certification and Watch keeping (STCW) program and or the U.S. Coast Guard, which lays out requirements for skills and knowledge in specific areas. This mix of tougher regulations and competency testing has upped the ante significantly for maritime educators and their students.

Even so, maritime schools are bursting at the seams these days, trying to accommodate student demand for their seemingly job-guaranteeing programs, such as MMA's elective, two-semester long Mate of Towing (MT) Program, specifically designed for upper-class cadets interested in becoming an officer on towing vessels. Students who successfully complete the coursework, which is divided between class lectures and practical training on the water and in the simulator, receive an MT endorsement on top of their Bachelor of Science degree.

The industry is desperate for these graduates. A fall job fair at the school featured 76 companies looking to fill 550 jobs, according to Mackey, who is the director for MMA's MT program. A list of 28 recent MT graduates shows 20 going to three companies in particular: Kirby Inland Marine (13), G&H Towing Co. (4) and Crowley (3). These inland companies are also taking the place of the blue water ships that used to provide internships for MAA students.

Incoming students have taken note. MMA's freshman and sophomore classes are showing a significant increase in selecting the USCG license programs, according to Mackey. The number of MT candidates stands at 94 for the fourth-class cadets, versus 65 for the seniors, while the number of freshman marine engineering majors (161) contrasts sharply with their senior counterparts (78), according to Dean Lima. Also, while 44% of the upperclassmen are on a Coast Guard licensing track for both deck and engineering officers, that same number is up 64% for the freshman and sophomores.

Along with the broader job opportunities, comes an increased workload for students and advanced educational techniques, chief among them, simulation training and stacks of "performance-based assessments." The latter refers to so-called "ghost credits," an additional layer of training said to be the equivalent of an extra semester of work without any academic credit. This includes passing 187 such tests to pass third mate muster. Completion of the Towing Officer Assessment Record required for MT endorsement involves passing another 55 performance assessments. These tests require students to competently perform or verbalize a check list of tasks or actions. Some of this is performed on the water, some in the tug simulator. It creates a staggering schedule, forcing some students into a fifth year of classes, says Lima.

The MT program is driven by the fact that a Third Mate's license no longer qualifies its holder to operate a towing vessel, and places a heavy emphasis on practical training. To meet that objective, the school had to do two things: install a tug simulation program and beef up its shallow draft fleet.

Installed in 2009, the $650,000 Transas USA Inc. Transas Operator Trainer Full Mission Towing Simulator provides what the school calls an "experiential learning process," by functioning as a kind of navigational reality show, taking students through a wide variety of ship handling scenarios on a wide range of vessels under an even wider range of conditions and locations. Simulation has become such an important part of the curriculum that the average Marine

The academy's other reality based training equipment – on the water.

Transportation cadet will take about 20 percent of their credit load in simulation-based courses, according to Lima.

Simulation: Reality-based Training

On the Transas tug simulation bridge, students work with a variety of modern navigation, radar, charting (ECDIS) and propulsion systems, including conventional single-screw tugs, conventional twin-screw tugs, cycloid-drive (Voith-Schneider) tractor tugs and Z-drive reverse tractor drive. They all can be quickly swapped in and out. Instructors can take students from familiarization, standard operation and watch-keeping, to advanced operation, troubleshooting and vessel resource management.

The simulations are also designed to help them develop critical command, decision-making and communications skills.

The school further deepens the reality play by linking the simulated tug boat house to its Full Mission Bridge simulator counterpart. "So you have two different crews on two separate simulated bridges, in two separate buildings, communicating as if they were on different vessels. It brings them much closer to the real world," says Mackey. This is important because tugs have to be able to work out problems with their counterparts on the ships around them.

Team problem solving also gets a workout on the tug bridge as students observe each other at the helm under the watchful eye of Mackey, discuss possible strategies and review decisions and incidents. "This is one thing that separates kids from MMA versus the ones that come up from the deck: They know how to communicate with each other. That interaction is very valuable, you can't replace that," says John Moyle, manager of maritime licensing and upgrades at Kirby Corp, Houston. Kirby thinks this is so important it is putting its senior captains through simulated communications exercises on an ongoing basis.

The Transas Towing simulator is based on the Transas NTPRO 5000 navigational software and runs on a Microsoft Corp. Windows 8-based platform. Simulating a real tug bridge, students are provided with a 300° field of view and fairly life-like graphics on 12, 62" vertically mounted plasma screens providing vistas 225° forward and 75° aft. "It's definitely better than it was. We used to have an old bridge simulator with two TVs looking forward and one looking back," recalls MMA 2C Cadet Miles Farber of Chatham, MA, marveling at the 12-screen "virtually all the way around" visuals of the new simulator.

Simulators have indeed come a long way from three TV screens. In addition to the helm, with its interchangeable controls (to simulate different vessel types), MMA's modern tug simulator room contains a realistic electronic console, emergency override systems, three com systems and multiple tracking monitors.

Key to the simulator is its realism and adaptability. Out on the water, students are limited to specific bridges, a singular waterway and the weather of the day. The simulator can position students on waterways and in ports almost anywhere in the world, day or night, in all kinds of weather, speed and sea conditions, working with – or dodging as the case may be – a wide range in size and class of vessels and other objects and obstacles. Realistic visualization software brings water translucency and light refraction, white caps, foam and even splashes into view. You can almost feel the wind on the water; you can definitely feel the waves be-

The cutting edge Transas produced Tug Simulator in action at Mass. Maritime Academy.

neath the deck. As the MMA Simulation Department likes to say, "It's as real as it gets without getting wet."

A separate observation room for the instructor(s) includes a workstation equipped with everything needed to generate, edit, manage and assess training exercises. Instructors can adjust variables such as weather, speed, current, water conditions, etc., change ports or time of day. Other features include automatic competency assessment scenarios, and automatic recording of data in the course of the exercise, including main, audio and video log files; and the ability to display a track in the form of a succession of contours.

Realism and Real Value

It's that tracking that Farber, 20, finds even more helpful than a simulator exercise itself. Even more than real world experience, which cannot duplicate this particular ability to armchair pilot, so to speak. Example in point: After a training exercise, he explains, if the student has "messed up," the instructor can call him or her into the adjoining observation room for a review of what just happened. "You can see the whole tow evolution from a bird's eye view. You can see the barge, your track line, its track line, see if the barge is swinging, see the cable – everything. You can even go underwater and look back up. It's unbelievable. You would never see that if you were out on a boat. It gives you a perspective you'd never otherwise get, and it's definitely beneficial," Farber says.

Similarly, proving that sometimes there IS a substitute for real experience is another advantage offered by the simulator, which provides a digital complement to the academy's towing fleet, which includes two 26-foot model tugs (Hercules and Alert), a custom-built 48-ft barge, MMA 400, and M/V Ranger. As part of their MT class requirements, students learn the practical aspects of towing and pushing barges, as well as escort and ship assist towing procedures, on the water. But working with model-size vessels is akin to practicing on half a basketball court. It's the simulator that gives students the real feel and perspective of a scenario that comes from working on and with full-size vessels, says 2C Cadet Berendes.

As noted by former U.S. Coast Guard Commandant Admiral Thad Allen, while giving the commencement address at MMA's 2012 graduation, "Leaders are lifelong learners." In short, simulation today, simulation forever. This is all good news for the academies, where simulated training has been embraced and positioned as a vital part of a student's education.

For his part, Mackey succinctly summed up the value of the virtual training experience while musing about how even today, even with internships, many students never "get to touch anything." The simulators changed all that, and the resulting product – a well educated and broadly experienced and confident graduate – is going to help lay the foundation for the next growth cycle in American shipping.

Patricia Keefe *is a business and technology journalist with over 25 years' experience. She served as news editor, editorial writer and editorial director at Computerworld newspaper. She has edited and produced content for Informationweek.com, Optimize Magazine and Microsoft's Windows 7 web site, and currently freelances for a variety of publications.*

Rig Donation

A step-by-step guide

A primer for those interested in Artificial Reefs as a way to dispose of old offshore structures, rigs and ships.

By Chris Ledford

The quandary of what to do with a non-productive well and the associated rig structures has always plagued offshore operators. As federal and state regulations begin to tighten in terms of what has to be done, and when, oil and gas principals are taking a new look at alternatives to removal. Hence, when an operator is looking at options for decommissioning, reefing should be one of the first considerations. Helping to serve that need, the Texas Artificial Reef Program was created in 1990 and is managed by the Texas Parks and Wildlife Department (TPWD).

TPWD and its Domain

Led by three dedicated employees responsible for the entirety of the 367 miles of coastline along Texas, TPWD currently has 68 reef sites between the Mexico and Louisiana borders, ranging as far offshore as 90 miles. Of these sites, 60 are "rigs-to-reef" locations containing over 130 oil and gas structures. The remaining sites consist of nearshore and ship reefs.

