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Now clear of the holidays and into an already exciting 2014 on the waterfront, we find ourselves plowing ahead with the proverbial bone in our teeth. That's because, beyond my questionable nautical metaphor, there are big things happening for the domestic workboat industry in the coming months. As you dig deeper into this issue of ***MarineNews,*** you will soon see that much of that revolves around the United States Coast Guard. As you do, look also look for the pace of regulatory rulemaking, boatbuilding and mariner credentialing to increase exponentially.

While some industry stakeholders tend to view the Coast Guard as the bane of their compliance battles on so many fronts, the outreach of the nation's first line of defense for homeland security are much more diverse than that. In this edition, the breadth of the Coast Guard's impact on the nation's workboat builders becomes clearer than properly treated ballast water. And, even in the face of the ongoing Beltway budget battles, that impact is set to grow in the coming months and years. It's all good. The story starts on page 32.

Beyond its $30 billion recapitalization program, however, the Coast Guard's rulemaking role is anything but dormant. With as many as 68 rulemaking efforts underway as of 31 December, U.S. Coast Guard Commandant ADM Robert Papp has a lot to clear off his desk before he passes the baton to his as yet unnamed successor. For example, inland stakeholders hope that the long awaited subchapter M towing vessel rule will finally come to fruition this spring. Separately, the prospect of federal regulatory approvals for the carriage of fracking waste on the nation's inland barge fleets also hangs in the balance. These issues – impacting both operating expenses and revenues alike – will dramatically affect the bottom lines of domestic operators. And, as February comes and quickly goes, as many as 200,000 credentialed U.S. mariners are wondering how the National Maritime Center will keep up with the more than doubling of its medical approvals workload in the coming year.

It is never easy to predict what will come next, especially when it comes to the world of maritime affairs. Last month, for example, the U.S. Maritime Administration woke up from its self-imposed four-year slumber to host a high profile National Maritime Symposium in Washington, DC. The gathering, also intended to re-awaken national awareness of the domestic maritime industry and its many problems, certainly stirred up emotions with passionate speeches and pointed rhetoric. What remains to be seen is whether the brief attendance by several prominent federal lawmakers will eventually translate into concrete action from the U.S. Department of Transportation.

Outgoing Virginia Secretary of Transportation and former U.S. Maritime Administrator Sean Connaughton said it best last month when, also within the pages of this edition, he declared, "Incredibly, it seems that the federal constraints are increasing at the same time that their financial commitment going down. It is hurting jobs, the economy, and American competitiveness. Something has to change." I couldn't agree more. What about you?

Joseph Keefe, Editor, keefe@marinelink.com

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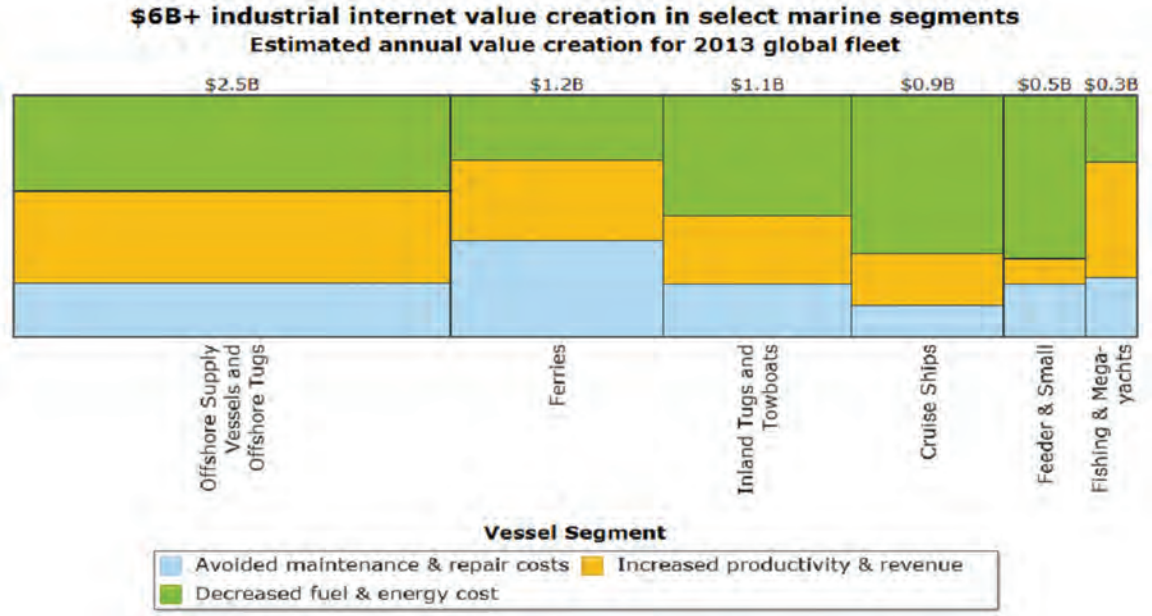
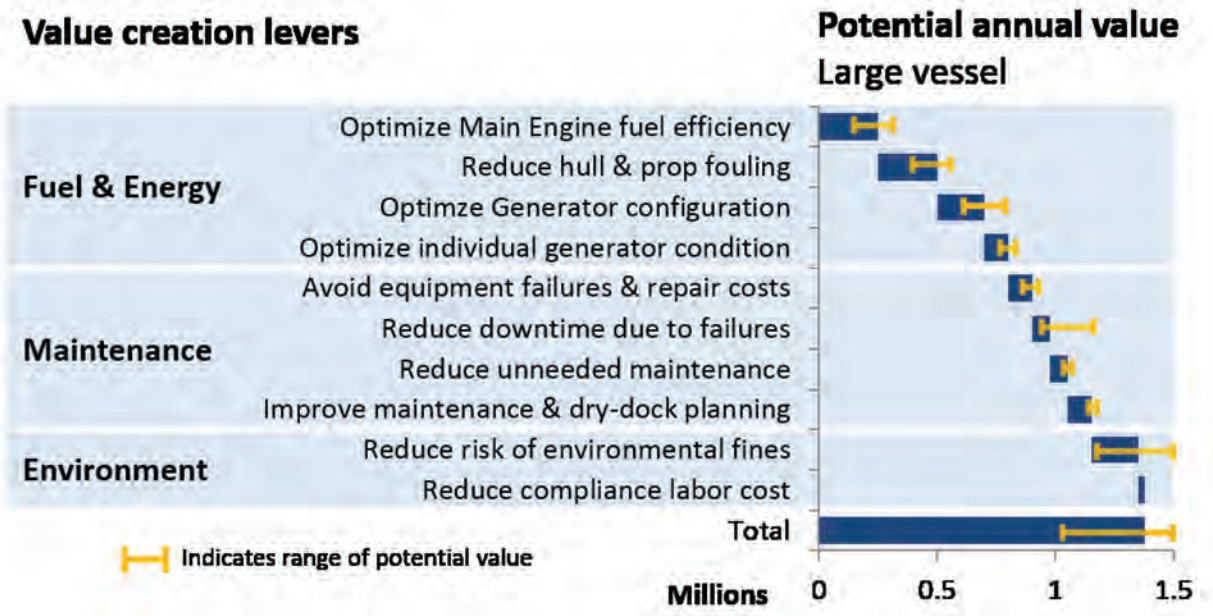
Bringing Workboats "Into the Cloud"