The permitted reef sites are generally 40 acres and are large enough to contain multiple reefed jackets. The locations of the sites are determined by water depth, distance from other reef sites and navigational waterways, and the locations of donated platforms. In order for a new reef site to be developed, the jacket must be large enough to be the "anchoring structure" of a site to which additional material can be towed. One aspect of the Texas Artificial Reef Program is monitoring the reef sites. TPWD has a fairly extensive biological monitoring program, and enjoys interagency agreements with Texas A&M University – Corpus Christi, Texas A&M University- Galveston, and the University of Texas at Brownsville. This extends the TPWD monitoring capabilities beyond what a small in-house group can accomplish.

Tracking Rig Removals

One of the biggest challenges facing the Program is tracking rig removals and the TPWD gets significant pressure from recreational users to reef as many structures as possible. Although the TPWD does not expect to reef ev-

ery structure, there are some that nevertheless get removed that would be ideal for reefing. Typically, this happens because the decommissioning group either doesn't know about the reefing programs, or think their structure isn't suitable for donation. Educating the oil and gas industry as to this option is therefore most important.

Through 2012, only about 10 percent of removed rigs have gone into Rigs-to-Reefs programs gulf wide. In an effort to capture more removed structures, the Bureau of Safety and Environmental Enforcement (BSEE) has an Artificial Reef Coordinator, who reviews applications as they come in. If a structure looks like it would be a good candidate for reefing, he will put the operator in touch with an appropriate state reefing program. Unfortunately, the BSEE Artificial Reef Coordinator will only re-direct the operator after they have already filed a removal permit. Time and energy can be saved by approaching the reef programs as a first option.

In a Nutshell: The Rigs-to-Reef Process

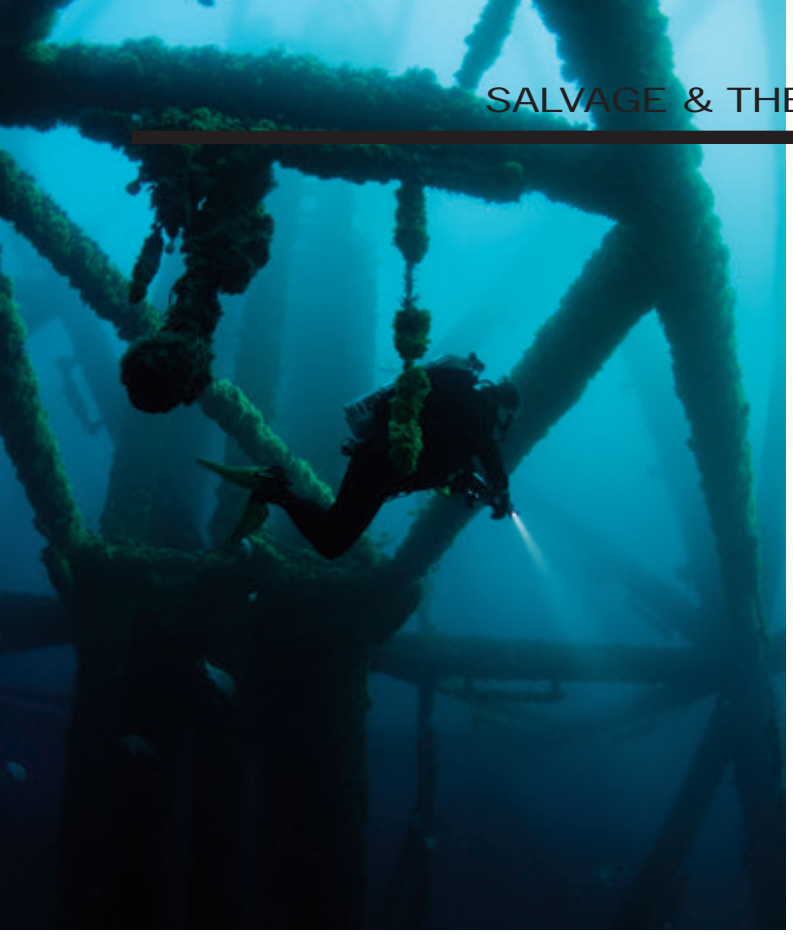
A brief step-by-step guide to reefing an oil and gas structure is laid out below:

Starting the conversation: Reefing should be one of the first considerations for decommissioning, primarily because it often offers significant cost savings, and there are potentially more reefing options than might be evident at first glance. The first step is to contact the regional Artificial Reef Program to determine what options are available. Once the contact is made, the Reef Program will need basic information on the structure to determine reefing method; location, number of piles and width dimensions of the base and top.

Site selection: Size of the structure, proximity to the nearest established reef site, and water depth are the primary variables that determine reefing method and location. From a habitat standpoint, reef programs would prefer to reef in place, which usually offers the greatest cost saving to the operators as well. The downside to this method is the permitting process needed to create a new reef site takes significantly longer than towing a structure to a preexisting site. Towing the structure would be recommended if the current position is within a few miles of another site or if it is not large enough to be a suitable "anchor structure" for a new site. For instance, an 8-pile structure tied to an auxiliary 4-pile structure would be reefed in place, even if it was just a couple miles from another reef site, where as a single 4-pile rig would likely be towed to the nearest site.

If a structure is to be towed, the distance of the tow and the size of the structure relative to the water depth at the proposed site must be considered. The U.S. Coast Guard generally requests 85 feet of clearance above reef material, but structures provide the best habitat when they are as close to the surface as possible. Hence, agencies such as the TWPD are left with a balancing act of placing structures where they meet the minimum clearance, but at the same time are not too deep.

Permitting the Reef Site: If it is determined that the structure would make a good candidate for reefing in place, the Artificial Reef Program will start the process of obtaining a permit from the U.S. Army Corps of Engineers for a new 40- acre reef site. The only item the Reefing Program would need from the operator is a proposed reefing plat, which would include the coordinates of the center points of the reef site and structure, and pre- and post-reefing profile views with delineated depths. Although the permit application is not overly complex, it can take time. For the past year we have been required to get archaeology surveys completed for every new reef site application, which adds to both time and cost in order to reef in place. With this recent requirement, expect the site permitting process to take about a year. If the structure is being towed, no new site permit is required.



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Mississippi Artificial Reef Program - Erik Broussard – 228-523-4032 **erik.broussard@dmr.ms.gov / http://www.dmr.state.ms.us/joomla16/index.php/marine-fisheries/artificial-reef**

Source: TPWD

BSEE permits: The operator is responsible for submitting a decommissioning application to BSEE regardless of whether or not reefing is being considered. All decommissioning groups should be familiar with the steps required. If the operator is looking to reef the structure, the decommissioning plan would include the reefing options agreed to between the operator and the state. BSEE and BOEM subject matter experts will review all parts of the application as part of a NEPA analysis, and if necessary delineate required mitigations. Once the mitigations have been addressed, a final NEPA document is issued along with the permit for removal. If the structure is a good candidate for reefing, but the lease will expire prior to the expected reefing date, BSEE is able to make an extension of time for the lease.

Donation: The donation generally amounts to 50 percent of the realized savings, which is the difference in the cost of full removal and scrapping of the jacket and the cost of reefing the structure. These funds are used by the Texas Artificial Reef Program for siting, designing, constructing, monitoring, and otherwise managing the system of artificial reefs in Texas. The majority of the funding to support the Artificial Reef Program comes directly from Rigs-to-Reefs donations.

Material Donation Agreements: Once deployment method and location of the reefing has been determined, permits have been obtained, and a donation amount agreed upon, the Program will work up a Material Donation Agreement (MDA). The MDA states that the structure will go to a specific reef location previously agreed upon by both parties, and once the platform is reefed according to the agreement, the state takes on all liability for the jacket. However, this does not relinquish the operator from liability associated

with wells. Once the MDA is signed by both parties, the operator may move forward with removal.

Removal and placement: The operator is responsible for all work and associated costs with reefing the structure. During the reefing process a representative of the Artificial Reef Program may be present as an observer.

Final Survey: Once the structure has been placed on the bottom, a certified survey plat must be provided to the reefing program. The surveys consist of an overall chart of the site including coordinates of the structure and relative locations of other structures within the reef site, a profile view of the structure with depths indicated, and a multi-beam sonar image of the structure in as-reefed position.

After Care: Once the structure is reefed as specified in the MDA and the donation has been received, the state reefing program assumes liability and is responsible for maintaining any required marker buoys, notifying the NOAA charting division of the reefing, and completing biological monitoring on the reef sites.