A recent white paper by marine data analytics software provider *ESRG* outlines the way forward for operators who embrace the latest in technology. Today, only a minority of vessels are positioned to capture industrial internet benefits. That said; almost every new-build ship will have technology built in to capture these benefits. Substantial fuel savings, reduction in maintenance and repair costs, and greater assurance of environmental compliance are the largest drivers. The industrial internet has already created significant value elsewhere and it will do the same for the marine industry. The impact will exceed $10 trillion annually in the next 15 years. Based on analysis of 100,000 ships in the global fleet today, there are as many as 30,000 ships that have some technology infrastructure. This number is expected to grow at 3,000-7,000 per year, with most newbuilds incorporating a solid technology infrastructure in the shipyard. Based on the breadth of all marine sectors, the industrial internet has the potential to create an estimated $20 billion of value per year for both the existing marine fleet and even more for newbuild vessels in the future. That market, according to





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ESRG, could exceed one billion dollars in the next five years. Potential annual value creation for individual ships could be as high as $1M.

Newer ships launched recently are equipped with more sensors, providing more and more performance and condition data that can be used to operate and maintain equipment at a higher performance levels and at a lower cost. A new vessel today might have over 1,000 data points, which would create 2.6 billion pieces of data over a month. When extrapolated across a fleet of 100 assets, this equals more than 3 trillion data points per year. And, the ways that the Internet can benefit your bottom line are almost endless:

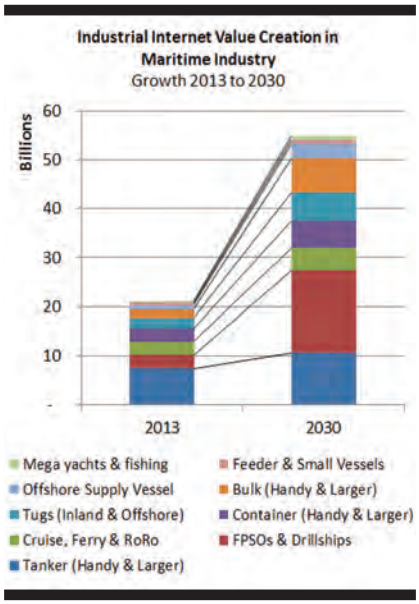
Condition Based Maintenance (CBM):

The reduction of maintenance costs as well as energy consumption will be more easily through better technology. By doing the right maintenance, at the right time, at the right cost, surprises could be avoided during extended maintenance periods.

Condition Based Operations (CBO):

Operators use real-time data and analytics to make better operational decisions to optimize the operation of the asset.

Fuel and Energy: The marine industry brings together the complexity of both power generation assets and energy consumption assets. A ship has to focus on both the energy production and consumption sides of the equation. This underscores the value that collecting operational and condition data in real-time and automatically analyzing can have above what an onboard operator can do with simple spreadsheets.



Environment: From inland tugboats to offshore platforms, the more efficient use of the Internet will also decrease the risks associated with non-compliance with environmental regulations. The transportation sector accounts for 13% of global greenhouse gas emissions. Marine is a significant driver. This has led to various international, national and local organizations to impose stricter regulations on the types of fuel being consumed and resulting emissions. In addition to emissions regulations, the commercial shipping industry is coming under increasing scrutiny with regards to how ballast water is exchanged or treated to prevent the introduction of invasive species. Lastly, the industry continues to operate with regulations around discharges, including oily waste. All systems can be monitored and automatically analyzed to ensure compliance and transparency for a wide variety of stakeholders.

Smart Equipment and Data Integration: Military vessels have taken the first step in data integration with the US Navy's LCS (Littoral Combat Ship) having the diesel generators, diesel engines, gas turbines, reduction gears, combining gears, lube oil, shaft bearings, water jets, air conditioning plants and water desalinization plants integrated, with data and analytics available onboard and onshore.

Communications Bandwidth:

Ship-owners continue to upgrade their ship-to-shore communications as the cost of satellite communications decrease to less than $1 per megabyte of data. As utilization of existing satellite networks increases, ESRG says that the per-unit cost will also decrease over time. Analytics can be used to validate and qualify the data to ensure that the right data is selected and (economically) transmitted ashore.

Custom Applications: These include "Tow configuration optimization for tugs." By utilizing actual performance data from engine performance, power, speed through water and tow diagrams, operators will be able to better understand what causes a specific configuration of barges to be more efficient than others. This information can be leveraged to optimize profit, through reducing fuel consumption or reducing time to detach and add barges.

Access the ESRG White Paper by clicking: **http://www.esrgtech.com/company/ESRGcontent/**
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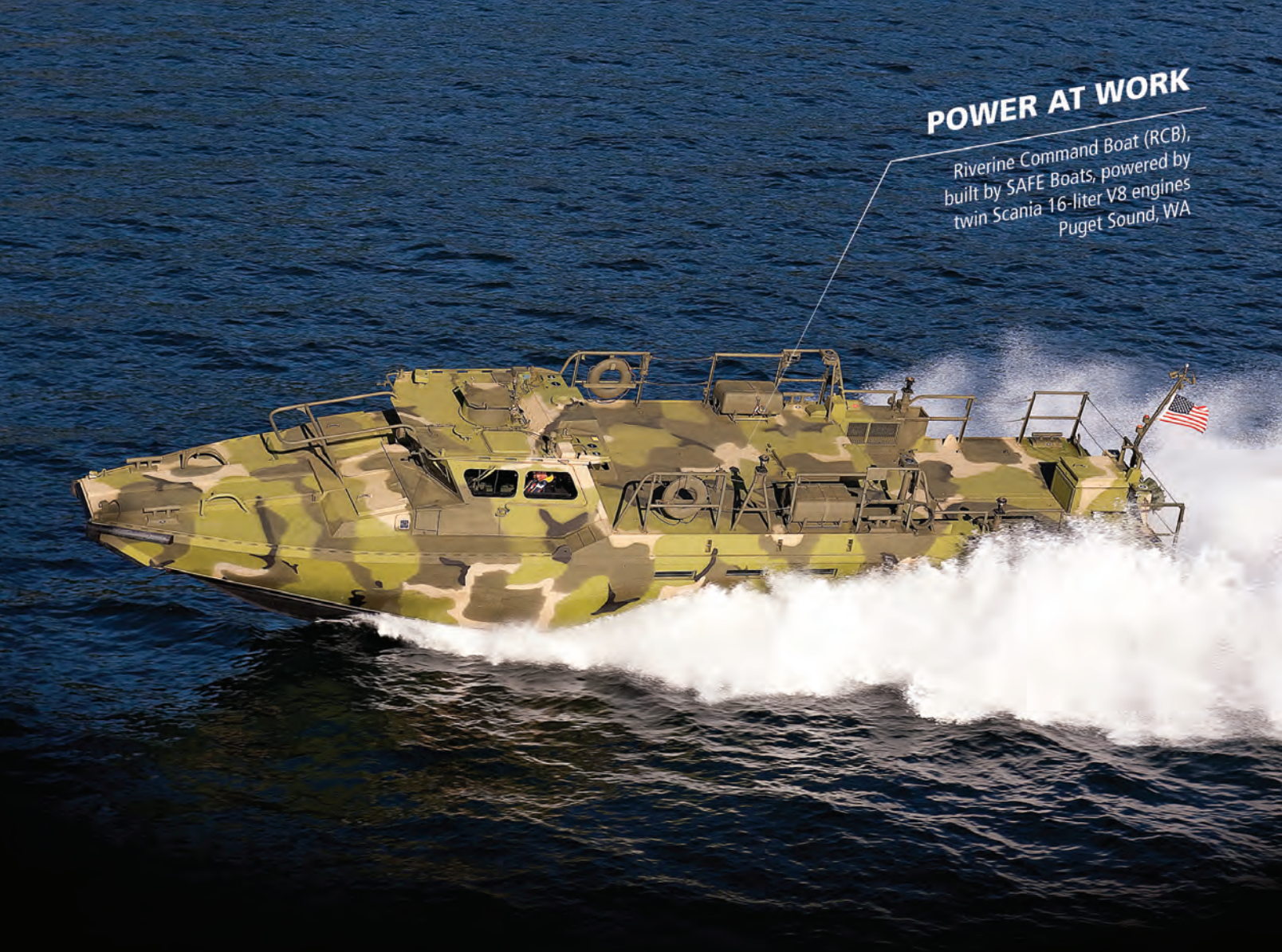
Sean T. Connaughton

Outgoing Secretary of Transportation for the Commonwealth of Virginia

Until January of this year, Sean Connaughton oversaw seven state agencies with more than 9,700 employees and combined annual budgets of $5 billion. Connaughton is probably better known to ***MarineNews*** readers as the U.S. Department of Transportation's Maritime Administrator during the second Bush Administration. As U.S. Maritime Administrator, he was responsible for the daily management of that agency and its promotional programs for the marine transportation industry. This included advising and assisting the Secretary of Transportation on commercial maritime matters, operation of over 50 ships in the Ready Reserve Force, supervision of the U.S. Merchant Marine Academy, oversight of the six State Maritime Academies, and administration of various shipyard and cargo programs. Along the way, he also served as Corporate Vice President, Government Affairs for the American Bureau of Shipping. Connaughton is a graduate of the U.S. Merchant Marine Academy and served the U.S. Coast Guard as both a commissioned officer and as a civil servant in the Office of Marine Safety, Security, and Environmental Protection. After gaining a Master's degree from Georgetown University, he joined the American Petroleum Institute, representing companies involved in the energy and marine transportation industries, during which time he also earned a law degree from George Mason University. His many honors include the 2009 Vincent T. Hirsh Maritime Award for Outstanding Leadership by the Navy League of the United States and an honorary doctorate in Public Administration from the Massachusetts Maritime Academy. As his tenure ended in the Commonwealth of Virginia, we caught up with him and sought his reflections on not only the past four years, but also his take on the collective domestic waterfront. Arguably, there are few marine professionals better equipped to give that "SITREP."

As you end your four-year tenure as Secretary of Transportation for the Commonwealth of Virginia, let's look back at the highlights of that time, especially from the standpoint of intermodal progress and the waterfront. What are the biggest 'take-aways' for you after your experience in Virginia? What could Washington learn from Virginia?

Transportation is a tough business at the state level; it is literally where the rubber hits the road. You face competing interests, politics, limited resources and the ever present federal bureaucracy. However, you can get a lot done if you stay focused and find ways around the roadblocks. We have done that in Virginia over the past four years and our program is now regarded as one of the best in the na-



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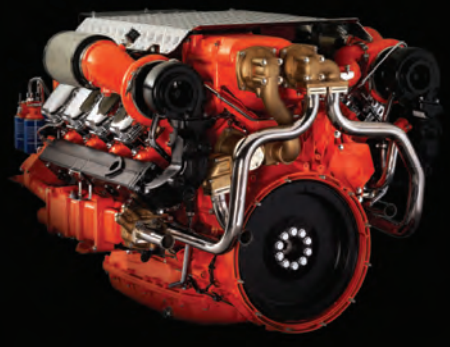

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tion. The biggest disappointment has been the federal role. Four years ago, the federal highway transfer was about one-fourth of the state's transportation funding, now it's one fifth and in just three years from now it will be one-sixth. That drop will be even more dramatic if Washington does not address its funding problem, as we did in Virginia. In addition to funding concerns, onerous federal rules and regulations hinder sound transportation planning and discourage transportation investment. Incredibly, it seems that the federal constraints are increasing at the same time that their financial commitment going down. It is hurting jobs, the economy, and American competitiveness. Something has to change.

What was your proudest moment in Richmond?

I have had a great tenure as Secretary and can point to much that we accomplished, but the proudest moment was the passage last year of the first comprehensive transportation funding legislation in 27 years. The need for more funding for transportation has been recognized in Virginia for a long time but getting it actually done has been a goal for the last four Governors. As passed, the legislation provides billions more every year for all modes of transportation as well as moving Virginia away from reliance on the declining gas tax. The legislation came after a herculean effort by our Administration that included years of trying every idea and trick to advance transportation projects, including public private partnerships, bond sales, administrative audits, reducing personnel and promoting sponsorships. Virginia's legislation is precedent setting and considered a model for other states and the federal government.