Reasons to Reef those Rigs

The Gulf coast is fortunate in that artificial reef programs are strongly supported by industry, recreational users and the scientific community. Conflicts of interest are addressed early in the process, and are usually related to placement of the structures. Although technology is moving past the age of fixed platforms, by working together, operators, reefing programs and the public all benefit from keeping many of the current structures in the water to maintain the habitat that has formed around these rigs.

Chris Ledford *is the Artificial Reef Program Specialist and Diving Safety Officer for the Texas Parks and Wildlife Department Artificial Reef Program. He holds a Master's Degree in Biology from Texas A&M University at Corpus Christi, and is an avid underwater photographer.*

SLM Winches: Commercial, On Deck and Heavy Duty

Superior-Lidgerwood-Mundy's standardized commercial winches are tough, customizable, and built to last.

For 150 years, Superior-Lidgerwood-Mundy (SLM) has been at the forefront of innovation for the Marine Sector. Focusing on the strict Navy and USACE standards for much of that time has given the firm a unique perspective upon which to build long lasting and reliable products in the marketplace. In 2010, SLM decided to split its resources into Commercial and Defense divisions. At that time, SLM's Commercial Division conducted a review of its history to see where their experience of designing and building Heavy Duty Deck machinery would fit in the Commercial Marketplace. Listening to customer feedback, and reviewing past successes, the SLM Commercial Team then developed 2 standardized styles of equipment for the Commercial Field; the S-Series Winch Line, and the M-Series Deck Machinery Line.

Listening to the Customer

Whether a customer application requires Carpuller Winches, Barge Haul Winches, or Loading Winches, the SLM Standard Winch can fit any system. Unlike other conventional winches, SLM utilizes the combination of today's modern technologies with 150 years of winch manufacturing experience to bring reliable, safe, and cost-effective winches to the market. But, it all starts with customer requirements. To determine the best fit for a particular system, SLM always asks specific questions. Variables to be considered are listed in below.

Service Variables for Marine Winches

- *What size rope do you anticipate using for your application?*
- *Does your location require Explosion Proof equipment?*
- *What are the loads that the winches are expected to pull?*
- *What are the size restrictions for your site?*
- *What is the environment (operating temperatures and moisture exposure) for your system?*

The S-Series Winch

The S-Series Winch line offers heavy duty gear driven winches ranging from 10 HP 100+ HP. While base designs are available, they are fully customizable to the application requested, effectively eliminating the cookie cutter approaches to winching systems. The primary industry that the S-Series has served since its launch has been Barge Terminal applications. SLM's "Two Winch One Joystick" approach for operation improves safety by allowing precise and accurate positioning of a barge along the terminal wall. The specialized controls also significantly reduce the learning curve for training new operators. Combining modern technology with a customizable approach to Winch Systems has rapidly made SLM and its S-Series the brand of choice for any winch applications. All new S Series winches, tow haulage systems, and in-haul systems come with a 1 year new equipment warranty. Along with the equipment warranty, Superior-Lidgerwood-Mundy Corporation warranties any replacement part supplied by SLM for 120 days.

The M-Series Winch

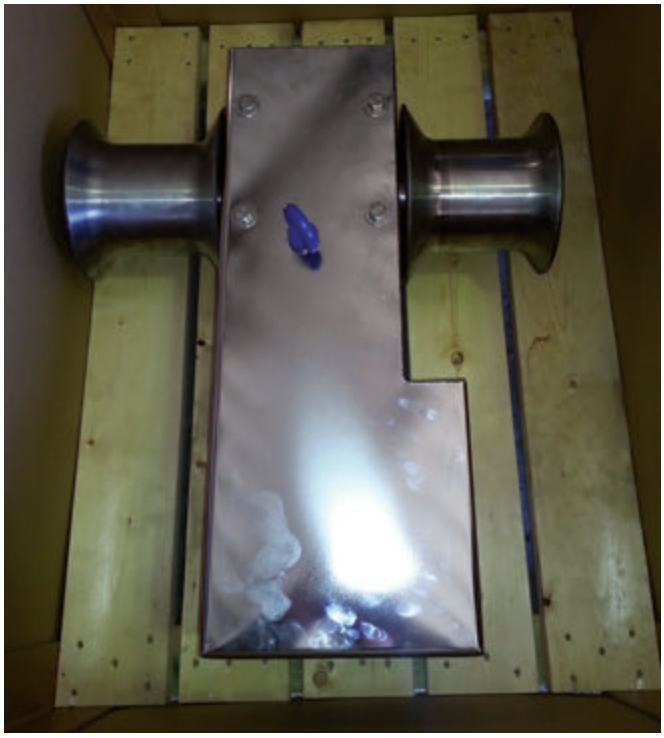
The M-series line of equipment includes the highly successful M-2000 Capstan Design. Unlike conventional capstans, the SLM engineering team chose cutting edge right angle spiral bevel speed reducers that utilize cycloidal technology providing quiet reliable operation. The benefit of these gears is that they provide infinite life cycles while achieving 94% efficiency and 300% shock load capacity. Building off of the success of the M-2000 Capstan, SLM recently developed the M-Series Gypsy Winch/Anchor Windlass to provide the market with a high quality, low cost, more efficient anchor handling winch that is readily available. Available in double or single drum models, the M-Series Gypsy Winch is a versatile product that can be adapted for nearly any situation. As with the M-2000 Capstan, the Gypsy Winch is customizable as well, providing Explosion Proof and 50 Hz models when required. According to SLM, the M-Series line of equipment combines high performance and low cost. As with all SLM products, a Standard Marine Duty Paint System is applied, but custom paint schemes are available.

Made and Serviced in the USA

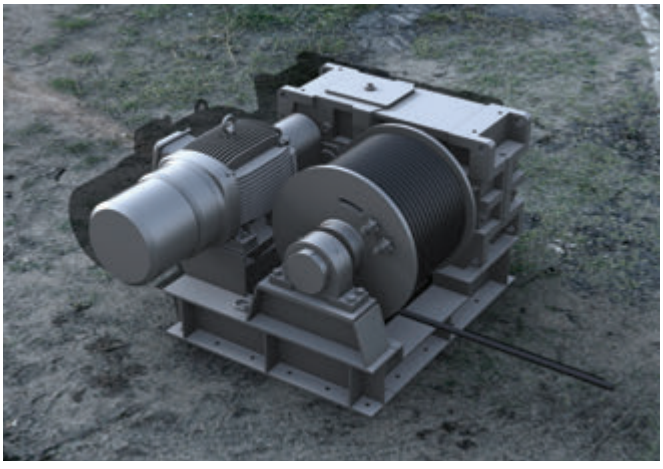
All manufacturing and administrative activities of Superior-Lidgerwood-Mundy are accomplished at Superior, Wisconsin, which has over 65,000 square feet of manufacturing and warehouse space. SLM provides Tech Rep

service around the United States and in a handful of other countries which includes complete Engineering Evaluation services (analysis of present system, recommendations for repairs, custom system design). SLM recently developed new distribution channels to further The M-Series equipment expansion into the Commercial Field. These include Ace Marine & Rigging (Morehead City, NC), Byrne Rice and Turner (New Orleans), and Donovan Marine (Harahan, LA). www.lidgerwood.com

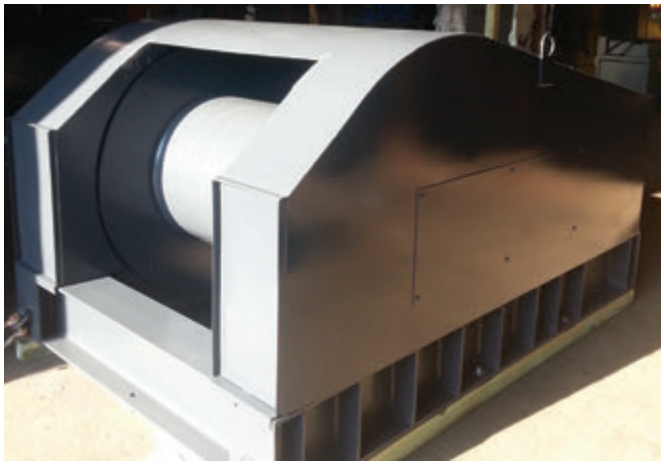
S Series Barge Haul winch



M Series Gypsy Winch



S-series winch



S Series Barge Haul winch

M Series Gypsy Winch Specs

Single and Double Heads Available	Specialty Motors (50 Hz, Explosion Proof) are available
6" Head Diameter Currently Available	Controls can be built to Customer specifications
1,300 lbs @ 20 FPM	All Electrical Configurations Available upon request.