One aspect of what sets you apart from other maritime professionals – in our mind – is your attention to the entire intermodal equation and not just the waterfront itself. They all come together. Talk about the development of your inland 'ports' and FTZ areas at, for example, Front Royal, Richmond and other places.

As Secretary, I oversaw Virginia's road, rail, transit, aviation, maritime, motor vehicle regulation, and commercial space programs. It is interesting that some people were puzzled when a perceived "maritime guy" was appointed to a job dominated by road and transit challenges. Virginia not only has a major seaport, but approximately one third of its economy and jobs are in sectors dependent on a well-functioning transportation system, such as agriculture, mining, logistics and manufacturing. We look for ways to make transportation investments that stimulate economic growth. The Virginia Inland Port, which connects the Shenandoah Valley to the Port of Virginia via rail, has created thousands of jobs and billions of investment in the areas surrounding it. We look to replicate that success at the Port of Richmond with the I-64 barge service. We have also funded another inland port in southwest Virginia as well. We have developed a freight transportation plan that looks at how we can invest in order to move freight via road, rails, water, and air more efficiently. And, we are using that plan to make investments that relieve congestion as well as improve Virginia's competitiveness.

Sum up the state of the I-64 barge express on the James River between Hampton Roads and Richmond. How many trucks have you taken off the road? Is the concept picking up steam – and more importantly, cargo volume?

The service has been a success. We invested in the I-64 barge service with the intention of keeping trucks off I-64. One of the biggest traffic problems we have in Southeastern Virginia is the congestion on I-64, which is the primary highway route connecting the Hampton Roads region to the rest of the state. The interstate itself, and specifically the two bridge tunnels on this interstate, are reaching capacity. Even though rail movements are important to our port, two-thirds of the containers it handles continue to move by truck. Virginia has committed billions to expand its port and improving the supporting highway system, but more needs to be done. The number of marine containers moved by barge is now around 5% and we intend to keep growing that volume. We are also interested in partnering with other ports to initiate services that can keep trucks off of I-95 as well.

You've advocated for the waterfront on a national and state level for many years. What's the state of America's maritime industry as we launch into 2014? We are in the midst of as robust a ship / boatbuilding boom as the nation has arguably seen in four decades. It's all good; some of it fueled by the shale boom and the rest, a revived offshore production environment. What can we do to keep it going beyond the usual cyclical up s and downs?

The normal cycle of the U.S. maritime industry seems to be one in which one sector booms while others bust. The problem is that these cycles hide a continual state of decline. The maritime industry is critical to the American economy and national defense and the nation needs to develop and implement a national strategy that improves its health and competitiveness. The federal government seems

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The federal government seems to have little trouble "saving" industries such as banking and auto manufacturing, so there are few valid arguments why it cannot turn its attention to the maritime industry.

to have little trouble "saving" industries such as banking and auto manufacturing, so there are few valid arguments why it cannot turn its attention to the maritime industry. Given the growth in global trade and the need for domestic transportation alternatives along with great job opportunities, the maritime industry is the type of cutting edge 21st Century industry that the United States needs to play a significant role. The challenge is getting the Washington to wake up before it is too late.

Sum up what our national transportation strategy should be in the come year. Five years? Ten?

The nation's current transportation "strategy" seems to be about convenience, not competitiveness. People forget that the federal government was originally formed to address interstate and foreign commerce challenges and some of the first federal programs dealt with transportation, such as lighthouses and shipping. Today, the focus is mostly on urban mobility and, as a result, the federal program has become mired in local minutia instead of the global transportation and economic needs of the nation. The federal government should step back from its current micromanaging of transportation, focus on freight and the projects that enhance economic growth, give States and localities greater flexibility in allocating funds, eliminate the red tape that adds little beyond time and expense to the process, and develop a national gateway and investment plan.

Wind Power: 2014 brings us seemingly closer than ever to this so-far unrealized maritime, offshore industry here in the United States. Virginia is in the mix, as well as Massachusetts, Rhode Island and others. Where does it look most likely to finally happen – and more importantly why or why not?

The challenge offshore wind energy faces today is the same challenge we seem to face in every sector of infrastructure: federal rhetoric versus reality. Washington policymakers publicly state their support for renewable and alternative energy but at the same time they have done little to address the regulatory and legal hurdles that have stalled these projects. Offshore wind energy is good for both maritime jobs and diversifying America's energy future. However, this industry will not reach its full potential until the federal government can assure project developers that their investment will actually result in wind farm construction and operation.

After high profile tenures as U.S. Maritime Administrator and Secretary of Transportation for the Commonwealth, what's next for Sean Connaughton?

I have not decided yet. I have had a great run over the past 15 years in leadership positions at the local, state and federal levels of government, but it is definitely time to return to the private sector. I will be making a final decision in the coming weeks.

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The Pitfalls of Post Incident Paperwork

The job's not over until the paperwork is done. Done correctly.

By Larry DeMarcay

When an accident occurs on one of your vessels, an accident investigation is necessary. As safety is our primary concern, it is important to determine what happened, how it happened and how we can prevent it from happening in the future. Although determining how to prevent a future accident is important, it is also important to be responsible while generating documents as the process unfolds. These investigative documents will also be used by the injured employee's legal team to prove liability for the injured worker. You can create a safer workplace while reducing your claim exposure by developing a plan to ensure that the documents generated during the investigative process are helpful in preventing a future accident while preserving the company's ability to defend a claim against an injured party.

The Accident Report

The first document generated following an incident is usually a simple accident report. This report is often prepared by the vessel crew and briefly describes the specifics of the incident. Accident reports are an important first step in notifying management that an incident occurred. The submission of a report usually starts the investigative and claims processes. As these forms are usually filled out by the vessel crew, it is important to train the crew how to properly complete the forms. A simple accident report should provide information regarding when the incident occurred, generally what happened, the time of the incident and a listing of witnesses to the incident. Once this information is sent to the office, the claims department will have all of the information that it needs to begin processing the claim and the safety and operations departments will have all of the information that they need to begin the investigative process. As this document is prepared by the vessel crew immediately after an incident, it should not include any conclusions as to the cause of the incident. There are many factors that will be considered by the post incident investigative team that are not obvious to the crew immediately after the incident.