M-2000 Capstan Specs

Running Loads: 3,500 to 18,700 lbs.	Speed: 24 - 101 ft/minute	Specialty Motor (50 Hz/Explosion Proof) avail.
Electrical &Hydraulic units available	Motors – 5 HP to 30 HP	Customizable w/ Complete Control Options
Head Diameter: 9", 12"or 15"	100 Different Units Avail.	Bollard Pulls: 25,000, 35,000, 50,000 lbs.

ESG Launches HOS BAYOU

Eastern Shipbuilding Group launched the HOS BAYOU (Hull 205) in November for Hornbeck Offshore Services, LLC. The launching event was held at Eastern's Allanton facility with hundreds of Eastern Employees and Guests attending, including Mr. Jack Reid, Florida's Governor Rick Scott's Regional Representative. The HOS BAYOU follows the HOS RED DAWN, and the HOS RED ROCK out of ESG's yards, both now on charter working in the Gulf of Mexico. The vessel is the fifth of twelve HOSMAX Offshore Supply Vessels and MPSV's under contract with Eastern. HOS RENAISSANCE is expected to deliver this month and the HOS RIVERBEND is currently at Eastern completing final outfitting, regulatory and DP-2 trials. The HOS BAYOU is the first of six (6) vessel Eastern vessels designated as the HOSMAX 310 series by Hornbeck Offshore and is a Diesel-Electric powered, twin Z-drive propelled OSV. These high-tech vessels feature four Caterpillar 3516C 16-cylinder turbo-charged Tier III diesel generator engines each rated at 1,825 kW at 1,800 rpm. Main propulsion power is provided by two GE Energy furnished Hyundai 2,500 kW 690VAC electric motors driving two Schottel SRP 2020 FP Z-Drives with nozzles rated at 2,500 kW at 1,025 rpm each for a total of 6,704 Hp. Schottel also provides two STT 4 fixed pitch tunnel thrusters rated at 1,180 kW at 1,170 rpm, each with direct coupled Hyundai 690VAC electric motors. GE Energy Power Conversions provides the complete system integrated diesel electric package, including the propulsion and thruster drives, motors, control systems, DP system, switchboards, motor control centers, automation and navigation/communication electronics. These vessels are capable of a maximum speed of 14 knots with a cruising speed of 12 knots. The fully integrated bridge is arranged for increased visibility and features the latest technology in navigation, communication equipment.

STX Canada Marine and Eastern Shipbuilding provided the design for these vessels from the proven Eastern Shipbuilding "Tiger Shark Class" Series. Eight (8) other Offshore Supply Vessels in this series have been delivered to Eastern's clients and have already proven themselves in worldwide operations.

The HOSMAX 310 Offshore Support Vessel at a glance ...

Total Fuel Oil Capacity: 285	Liquid Mud Capacity: 21
Fuel Oil Day-tanks: 23	Dry-bulk Mud: 14
Drill Water/Ballast Capacity: 609	Methanol Capacity: 2
Potable Water Capacity: 62	Clear Deck Area: 11

Main Iron Works Built Tug Returning Home

Marcon International, Inc. has brokered the sale of the 5,570BHP tug Jabbar. The tug has been sold by Awal Marine Services of Manama, Kingdom of Bahrain to TradeWinds Towing LLC of Saint Augustine, Florida. Jabbar was originally built by Main Iron Works of Houma, Louisiana as their Hull 335 for McAllister Towing & Transportation of New York. The 38.14m (126.0') x 10.98m (36.0') x 5.67m (18.6') depth tug is powered by a pair of recently overhauled EMD16-645E7B diesels with fixed pitch props in kort nozzles developing a total of 5,750BHP at 900RPM. Maneuverability is enhanced by two flanking rudders forward of each propeller, in addition to the main rudders and a bow thruster. Towing gear consists of a 150 tonne brake Smatco 66DAW-200 double drum winch; 10T tugger winch; open stern with a 3.15m x 0.914m 100mt stern roller; 200 tons hydraulic shark jaws & angular Smith Berger hydraulic tow pins installed new in 2007 in addition to two 5 tonne hydraulic berthing / unberthing winches forward. External

firefighting is provided by a 5,000gpm fire pump driven by a GM16V71 is connected to a water / foam monitor and ship's power provided by three 95kW / GM8V71 230/115vAC 60Hz generators. Tankage includes 112,000g fuel, 24,000g fresh water, 3,408g foam and 2,090g dispersant. "Jabbar" is classed ABS +A1, Towing Service, +AMS valid through June 2018. The tug, renamed "Isabelle", will operate under Vanuatu registry performing coastwise and ocean tows including project cargoes, marine salvage, rescue towage, and dredging & construction support within the Gulf of Mexico, Caribbean and Central & South America.

Kvichak to Build
66' Shallow Draft Tender

Kvichak Marine Industries, Inc. has been awarded a contract by Norton Sound Economic Development Corporation (NSEDC) to build an all-aluminum 66' Shallow Draft Tender to be used for multiple fisheries in and around Norton Sound, AK. Designed by Kvichak Marine, the 66' x 25' tender will be powered by twin Cummins QSM11 marine diesel engines rated for 450 BHP at 2100 RPM. The engines are coupled to ZF 360 transmissions that drive NiBrAl 4-blade propellers.

The 66' Shallow Draft Tender at a glance ...

Scheduled Delivery: Spring 2014	Displacement (heavy): 230,000lbs	Displacement (light) 130,000 lbs
Length overall: 67' - 4"	Northern Lights 99 & 40 kW Gensets	500 gallon fresh water capacity
Beam overall: 25'	Transvac 3510 Fish Pump System	Product Capacity: 1740 Cu Ft total
Loaded Draft: 4' - 6"	3,000 gallon diesel fuel tank	Effer 220M S2 crane
(2) Two-man staterooms	Full galley	36 Ton dual IMS RSW System

CTruk Looks Ahead

A feasibility study around a hybrid powertrain SWATH, commissioned this year by CTruk, has given the company further impetus in its ongoing development of a hybrid electric offshore wind support vessel design. The study was based on the CTruk CWhisper SWATH, a 20m craft fitted with twin Cummins QSM-11 marine diesel engines and Rolls-Royce Kamewa FF41 waterjets. The feasibility report concluded that the implementation of a parallel hybrid solution would result in substantial operational cost savings on this particular vessel, an attractive prospect coupled with the already well-documented advantages of the SWATH hull form in offshore wind operations. Marine craft in the offshore wind support sector typically have two major transit periods each day, with the rest of their time at sea spent idling or slow maneuvering with the occasional high speed peak. This usage profile makes OWSVs ideally suited to a hybrid configuration. The introduction of an electric motor to handle the load during low power demand periods allows the boat's engines to be turned off or run as generators at a more optimized power rating. The unique belt drive transmission system currently being fitted on CTruk's latest SWATH build will be included on all subsequent CTruk SWATH vessels, future-proofing these craft by allowing for the retrofitting of a parallel hybrid solution.

Canadian, American Naval Architects
Design Aussie Research Vessel

As 2013 ended, the team of Sembawang Shipyard of Singapore and Teekay Shipping Australia handed over the new scientific Research Vessel Investigator to her Owners, the Commonwealth Scientific and Industrial Research Organization (CSIRO), an agency of the Federal Government of Australia. The Investigator will be among the most capable and quietest non-naval research vessels in the world. It will serve Australia in diverse scientific operations ranging over an area from the equator to the ice shelf of Antarctica and spanning almost one-third of the circumference of the globe. An area this large is hugely diverse and the types of research to be undertaken are numerous and demanding, resulting in the need for a very flexible, capable and seaworthy research vessel. The "design and build" contract for construction of this ship was awarded to a team led by Teekay Shipping Australia and Sembawang Shipyard of Singapore. The design was developed by RALion, a joint venture between Vancouver BC Naval Architects, Robert Allan Ltd, Alion Science and Technology of Alexandria, Virginia and Alion Canada of Ottawa. The vessel was launched on July 21st, 2013 and then officially named Investigator at a ceremony in Singapore on September 5th. To accomplish its myriad scientific missions, the Investigator is fitted with a gondola and two retractable drop keels to house the extensive scientific sonar and transducer suites, supplied by Kongsberg. The vessel is fitted with a stern ramp to support fisheries research activities. The Investigator is classed by Lloyds Register of Shipping with the following notation: +100A1, +LMC, UMS Ice 1C IWS, EP, Research Vessel, DP (AM) and DNV SILENT-R.