The Advent of E-Mail

Another form of communication that can cause issues for a company is the exchange of texts or E-mails during the process of investigating the incident. Prior to the advent of E-mail communication, company employees were able to discuss potential causes of an incident by talking about them. If one of the ideas mentioned by an employee was found to be inaccurate, that theory was discounted and never recorded in writing. However, with the advent of E-mail communication, any comment that an employee may make about a potential cause of an incident will be immediately recorded, preserved and available for review by the claimant's legal team.

Although there may be a series of E-mails, following such an E-mail that debunk the theories included in that E-mail, the cross examination testimony taken from the employee who wrote it may be damaging to the company. Essentially, the damage is caused when plaintiff's counsel asks, "So, as of a certain date, you believed that the cause of the accident was…" Unfortunately, the only answer, as it is preserved in writing, will be a resounding yes. The jury may never listen to the explanation as to why he was incorrect at that particular time, especially if the theory tracks the liability theory pursued by the claimant.

Thus, it is very important to train all employees, both vessel and land based, that anything that they place in an E-mail or a text message could be taken out of context and used against the company. Therefore, it is important not to draw any premature conclusions about the cause of an accident while communicating with co-workers via text or E-mail.

Root Cause Analysis

Many companies use a "root cause analysis" as an investigative tool. These safety programs provide an investigative framework where the cause of an incident can be determined. Although such a systemic approach is a great process for determining what could have caused an accident, it also has limitations as it is process oriented. Also, some programs, and many operators mandate, that this process be done without taking into account the fault of the injured employee. Although eliminating employee error as a potential cause of an incident could make opera-

tions more "dummy proof" and a bit safer, it does not fit in with the reality of how a particular incident occurred. In reality, many incidents are caused by employee negligence and not the fault of the employer.

Thus, it is important to look at the program being used by your company to determine if it is providing you with an accurate assessment of what caused an accident. If you are working for an operator that mandates that employee negligence not be considered, make sure that you add a footnote to the report indicating that the investigation did not take into account the employee's behavior. As such, if the report is being used against you later, you can point to the footnote to explain the conclusions.

Another document that often causes companies problems is a report often referred to as a "subsequent remedial measure report." This report usually pinpoints the cause of the accident and makes a recommendation as to how this type of accident may be avoided in the future. Although subsequent remedial measures are not admissible during trial, they are often discoverable as they are usually nothing more than an accident report with conclusions. As such, the recommendations made in this report may provide a roadmap to opposing counsel as to how to prove liability.

For example, assume that an employee fell from height and the investigation determined that the injured employee would not have been hurt had he been using a fall arrest system. A subsequent remedial measure mandating that employees working at height must use a fall arrest system may not be admissible at trial. However, claimant's counsel could still ask the question, "Would it have been possible, at the time of this accident, to use a fall restraint system to avoid this type of accident?" Thus, if this recommendation is made in a non-admissible, but discoverable, subsequent remedial measure report, the damage has been done. As such, it is important to look at how a subsequent remedial measure report is prepared and properly evaluate the conclusions that it draws prior to putting it in writing.

Witness Statements

The last documents that are usually generated as a result of this investigative process are witness statements. The cases regarding the discoverability of witness statements are not clear and the issue of whether you must produce witness statements tends to be decided on a case by case basis. The court usually examines when was the statement was taken and who took the statement to determine whether the statement is protected from disclosure. The highest level of protection goes to witness statements that are taken by the company's lawyers after they have had an opportunity to conduct an investigation and determine a legal strategy for defending the claim. These statements are usually protected as attorney-client privilege and material prepared in anticipation of litigation.

The least protected statements are witness statements taken by crew members aboard the vessel immediately after an accident. It is safe to assume that these witness statements, which are often written in the crew member's own handwriting, are almost always going to be produced. Falling in the middle are witness statements taken by investigators or insurance adjusters sometime after the accident. It is also important to note that statements taken of the injured employee are always discoverable and will always be turned over to the injured employee when the discovery process begins. Also, any witness who provided a statement is entitled to receive a copy of his statement regardless of who took it.

Considering that any statement may have to be produced to the other side, it is important that the statement be taken with an understanding that it could be produced during the litigation process and that anything included in the statement could harm the company's defense to the action. As such, any employees taking statements of crew members should be trained on how to properly prepare a statement to help lock down positive witness testimony.

Unfortunately, incidents occur during the normal course of operating a company. There is a balancing act between protecting the company's ability to defend a claim brought by an injured employee, determining the cause of the incident and preventing it from happening again. Developing a plan and training employees is the key to the efficient execution of such an investigative plan. A little time spent developing a plan can create an environment where the cause of an accident can be determined, future accidents can be avoided and the company is provided an adequate opportunity to defend itself from any potential claims.

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Mariner's Medical Certificates – the New Normal

The Maritime Labor Convention of 2006 became effective on 20 August 2013: Are the authorities ready?

By Jeff Cowan

Consider that MLC 2006 Regulation 1.2-Medical certificate. Standard A1.2 states that "a competent authority shall require prior to beginning work on a ship, seafarer's hold a valid medical certificate." Under paragraph 7a of that same regulation it further states that "a medical certificate shall be valid for a maximum period of TWO YEARS." That requirement also became official for US mariners as per "78 Federal Register 77795," released on 24 December 2013 and with an effective date of 24 March 2014.

Over the past 35 years of my maritime career, I have renewed and upgraded mariner licenses or Merchant Mariner Credentials (MMC now) at least seven times at regular five-year intervals. And yet, the new requirement of medical certification every two years is intriguing. "Vessel owners/operators should ensure that all U.S. seafarers to which STCW applies hold a valid Merchant Mariner Credential (MMC)," states U.S. Coast Guard NVIC 02-13 issued July 30, 2013 in an attempt to explain compliance with the MLC. "A valid MMC constitutes the proof of a valid medical certificate." This statement creates a quandary: The MMC is issued at five year intervals. Arguably, the (new) lack of synchronicity may create, at the very least, enforcement and compliance complications.

Navigating the New Normal

A two-year medical re-certification process introduces more than one variable to the already complicated process of maintaining a valid marine license. While checking the status of my own renewal application, I noted that I have a "Medical Credential approved to print" message from the USCG which allowed access two weeks prior to official USCG announcement for rule making.

Under the old regime (before the centralized certification facility known as the National Maritime Center in Martinsburg, West VA came about) a seafarer would see a medical doctor, who was usually his or her family physician, every five years to go over a four page medical evaluation. At the conclusion of the visit, the attending physician signed the form listing his or her medical license number while attesting to the seafarer's fitness or unfitness for sea duty.

Under MLC paragraph 4 of Standard A1.2, "Medical certificates shall be issued by a duly qualified medical practitioner…" The regulation further states that "Practitioners must enjoy full professional independence in exercising their medical judgment in undertaking examination procedures." However, under the present system, applications are reviewed in Martinsburg under the supervision of the US Coast Guard. The physician's assistant (PA) who reviewed my medical file works within the confines of the USCG facility located in Martinsburg. One has to ask whether a PA able to enjoy independence in exercising his or her medical judgment while not seeing me personally.

In addition, I found it interesting that while speaking with Coast Guard physician's assistant on my most recent renewal, the PA stated, he "accepted the evaluation from my cardiologist." Upon relating this acceptance to my cardiologist's office, he uttered a one-word response: "hubris." During this mariner's previous renewal, it took four months without any medical issues. This time around, it has taken seven months with the convenience of being shoreside and ability to address the various issues during that entire time. Not every working mariner has that luxury. Consider a mariner with a standard rotation of two months on and two months off, or a six month tour, trying to address medical issues in the two-year medical cycle. In a situation where there are no medical issues, this may be feasible. However, how many of us have experienced the delays and time lags in the physicians' referral process, trying to see a specialist. In the new two-year cycle, how many mariners' livelihoods will be casualties of the delays in trying to secure the medical certificate? It would seem prudent for a mariner to start the physical renewal process at least a year before the expiration of the current certificate. Ship's Masters already have a difficult enough time signing crew with all of the proper certifications, and the new medical certification process has made it tougher. How do ship Masters/ship operators find 20 years of experience in 20-year-old bodies?

More Unanswered Questions

The medical certification process has the additional burden of all approvals being made by a physician's assistant at the USCG facility in West VA. Sight unseen, a PA will review the records of a patient and determine fitness for duty. In the past, this had been the responsibility of the mariner's attending physician. Beyond this, aviation and trucking fall under the Department of Transportation (DOT) while the transportation of goods, services and people over water falls under the Department of Homeland Security. This begs another question: *if transport over the water is a security issue, why are internationally bound airline pilots not regulated the same way?*

Planes, Trains and Boats, too

Under DOT, the trucking industry members submit to

a physical examination by a licensed "medical examiner." The term includes, but is not limited to, doctors of medicine (MD), doctors of osteopathy (DO), physician assistant (PA), advanced practice nurses (APN), and doctors of chiropractic (DC) every two years.

So a trucker, every two years, may use a primary care provider, if that provider wants to conduct a "DOT physical exam." They may also find a medical examiner in the yellow pages of a telephone book, or on the Internet by using an Internet directory or search engine by looking under "Occupational Health." The end result is a physician who actually looks at a trucker, talks to the trucker, and personally engages with the trucker, and is trusted to make an evaluation regarding the trucker's ability to drive.

For the aviation industry, under the auspicious of the Federal Aviation Authority (FAA), there are over one thousand (1,000) Aviation Medical Examiners (AME's) spread within the United States and some foreign countries.

Applicants for the AME certification must hold a current valid medical license as an MD or DO (with no restrictions or limitations) issued by the state licensing authority in the location where they intend to perform medical examinations for the FAA. The regulations are a bit stricter here: aviators who transport people and cargo commercially must hold a Class I Pilot license and get medically certified if under 40 years of age every 12 months. Then if a Class I Pilot is over the age of 40, he or she must get medically certified every 6 months, but the certification is still by an attending physician.

Upon speaking with a Federal official who has knowledge of the medical certification process now used by USCG, that official stated it was not in the regulations to assume the FAA model. In addition, the official stated that it was "cheaper" to have the centralized location versus using the FAA model of AME's located throughout the country. In other words, saving a few USCG dollars is more important than protecting the jobs of American seaman. Without the timely issuance of the medical certificate, our American seaman cannot work and our Maritime Security Program (MSP) along with Jones Act (American) ships cannot sail.

According to the latest Federal Register 78 issued on 24 December 2013, the USCG is looking into using Designated Medical Examiners (DME), but final implementation is a long way off.

Additional Challenges

The two year certification may present some additional challenges for transoceanic mariners. Specifically, the MLC Standard A1.2 paragraph 8 also states that "In urgent cases, the competent authority may permit a seafarer to work without a valid medical certificate until the next port of call where the seafarer can obtain a medical certificate from a qualified medical practitioner, provided that:

(a) the period of such permission does not exceed three months; and

(b) the seafarer concerned is in possession of an expired medical certificate of recent date.

Meanwhile, Section 9 states: "If the period of validity of a certificate expires in the course of a voyage, the certificate shall continue in force until the next port of call where the seafarer can obtain a medical certificate from a qualified medical practitioner, provided that the period shall not exceed three months."

So what happens to the American mariner when a medical certificate expires in the course of a foreign voyage aboard an American ship? According to sources, the seaman will not be signed on the ship/boat until he/she possesses the certificate issued from Martinsburg, WVA. An internationally accepted affidavit from an attending physician will not serve as temporary documentation until the WVA facility issues the certificate. Nowadays, that mariner who wants to feed a family has found that it has just gotten just a little bit harder.

The ILO FAQ on the MLC 2006 provides an explanation of Article V, paragraph 7 of the MLC, 2006 noting that it contains what is called the "no more favorable treatment clause." This clause will ensure a level playing field under which the ships of countries that have ratified the Convention will not be placed at a competitive disadvantage as compared with ships flying the flag of countries that have not ratified the MLC, 2006. In other words until the US Senate ratifies the MLC 2006 – and it does not look like they ever will – American ships and seamen engaged upon international voyages will be subject to increased scrutiny from Port State Control. Ultimately, this impacts shipping companies who are already experiencing tight bottom lines.

There are many facets of the MLC 2006 and the medical certificate is one small part. Until the American Port State authority simplifies medical certification by allowing a medical practitioner to personally certify a seaman every two years, using the international or DOT model of either the aviation or trucking industry for certification, the American seamen and ships are at another competitive disadvantage.

Closer to home, the vast majority of the 200,000 U.S. certificated mariners today can be counted among the ranks of coastwise, brown water and inland trades plying domestic waters. The process of increasing the frequency of medical renewals from five to two years will not be as simple as it looks. The National Maritime Center is arguably only now coming up to speed on their (new) medical certification process. What will happen when the number of approvals more than doubles in a very short period of time? Are the authorities ready? Only time will tell.