The vessel is twin screw, powered by an integrated diesel - electric propulsion and ship service plant provided by L3 Marine Systems. Three Mak 9M25C diesel generators provide a total electrical output of 9 MW at 690 V. To meet the noise requirements of DNV Silent R notation, all three diesel generators are double resiliently mounted on a raft system engineered by RALion and supplied by Mak. The L3/Indar 690 V AC 2600 kW propulsion motors feature a resiliently mounted rotor and other design features to meet the noise requirements. These propulsion motors are believed to represent the first use of AC motors of this size range in a research vessel to meet DNV Silent-R requirements. Wartsila provided the 3.5 m diameter 5-bladed propellers, which are specially designed to be cavitation free at 11 knots, and the complete shaft-line from motors to propeller. The ship is also equipped with an azimuthing, retractable bow thruster, Thrustmaster model TH1500MLR, rated at 1200 kW and with Becker Flap type high lift rudders, all creating a vessel with much enhanced maneuverability at low speeds.

The Investigator at a glance ...

LOA: 93.9 meters	Depth to Main Deck: 9.45 meters	Endurance: 60 days
Beam: 18.5 meters	Draft, Navigational: 6.9 meters (to bottom of gondola)	Speed: 15 knots
Draft: 5.7 meters	Complement: 60 (including scientists)	Range: 10,800 nm

Adriatic Marine Orders Six OSVs from Master Boat Builders

Raceland, LA-based Adriatic Marine LLC has entered into a contract with Master Boat Builders, Inc., of Mobile, Alabama, for the construction of six 220'-class DP-2 Offshore Supply Vessels (OSVs). Construction is scheduled to begin in January 2014. Delivery of the first vessel is scheduled for the first quarter of 2015, with deliveries of the five subsequent vessels following every four months thereafter.

Adriatic Marine also currently has five 200' and two 260' DP-2 OSVs under construction at C&C Marine and Repair, LLC, of Belle Chasse, Louisiana. Adriatic Marine accepted delivery of the first 200' DP-2 vessel, the M/V Celtic, in October 2013. Deliveries of the additional seven vessels from C&C Marine are slated to continue every three months through the first quarter of 2016. With the construction of the six 220'-class OSVs from Master Boat Builders and the seven remaining 200' to 260' OSVs from C&C Marine, Adriatic Marine will have a fleet of thirty (30) DP-1/DP-2 OSVs by first quarter of 2016. Adriatic Marine's current fleet has an average age of four years, making the fleet one of the newest and most sophisticated in the Gulf of Mexico.

On Station – On Target!

Silver Ships, Inc. has been awarded a firm-fixed price, indefinite-delivery/indefinite-quantity multiple award contract for the construction of High Speed Maneuverable Surface Targets (HSMST's). The U.S. Navy maintains an inventory of HSMST's to be utilized mainly for weapon system test and evaluation and fleet training exercises at nine seaborne target operating activities ("ranges"). This effort of 100 HSMST's also includes trailers, shipping cradles and spares for a 1st year awarded contract value of $11,683,129.00, with a total estimated ceiling value of $48,000,000.00 for both awards. Work is expected to be

completed by November 2018. This contract was competitively solicited as a small business set aside through the Naval Sea Systems Command, Washington, DC.

Metal Shark to Build 350 Navy Boats

Louisiana-based aluminum boat manufacturer Metal Shark Aluminum Boats LLC has been awarded a contract to produce up to 350 specialized vessels for the United States Navy. The fixed-price contract is for the construction of the Navy's High Speed Maneuverable Surface Target (HSMST) vessels. Based on Metal Shark's 26-foot Relentless center console model, the twin engine, welded aluminum HSMSTs will be utilized by the Navy primarily for advanced weapons system testing and fleet training exercises. The Navy has issued an immediate production order for nearly $14 million worth of Metal Shark HSMSTs,

with nearly three times that amount expected to follow by the contract's conclusion in 2016.


Billings


Grennan


Ferrar


Hansen


O'Kane

Billings Assumes OMSA Leadership

The Offshore Marine Service Association announced that Ben Billings has officially assumed the position of President and CEO. Billings comes to OMSA from Washington, D.C. where he has worked for the past nine years on maritime issues in the U.S. Senate for Senator Mary Landrieu of Louisiana and the Committee on Homeland Security and Governmental Affairs. Billings takes over for Jim Adams, who leaves OMSA to manage a start-up business.

Grennan Appointed Global Diving & Salvage CEO/President

Global Diving & Salvage, Inc. has announced Devon Grennan, President for the past four years, will now also take on the position of Chief Executive Officer.

American Club Strengthens Management Team

Michael Hansen will join the management team on a full-time basis on January 1 as vice president and global business development director. Hansen spent many years before joining SCB in various positions at AP Moller-Maersk (APMM). Jack O'Kane joins the firm as vice president and business development director for the Americas. He has worked both in underwriting and broking, having previously served in senior posts at AIG, Reliance National, Marsh, XL Specialty and Tower Group. Boriana Farrar will also join the New York claims team. In addition to her native language, she is fluent in English, Russian and German.

U.S. Superyacht Assn Names New Board of Directors

The U.S. Superyacht Association has announced its 2013-14 board of directors. John J. Mann, III (Bluewater Books and Charts) will continue his role as Chairman. He is joined on the Executive Committee by Kristina Hebert– Vice Chairman (Ward's Marine Electric), Corey Ranslem (International Maritime Security Associates, Inc.) (Advocacy Co-Chair); Tim Davey – Immediate Past Chairman (ISS GMT), Peter Schrappen - Advocacy Co-Chair (Northwest Marine Trade Association), Marketing Chairman, Bert Fowles from IGY Marinas, Mark Cline – Treasurer (Cline Financial Group) and Jim Perry – General Counsel (Perry & Neblett, P.A.)

Safariland Group Appoints Kubasik to Board of Directors

Maui Acquisition Corp, the parent corporation of The Safariland Group announced the appointment of Christopher E. Kubasik to its Board of Directors effective immediately. In addition to serving on the Board, Kubasik will also serve as the Chairman of the Company's Audit Committee. Kubasik served in various senior leadership roles at Lockheed Martin Corporation from 1999 to 2012.

Rolls-Royce Names Offshore President

Rolls-Royce has appointed John Knudsen as President - Offshore, in its Marine business. Knudsen will transition into his new role through the month of January 2014. Mr.


Norman N. DeJong

Norman N. DeJong passed away on November 7, 2013. Norman was one of the founding partners of DeJong & Lebet, Inc., Naval Architects. He was born in Blokker, Noord Holland, the Netherlands, immigrating to the US after earning a BS in Naval Architecture at HTS Haarlem in 1959. He worked at Phillip F. Spaulding in Seattle, and NASSCO in San Diego before moving to Jacksonville, FL to work at Gibbs / Aerojet General in 1963. Norman was known for his innovative designs and problem solving ability in the marine industry. His early work in tugboat and other workboat designs started in 1968 when he founded the Naval Architecture firm Eagle Marine, which became DeJong & Associates. This was followed by over 25 years of design and engineering work primarily in the passenger vessel industry. Norman was 75 years old at the time of his passing.

U.S. Superyacht Association

Knudsen

O'Brien

Brady

McGillie

Knudsen is currently President of Bergen Engines AS. He has had a key role in transforming Bergen Engines during the divestment from Rolls-Royce Marine and integrating it into the Tognum Group.

Austal USA Names O'Brien VP

Austal USA has appointed Terry O'Brien to the position of Vice President of Business Development and External Affairs, effective November 18, 2013. In this role, he will be responsible for the all of Austal's Business Development efforts, state and federal legislative activities, as well as coordinating external communications and media relations. A retired Navy Captain with over 26 years of service, Terry commanded USS Pensacola and the Nassau Amphibious Strike Group during the initial stages of Operation Iraqi Freedom.

Charleston Freight Station Adds Intermodal Logistics Coordinator

Charleston Freight Station has hired Kate Brady as logistics coordinator. Brady will be responsible for intermodal supply chain logistics. For over 10 years, Brady has worked in shipping and transportation for Norton Lilly and Mediterranean Shipping and holds a Bachelor of Arts degree from Excelsior College.

McGillie Joins Global Diving & Salvage

Global Diving & Salvage, Inc. has announced the hiring of Anita McGillie to lead the Human Resources


Fisher


Seelig


Cluett


Levin


Velez


Pesch

Group as the Human Resources Manager. Ms. McGillie joins Global Diving from the media and commercial printing business, previously the HR Director for a company that had up to 1,100 employees.

Bristol Harbor Group Expands

The Bristol Harbor Group, Inc. has announced four new additions to the team: Annie Fisher, Naval Architect; Nathan Seelig, Mechanical Engineer; Christopher Cluett, Naval Architect; and Rhea Levin, Administrative Assistant. Fisher graduated in 2013 from the University of Michigan with a B.S.E in Naval Architecture and Marine Engineering. Nathan Seelig graduated in 2008 with an A.S. degree in Small Craft Design from Maine Maritime Academy. Cluett graduated from the University of Michigan with a B.S.E. in Naval Architecture and Marine Engineering in 2012. Prior to working at BHGI, Chris worked at General Dynamics Electric Boat. Rhea Levin graduated from Roger Williams University in May 2013 with her degree in Media Communications.

Hawaiian Ocean Transport Hires Velez

Hawaiian Ocean Transport, Inc. has strengthened its management team, hiring Julian Velez as business development manager. Prior to joining Hawaiian Ocean Transport, Inc. Velez most recently held the position of Solutions Specialist & Sales Manager for Old Dominion Freight Line. Velez attended both Pepperdine University and California State University Los Angeles, receiving a degree in Business Administration.

CLIMAX Names Pesch VP Global Operations

CLIMAX Portable Machining and Welding Systems named Thomas Pesch Vice President of Global Operations. Pesch has more than 20 years of experience leading growth and sustainable improvements in quality, delivery and cost for global manufacturers in high-tech industries. Prior to joining CLIMAX, he worked for Andrew/COMMSCOPE.

Tomer, Ward Join Parsons Brinckerhoff

Richard Tomer has been named a Regulatory and Permitting Specialist at Parsons Brinckerhoff. Tomer will provide technical regulatory services throughout the NY, NJ, and CT region for resiliency and waterfront projects, with an early focus on post-Superstorm Sandy rebuilding. Tomer comes to Parsons Brinckerhoff from the U.S. Army Corps of Engineers, New York District, where he served for 31 years, most recently as Chief, Regulatory Branch. Thomas Ward has been named a Senior Maritime Planner in the San Francisco office of Parsons Brinckerhoff. Ward will lead Parsons Brinckerhoff's port, intermodal, and maritime planning practice. Ward comes to Parsons Brinckerhoff from Ports America, where he served as Chief Engineer.

Monico Promotes Walker to VP Sales

Monico Inc. has announced the promotion of Allen Walker to Vice President and General Manager.

Taylor brought Walker on board in September of 2012 as Vice President of Sales to oversee the company's product sales and sales staff, and to grow international sales. Prior to joining Monico, Walker served as Vice President of Global Sales for PECOFacet and Managing Director of Facet Deutschland GmbH, both Clarcor Companies.

Laborde Products Opens Texas Division

Laborde Products, Inc. is opening a new division, Laborde Equipment Services (LES) in San Antonio, TX. LES will provide fast, on-time service for all makes of diesel and gas engines and engine driven equipment, as well as hydraulic and electrical service. Roger Markwardt, will head the new division. Markwardt has over 30 years of experience in the diesel engine and rental industries, having most recently managed a fleet of over $150 million in various types of industrial equipment.

Trojan Battery Names Dunlap SVP & CFO

Trojan Battery Co. has appointed Ed Dunlap as senior vice president and chief financial officer. Dunlap will be responsible for all aspects of Trojan Battery's finance programs as well as lead the company's finance, information technology and commodities strategies teams. Dunlap received an MBA from


Tomer


Ward


Walker


Markwardt


Dunlap


Reeder

the University of Chicago and his bachelor's degree from Reed College.

DMW Marine Group Hires Reeder

DMW Marine Group, LLC has announced that they have hired Monty Reeder as their Inside Sales Manager and regional direct Sales Representative. Monty graduated from Ursinus College with a degree in Business and Economics and previously represented Iron Mountain.

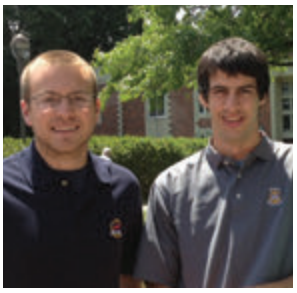
The Landing School Appoints Daly to Board of Directors

The Landing School, a post-secondary institution focused on educating tomorrow's marine industry professionals, has announced the appointment of Susan Daly to their Board of Directors. Ms. Daly is an accomplished sailor and longtime supporter of the marine industry. She has a Bachelor of Arts from Yale University and an MBA from Boston University.

ABS Breaks Ground on Offshore Energy Center

ABS is establishing an office in Houston's Energy Corridor near the intersection of Interstate 10 and Highway 6. The new facility will co-locate members from ABS engineering, project management, technology and business management, allowing ABS to better serve its client base in this significant energy research and development hub. ABS Chairman Christopher J. Wiernicki, said, "ABS made the strategic decision to provide greater ac-


Daly


Weklar & Conway


Wiernicki


TITAN Salvage recieving DLA Award


Carpenter

cess to our offshore clients by locating ABS' industry-focused resources in a dedicated facility in one of the world's most important energy centers."

Crowley Presents Scholarships to Webb Institute Students

Crowley Maritime Corporation recently awarded two Thomas B. Crowley, Sr. Memorial scholarships to a pair of students from Webb Institute. Both recipients, juniors Matt Weklar and Nolan Conway, were selected for their leadership qualities, academic excellence and commitment to the maritime industry. Conway is Webb's class of 2015 president, the student body's education committee chair and the board of trustee's student representative. Weklar, who has been sailing since he was eight, has worked aboard sailing yachts and has competed in numerous regattas around New England. He serves as the Society of Naval Architects and Marine Engineers (SNAME) Student Section Chairman.

TITAN Salvage Receives DLA Hurricane Sandy Award

The Defense Logistics Agency (DLA) recently presented Houston-based TITAN Salvage with its Hurricane Sandy Award for exhibiting "unprecedented support" immediately following the storm that devastated much of the Northeastern coast in late October 2012. The award was presented during the Business Alliance Awards ceremony in Fort Belvoir, VA. During the ceremony, Vice Adm. Mark D. Harnitchek, director, DLA, presented TITAN's Samina Mahmood, U.S. commercial manager, with a framed flag hand-crafted by the agency's "flag ladies," the group of women who have been embroidering the country's official flags for more than 150 years.

Draft Coast Guard Shale Gas Wastewater Policy

AWO submitted comments on the U.S. Coast Guard's draft policy for the bulk carriage of conditionally permitted shale gas extraction wastewater (SGEWW). AWO members account for more than 80 percent of domestic barge tonnage, and two-thirds of towing vessel horsepower, moving cargoes essential to the American economy on the inland rivers, the Atlantic, Pacific, and Gulf coasts, and the Great Lakes. AWO's Senior Vice President – National Advocacy, Jennifer Carpenter, stated that the association strongly endorsed the premise of the Coast Guard's draft policy letter that SGEWW can be safely carried by barge. She said that AWO members will work closely with the Coast Guard to advance common objectives of ensuring the safe and efficient movement of shale gas wastewater. "AWO is committed to the goal of zero harm from our industry's operations – to human life, to the environment, and to property," Ms. Carpenter noted. "AWO members have a strong record of success in moving environmentally sensitive cargoes safely, securely, and efficiently."

EBDG's Cole Pens History of Northwest Fishing Vessels

Elliott Bay Design Group's Jim Cole can now add book author to his long list of accomplishments in the field of naval architecture and marine design. The Naval architect and fishing vessel expert recently unveiled the new book, "Drawing on our History: The Fishing Vessels of the Pacific Northwest & Alaska." Cole's book weaves a fascinating history of the evolution of fishing vessel designs unique to the Pacific Northwest, from the cedar fishing canoes and kayaks built by the Aleuts and other Native tribes to modern commercial fishing vessels including state-of-the-art freezer longliners delivered and launched in 2013.

Foss Vessels Honored for Environmental Excellence in 2013

The Arthur Foss, the Justine Foss and many other Foss Maritime vessels have been free of environmental mishaps for the past 20 years. In fact, 80 tugs and barges owned by the Seattle-based company are being recognized this year by a major maritime organization for their outstanding environmental safety records. Rear Admiral Joseph Servidio last month presented Susan Hayman of Foss the award for environmental achievement. The Chamber of Shipping of America (CSA) announced the awards honoring Foss' environmental achievements last month.

VGP-Compliant Stern Tube Lubricant

Panolin's Stella Maris stern tube lubricant is based on 100% saturated synthetic ester technology with performance enhancing additives. This synthetic ISO VG 68, 100, 150 and 220 Stella Maris stern tube lubricant provides biodegradability and lubricity to protect metal surfaces, while meeting VGP requirements. Panolin's Green Marine line, Stella Maris stern tube lubricant is environmentally considerate, biodegradable and negligibly toxic.

www.panolinamerica.com

JonRie's Super Series "220" Double Drum Escort Winch

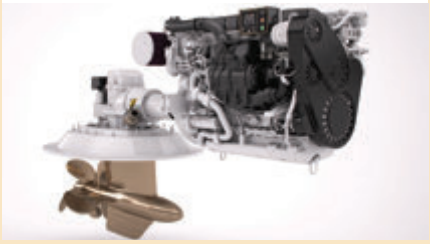
The Super Series "220" Double Drum Bow Winch handles larger capacity rope. The Twin drums afford less loading on ropes under braking. Both feature JonRie's Active Heave Compensation systems, independent drives for each drum and standard foot pedal for hands free operation. The Winch has the capacity to spool 600' of 9" Hawser, 18 Ton line pull and a line speed of 100 FPM.

www.marinewinch.com

Caterpillar Unveils Cat Three60 Pod 650

Caterpillar Marine has introduced the Cat Three60 Pod 650. The Three60 Pod 650 revolutionizes docking and slow-speed maneuvering for diesel-powered yachts. Available in 2015, it is designed to be easy to learn, incorporating proprietary technology providing access to full or incremental power in any direction as well as smooth shifting. The new pod is specifically designed for the Cat C8.7 turbocharged/supercharged diesel engine.