The Coast Guard's Proposed *Maritime Preemption Assessment Framework*

By Craig H. Allen

In the May 2013 issue of ***Maritime Reporter & Engineering News***, Dennis Bryant published a provocative article titled *Rebuilding the Presumption of Preemption.* Pointing to recent examples of state overreach in the maritime field like California's ocean-going vessel fuel standard that extends seaward 24 miles (despite the fact that the federal Submerged Lands Act limits the state's jurisdiction to 3 miles), Captain Bryant called on all three federal government branches to "work toward the rebuilding of the presumption in favor of federal preemption with respect to all matters related to maritime commerce." Although in its December 27, 2013 preemption rulemaking, the Coast Guard stopped short of declaring a "presumption" of preemption, the agency did declare that:

> *The Coast Guard has asserted in the past and believes today that consistent standards of universal application and enforcement, coupled with Federal initiatives to meet unique regional concerns, best meet local and national safety and environmental goals with the least disruption to maritime commerce. 78 Fed. Reg. 79,243.*

That declaration is followed by a carefully drafted proposed rule setting out a "general restatement" of maritime preemption principles and the agency's revised "assessment framework" for determining the preemptive effect of its regulations. After noting that several recent judicial decisions signal that more explicit preemption statements are instructive and helpful, the Coast Guard makes it clear that one purpose of this new rule is to "make the Coast Guard's view of the preemptive impact of certain regulation more obvious." A second purpose is to "avoid or reduce confusion related to State and local governments' attempts to regulate in preempted areas." Close study of the proposed preemption assessment framework rule suggests that the coming final rule establishing the towing vessel inspection program is almost certain to preempt state regulations in the same field.

The Coast Guard's Proposed Rule on the Preemptive Effect of Coast Guard Regulations

On December 27, 2013, the Coast Guard issued a proposed rule setting out its "assessment framework and organizational restatement regarding preemption for certain regulations issued by the Coast Guard" (78 Fed. Reg. 79,242-52). The proposed rule responds to a May 20, 2009 memorandum by President Obama addressed to the heads of executive departments and agencies. That memorandum imposed both prospective and retroactive obligations. First, it imposed new restrictions on federal agencies regarding any future decision to include preemption provisions in their regulations. More specifically, it directed that any preemption provisions issued by federal agencies must be justified under the legal principles governing preemption, including those outlined in Executive Order 13,132.

The presidential memorandum's stated purpose was to ensure that preemption of state law by executive departments and agencies is undertaken only with full consideration of the legitimate prerogatives of the states and with a sufficient legal basis for preemption. Second, the memorandum directed all agencies to review any preemption statements they issued before the memorandum was released, to ensure those prior statements comply with the new policy. The Coast Guard's assessment framework rule is responsive to both directions by the president.

While the 2009 presidential memorandum provided the occasion for the Coast Guard's December 27th rulemaking, such presidential memoranda cannot alter existing federal law. Thus, the proposed Coast Guard assessment framework rule quite appropriately acknowledges the binding effect of the rules of maritime preemption laid down by the U.S. Supreme Court in two decisions striking down state tanker laws (Ray v. ARCO, decided in 1978, and United States v. Locke, a unanimous 2000 decision). Drawing on those cases and others, along with the statutes enacted by Congress that provide the authority to issue regulations, the proposed preemption rule describes the three forms of preemption articulated by the Supreme Court (express preemption, field preemption and conflict preemption). It then applies an assessment framework derived from those statutes and cases to selected regulations promulgated by the Coast Guard in Titles 33 and 46 of the Code of Federal Register (C.F.R.) before the proposed rule is made final. The drafters made it clear, however, that the list is not intended to be exhaustive. 33 C.F.R. § 1.06-1(b)(1). The proposed rule also sets out the framework the Coast Guard will apply in analyzing the preemptive effect of regulations issued after the proposed rule is made final and provides guidance on how it will conduct case-by-case

The currently proposed towing vessel rule by the Coast Guard was published in 76 Fed. Reg. 49,976 on August 11, 2011. In the 2011 draft of the rule, the Coast Guard concluded that because the states may not regulate activities within the categories covered by the proposed rule, preemption "is not an issue." That statement appears to fall short of the Coast Guard's recently announced goal of making the preemptive impact of its regulations "more obvious."

preemption determinations.

With respect to the first category — selected regulations issued prior to the date on which the proposed rule becomes final — the Coast Guard addressed the preemptive effect of seven categories of regulations: (1) regulations issued under authority of Title I of the Ports and Waterways Safety Act (as amended); (2) regulations issued under Title II of that same Act; (3) regulations falling within the "overlap" between Titles I and II of the Act; (4) regulations issued under 46 U.S.C. chapter 32; (5) regulations issued under 46 U.S.C. chapter 33; (6) regulations issued under 46 U.S.C. §§ 3717 and 6101; and (7) regulations issued under 33 U.S.C. §§ 1901-1912. For each of the seven categories, the Coast Guard identified the relevant preemption form (express, field or conflict) and applied the preemption rule to previously issued regulations. The table below summarizes the proposed framework (readers should consult the actual rule to determine the preemptive effect of individual regulations falling within these categories).

Possible Implications for the Coming Towing Vessel Inspection Final Rule

The Coast Guard's new preemption assessment framework will also be applied to regulations promulgated by the Coast Guard after the final assessment rule is published. Most readers are no doubt aware that the final Coast Guard rule on towing vessel inspections is long overdue. Many appear to assume that, once promulgated, the final rule will preempt state regulation of towing vessels covered by the rule. Assuming the final towing vessel inspection rule adheres to the assessment framework established by the proposed rule on preemption, that assumption appears well-founded.

Congress directed the Coast Guard to undertake the towing vessel inspection rulemaking in section 415 of the Coast Guard and Maritime Transportation Act of 2004. In that 2004 act, Congress amended the 46 U.S.C. § 3301 list of "vessels subject to inspection" to include towing vessels ("towing vessel" is in turn defined in 46 U.S.C. § 2101(4)). It also amended 46 U.S.C. § 3306 (the Coast Guard's authority to promulgate regulations implementing the inspection requirements) to add: *"The Secretary may establish by regulation a safety management system appropriate for the characteristics, methods of operation, and nature of service of towing vessels."* The currently proposed towing vessel rule by the Coast Guard was published in 76 Fed. Reg. 49,976 on August 11, 2011. In the 2011 draft of the rule, the Coast Guard concluded that because the states may not regulate activities within the categories covered by the proposed rule, preemption *"is not an issue."* That statement appears to fall short of the Coast Guard's recently announced goal of making the preemptive impact of its regulations "more obvious."