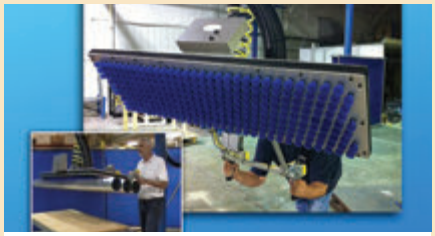
www.MARINE.CAT.COM/pr



Petit Marine Pain's EZ-POXY2

Pettit Marine Paint has announced its new two-part topside enamel, EZ-Poxy2. Providing a durable and high-gloss finish while eliminating the uncertainties associated with traditional two-part paints, the high performance EZ-Poxy2 is easy to use and offers greater surface compatibility. Tough and longer lasting, EZ-Poxy2 provides a more beautiful finish, for a better price, and a fraction of the hassle.

www.pettitpaint.com



Universal Lifting System Lifts Products with Varying Geometries

Cynergy Ergonomics' universal lifting system manipulates materials with different geometries with a single vacuum lifter. With capacities of over 1,000 pounds, this vacuum griper is ideal for shops and manufacturers. The "smart" design maintains vacuum only on cups which have contacted the lifting surface – allowing it to handle cylindrical products like pipe, flat panels, and turbine blades, pallets, and curved shapes.

www.cynergyergonomics.com

Wave Walker Boosts Productivity

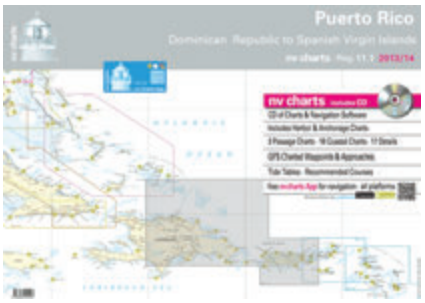
WaveWalker is an eight-legged 'walking' jack-up barge designed especially for marine operations in rough seas, surf zones, beaches and other intertidal locations where operation of traditional SEWPs is uneconomic. Bi-directional movement allows it to move and relocate without floating. Because the impact of sea conditions on operations is reduced, WaveWalker can considerably boost productivity in tasks such as drilling and pipeline and cable-laying.

www.wavewalkerbv.com

Xantrex Launches 24V inverter/chargers

Building on the success of 12V models, the all-new 24V models are designed for use in large boats and other heavy-duty applications. The new Freedom SW 24V is ideal for powering a demanding mix of AC loads and charging large 24V battery banks. Available in 2000W/50A and 3000W/75A models, it incorporates pure sine wave performance, parallel and series stacking and generator support mode.

www.xantrex.com



nv charts Releases New Puerto Rico Chart Set

nv charts has released updated chart sets for Region 11.1, Puerto Rico; meticulously surveyed and now available in time for cruising during the winter months. The set includes the north coast of the Dominican Republic , and is available in a variety of formats – paper, digital, memory cards for chartplotters, and with nv charts' new iOS App for navigation with mobile devices.

www.nvcharts.com

Jet Edge Waterjets Cut Precise Parts

Jet Edge, Inc. has announced its new corporate video, showing now on Jet Edge's YouTube channel at www.youtube.com/jetedgewaterjets. Featuring a behind-the-scenes look inside Jet Edge's 100,000 square foot manufacturing facility in St. Michael, MN, the video includes an overview of the waterjet manufacturer's capabilities and products as well as testimonials from three Jet Edge customers from across the United States.

www.jetedge.com

Hostar Moves History With Care

HOSTAR's HSTY series hydraulic yard trailers accommodate up to an 8' draft and 100' in length. Equipped with low-profile high flotation industrial tires, they have a handling capacity of up to 200,000 lbs. Made for yard use, the HSTY series increases boat handling capability and maximizes yard storage capacity. An optional ramp package includes remote control for underwater operation.

www.hostarmarine.com

ExxonMobil Marine Fuels & Lubricants Launches Mobilgard 5100

ExxonMobil Marine Fuels & Lubricants' Mobilgard 5100 is specially formulated cylinder oil designed to mitigate the effects of cold corrosion in new design two-stroke marine engines operating on heavy fuel oil. Mobilgard 5100 joins Mobilgard 560 VS and Mobilgard 570 as the latest addition to ExxonMobil's range of world class cylinder oils, each engineered to help ship operators increase reliability and reduce costs.

www.exxonmobil.com/marine

STA-BIL 360° Delivers Corrosion Protection

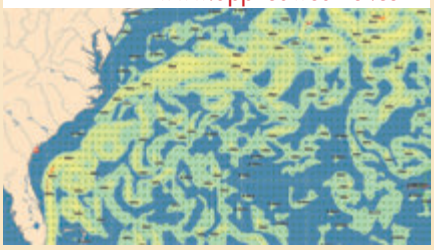
Gold Eagle Co. has introduced STA-BIL 360° Protection Ethanol Treatment and Fuel Stabilizer. Designed to combat the corrosive properties of ethanol-blended fuels, STA-BIL 360° delivers corrosion protection above and below the fuel line. STA-BIL 360° releases a vapor inside the fuel system that coats metal parts. Offering 360 corrosion protection, STA-BIL 360° is intended for use in all types of gasoline.

www.goldeagle.com

AWT Releases Fleet Decision Support System 2.0

Applied Weather Technology, Inc. has introduced the latest version of its fully customizable fleet management system with the release of Fleet Decision Support System (FleetDSS) Version 2.0. Suitable for use within a company's IT network, FleetDSS has new tools, including an ETA confidence tool and a comparative vessel type performance graph, making it easy for operators to closely monitor efficiencies.

www.appliedweather.com



VIKING's LifeCraft to the Rescue

Marine and fire safety equipment leader VIKING Life-Saving Equipment has launched the VIKING LifeCraft system. The System consists of the LifeCraft itself – a self-propelled inflatable vessel with four engines for a high degree of maneuverability and safety and a storing and launching unit, either placed on deck or built in, containing up to four LifeCraft units with a capacity of 200 persons each.

www.VIKING-life.com

Comark's 15" HMI Passes MIL-STD 901D Shock Testing

Comark has successfully completed full environmental testing of its new 15" Military HMI, including MIL-901D Grade A lightweight shock testing. The 15" HMI is a sealed and fanless computer display unit developed for DDG 51 Machinery Control Applications. The 15" HMI includes current Core i5 processors, an LED backlit display, a rugged IR touchscreen, and integrated speaker.

www.comarkcorp.com

Power Services Products Launches Marine-Specific Online Buying

Power Service Products has launched a website for boat owners at home or at sea. MarineDieselAdditives.com enables owners to combat issues with marine-specific fuel additives that clean fuel tanks, keep fuel fresh and extend the life of boat engines. The website, optimized for tablet use, provides easier access for owners or crew to purchase the fuel additives in remote areas.

www.powerservice.com

HamiltonJet HT900s on High Speed Crew Boat

HamiltonJet announced that four of its HT900 waterjets selected for Incat Crowther's first-of-type 70m Catamaran Crewboat. HamiltonJet waterjets work particularly well in DP capable vessels. The effect of the waterjet maneuvering thrust is enhanced with wide spacing of the jet units in a catamaran configuration – two jets per hull – which provides better control of the vessel's stern and can assist with sideways bow movement.

www.hamiltonjet.com

Greater Lift Capabilities with MacGregor

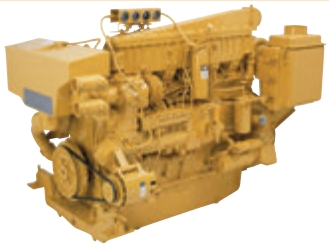
MacGregor has won a contract to deliver a 250-tonne SWL active heave-compensated (AHC) subsea crane for the 120m construction vessel, Island Intervention. The crane was ordered by Edison Chouest Offshore. An existing vessel operated by the partnership between Edison Chouest Offshore and Island Offshore requires greater lifting capability; a MacGregor 250-tonne SWL AHC subsea crane fulfills the upgrade requirements.

www.cargotec.com

STAUFF Filters Provide Continuous Clean Oil Flow

STAUFF Offline Filters continuously filter Gearbox or Hydraulic Oil using Radial Micro Filtration. Particles as small as 0.5 micron are removed resulting in less downtime and repairs. STAUFF offline filters employ an integrated motor/pump unit that draws the oil through the filter and pumps clean oil back into the system. Offline Filter Units continue to work even when the main system is not in use.

www.stauffusa.com



Caterpillar's Cat 3406C Propulsion Engine

Caterpillar Marine's 3406C propulsion engine has entered production. The 3406C will provide customers in lesser regulated countries with an economical, dependable solution for their commercial marine vessels. The mechanically governed 3406C propulsion engine is available in ratings of 272 bkW @ 1800 rpm and 298 bkW @ 1800 rpm. The engine is ideal for small offshore, inland waterways and commercial fishing applications.

www.marine.cat.com

The EcoMod Series LED Floodlight

Phoenix Products Company's EcoMod LED floodlight offers 150W and 300W models with light outputs of 12,500 and 25,000 lumens. Packages range from wide flood to narrow spot optics to accommodate any application. The EcoMod Series extends the life of the fixture by allowing heat, water, and debris to flow between the modules. The fixture offers the benefits that include maintenance reduction, energy savings, and instant-on lighting.

www.phoenixproducts.com

FlyMarker PRO: Hand-Held Marking System

For durable marking of unmovable work in the ship building industry, a portable hand-held marking system means an enormous simplification. The hand-held marking system FlyMarker PRO of MARKATOR is battery operated and flexible and weighs slightly over 4 kg and can be carried easily to mark work pieces directly on site. The control unit is protected against external influences. No annoying cables endanger the work.

www.flymarker.com

Floating Fender Rental from Trelleborg

Rental is a cost effective solution for temporary applications and Trelleborg's new foam and pneumatic rental service offers a wide range of products. All fenders are ISO 17357:2002 quality assured. Pneumatic Fenders feature massive energy absorption, and have a low reaction force, making them ideal for protecting LNG vessels, ocean platforms, floating structures, large docks and many load sensitive structures.

www.trelleborg.com/marine

HGH Infrared Systems' Spynel-S

HGH Infrared Systems Spynel-S is an innovative real-time panoramic thermal imaging system with automatic detection and tracking capabilities. A key asset for maritime domain awareness, Spynel-S can successfully detect various large and small surface and air targets. Highly effective when tracking small boats, RHIBs, and swimmers with its high resolution panoramic image, the Spynel-S is a fully passive, compact and undetectable imaging system.

www.hgh-infrared.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	

** The publisher reserves the right to alter this calendar. All features are subject to change in light of industry trends and developments.*

Bouchard Transportation Co., Inc.

Vessel Cook
Qualifications:
MMD endorsement Ordinary Seamen, TWIC, and Passport
Cooking Experience 2 + years, preferably on Tugs

Asst Engineer
Qualifications:
- Degree from Merchant Marine Academy or 3 year's experience working on tugs of at least 2,000 HP
- MMD DDE 1,000 to 4,000 HP
- STCW
- TWIC

Tankerman AB/Cargo Mate
Qualifications:
- Minimum of a AB Tankerman PIC (BARGE)
- STCW
- TWIC

Send all resumes to
personnel@bouchardtransport.com
Or Fax to 631-390-4966

Engineering Lab Tech

Job Location: USA, Buzzards Bay

A special mission college within the Massachusetts state university system

Position: Staff Assistant, Engineering Laboratory Technician

Posting:September 2013
Start Date:March 1, 2014
Position Number: FY14-6
Application Deadline: November 29, 2013
Division: Academic Division; Engineering Department
Union affiliation: Association of Professional Administrators (APA)
Supervision received: Reports to Engineering Department Chair
Supervision exercised: Supervises subordinate administrative and student personnel in area of expertise

General responsibilities:
•Instruct students in professional engineering labs such as refrigeration, auxiliary machinery, diesel engines, steam generators, and gas and steam turbines
•Maintain and improve engineering labs
•Participate in annual Sea Term as Engineering Instructor (all shipboard personnel are subject to random drug testing)
•Assist the Engineering Department as directed

Qualifications and requirements:
•Bachelors of Science in marine engineering or related field
•Professional experience in marine engineering or related field
•USCG Third Assistant Engineer's License (steam, motor and gas turbine propulsion) any horsepower with current STCW Certification

Preferred Qualifications:
•USCG Second Assistant Engineer's License or higher, any horsepower, with current STCW Certification
•Massachusetts Stationary License, 3rd Class Engineer License or higher
•Any additional licenses or certifications related to the field of marine or facilities engineering
•Teaching experience
•Familiarization with the operation of engineering simulators
•Specialty skills related to the field of marine or facilities engineering

Salary: $40,000 – $50,000 The Academy offers generous benefits policies and a competitive salary commensurate with qualifications and experience.

To apply, please submit a cover letter, a resume, an MMA application, an Affirmative Action form, and the contact information of five (5) professional references. These forms are located on the employment quick link on our website: www.maritime.edu. Application materials may be attached and sent electronically to hr@maritime.edu. Alternatively, you may send your application materials by USPS to: Human Resources, Massachusetts Maritime Academy, 101 Academy Drive, Buzzards Bay, MA 02532. Finalist must complete a pre-employment physical, drug screening, and background check.

Pamela Lopez
Massachusetts Maritime Academy
Email: hr@maritime.edu

Deputy Pilot in Florida

Job Location: USA, Key West, Panama City and Ft. Lauderdale

DEPUTY HARBOR PILOT OPENINGS IN FLORIDA

THE BOARD OF PILOT COMMISSIONERS HAS DECLARED
PILOT OPENINGS IN THE PORTS OF KEY WEST, PANAMA CITY AND PORT EVERGLADES. THE EXAM IS MARCH 13-14, 2014.

THE APPLICATION TO SIT FOR THE EXAM IS DUE MONDAY, DECEMBER 9TH, 2013.

FOR DETAILS AND APPLICATION, GO TO:

http://www.myfloridalicense.com/dbpr/pro/pilotc/index.html

OR CALL 850.717.1980 OR EMAIL elise.rice@myfloridalicense.com.

Board of Pilot Commissioners
State of Florida

FL USA
Phone: 850.717.1980

Email: elise.rice@myfloridalicense.com
Web: http://www.myfloridalicense.com/dbpr/pro/pilotc/index.html

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PROFESSIONALS

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21	Ahead Sanitation	www.aheadtank.com	(337) 237-5011
33	Appleton Marine, Inc.	www.appletonmarine.com	(920) 738-5432
29	Aurand Manufacturing	www.aurand.net	(513) 541-7200
15	Continental Underwriters Ltd	www.cultd.com	(985) 898-5300
33	DeFelsko	www.defelsko.com	(315) 393-4450
13	DMW Marine Group, LLC	www.dmwmarinegroup.com	(610) 827-2032
1	Eastern Shipbuilding Group	www.easternshipbuilding.com	(850) 763-1900
35	F&M MAFCO, Inc.	www.fmmafco.com	(513) 367-2151
25	Great American Insurance	www.gaic.com	(212) 510-0135
15	Biobor Fuel Additives	www.biobor.com	(281) 999.2900
19	Kidde-Fenwal, Inc	www.kiddemarine.com	(508) 881-2000
5	KVH	www.kvh.com	(401) 847-3327
9	Louisiana Cat	www.louisianacat.com	(866) 843-7440
53	Mariner's House	www.marinershouse.org	(617) 227-3979
51	McDonough Marine Services	www.mcdonoughmarine.com	(504) 780-8100
27	MOP's Marine License Insurance	www.mopsmarineinsurance.com	(800) 782-8902
11	MTU	mtu-online.com	Visit us online
43	Paducah Rigging Inc	www.paducahrigging.com	(270) 443-3863
7	Patterson Company	www.pattersonmfg.com	(800) 322-2018
C4	R.W. Fernstrum	www.fernstrum.com	(906) 863-5553
21	Schuyler Rubber	www.schuylerco.com	1 800-426-3917
C2	Scott Safety	www.scottsafety.com	(704) 291-8300
29	Smith Berger Marine	www.smithberger.com	(206) 764-4650
35	Suny Maritime College	www.sunymaritime.edu	(718) 409-7341
17	TideWater Marine	www.tdw.com	(504) 568-1010
C3	Tuflex Rubber Products	www.tuflex.com	(813) 870-0390
41	Tutor Saliba	www.tutorsaliba.com	(818) 362-8391
3	Volvo Penta Americas	www.volvopenta.com	Please visit our website

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