Properly applied, the preemption assessment framework set out in the December 27 rule strongly suggests that any regulations promulgated by the Coast Guard under author-

SELECTED STATUTES	SUBJECT	PREEMPTION FORM
PWSA Title I	Vessel Operations	Conflict Preemption
PWSA Title II	Tank Vessel Design, Construction, Equipment, Repair, Manning, Crew Qualifications and Operations	Field Preemption
PWSA Titles I/II Overlap Rules	Mixed	Overlap Analysis
46 U.S.C. §§ 3201-3205	Vessel Safety Management	Field Preemption
46 U.S.C. §§ 3301-3318	Inspected Vessels	Field Preemption
46 U.S.C. §§ 3717 & 6101	Marine Safety Information and Casualty Reporting	Field Preemption

ity of 46 U.S.C. chapter 33 fall within the *field* preemption category. Similarly, the Coast Guard has determined that the *field* of vessel safety management is preempted. Accordingly, any towing vessel inspection regulations issued under 46 U.S.C. chapter 33 and any towing vessel safety management regulations issued under 46 U.S.C. chapter 32 should preempt state regulations of those fields.

A Positive Step, but Full Implementation Will Present a Challenge to Rule Drafters

The proposed preemption framework rule is a positive first step toward compliance with the 2009 presidential memorandum and promises to bring needed clarity and predictability to maritime preemption analysis. The importance of the rule lies in the deference federal courts give to an agency's decisions regarding preemption of state laws. Although there is a presumption against preemption when a state exercises its historic police powers, the Supreme Court in the Locke case rejected such a presumption when a state attempts to regulate maritime shipping. It is well established that *"federal regulations have no less preemptive effect than federal statutes, and agency regulations may preempt state regulation expressly or by implication."* The Supreme Court has held that agency statements on the question of implicit intent to preempt state regulation are dispositive unless either the agency's position is inconsistent with clearly expressed congressional intent or subsequent developments reveal a change in that position. Similarly, the Court has recognized that the regulating agency may be "uniquely qualified" to determine whether the state law stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress. By contrast, the Court has held that agency regulations do not preempt state regulatory authority where the regulations did not specifically express preemptive intent.

The Coast Guard is to be congratulated for this important undertaking. Nevertheless, the "federalism" statements accompanying recently published rules suggest that the goal of greater clarity and predictability will present a challenge to the agency's rulemaking teams, particularly

with the regulations falling within the "conflict" preemption category. Some regulations are fairly straightforward. For example, the Coast Guard's preemption analysis in the 2012 Ballast Water Discharge final rule (77 Fed. Reg.17,253, March 23, 2012) was simplified by the fact that Congress expressly saved state regulatory power to adopt or enforce control measures for aquatic nuisance species (16 U.S.C. § 4725). The course having been expressly set by Congress, the Coast Guard concluded in its rule that *"In light of this provision, the Coast Guard cannot legally preempt State action to regulate discharges of ballast water within State waters"* (something many commenters had recommended) (77 Fed. Reg. 17,280).

Similarly, in the proposed rule promulgating Changes to the Inland Navigation Rules the Coast Guard determined that the subject falls within the field preemption category. Accordingly, the agency concluded that *"based on the President's 2009 memo and the preemption principles outlined in EO 13132, the Coast Guard proposes to add the following sentence to 33 CFR 83.01(a): 'The regulations in this subchapter have preemptive effect over State or local regulation within the same field.'"* (77 Fed. Reg. 52,175, at 52,186 Aug. 28, 2012). A third example of a straightforward preemption analysis can be found in the final rule implementing the Manila Amendments to the STCW Convention (78 Fed. Reg. 77,795, Dec. 24, 2013). Those regulations were also found to be within the field preemption category (78 Fed. Reg. 77,780-81).

The clarity and predictability of the preemption statements in the rules discussed above can be contrasted with the 2013 final rule establishing requirements for Nontank Vessel Response Plans (NTVRPs), 78 Fed. Reg. 60,100, Sept. 30, 2013. That final rule was issued under authority of several statutes, including 33 U.S.C. 1225, 1231 and 1903(b), all of which fall within one of the PWSA or APPS categories of the proposed rule establishing the Coast Guard's preemption framework. The NTVRP rule was codified in various sections of Title 33 C.F.R., but most prominently 33 C.F.R. part 155 (§§ 155.5010-155.5075). In the "federalism" discussion of the final rule issued in late 2013, the Coast Guard discussed the established preemption principles, but then — without identifying which of the three preemption analyses it was applying — asserted (at 78 Fed. Reg. 60,119) that:

This rule describes the standards to which nontank vessel owners or operators will adhere when preparing and submitting plans for responding to a discharge of oil from their vessels. This rule will not preempt the various State laws on this topic. We drafted this rule to ensure that, to the extent practicable, it is consistent with any applicable State-mandated response plan in effect on August 9, 2004. We contacted the National Conference of State Legislatures to circulate the NPRM to the States for their awareness of the proposal. We conducted a search of State laws addressing NTVRPs and conclude that no State law is preempted by this final rule.

Even those who take a narrow view of federal preemption of state laws would likely agree that the earlier-drafted federalism statement in the Inland Rules proposed rule is clearer and provides better predictability than the later-drafted federalism statement in the NTVRP final rule. By failing to specify which of the three preemption tests it was applying, and referring only to state plans in existence almost a decade before the final rule was published, the final rule provides no guidance on how the agency will analyze state laws after 2004. Those later-promulgated rules might, for example, purport to apply to foreign vessels in innocent or transit passage that are exempt from the federal rule, or attempt to override a federal decision to permit substitute compliance through "alternative planning criteria."

Fortunately, under the Coast Guard's new assessment framework, the preemption analysis for the towing vessel inspection rule is more likely to follow the Inland Navigation Rules path of field preemption than the ambiguous NTVRP rule path. A positive statement like the one to be added to 33 C.F.R. § 83.01(a) on the Inland Rules is far more likely to further the Coast Guard's goal of making the preemptive effect of its regulations "more obvious" than the conclusory and backward-looking assessment in the 2011 towing vessel inspection rule draft, which merely concludes that preemption *"is not an issue."*

Interested readers may submit comments on the preemption framework proposed rule to the Coast Guard until March 27, 2014. Instructions for submitting comments are included in the Federal Register notice.

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Photo: Crowley Maritime

Is Your Crew Really Prepared?

If you think training is expensive; try ignorance.

By Luke Carpenter

In the ensuing years following the Exxon Valdez disaster, the maritime industry has made great strides in training mariners to prepare for, respond to and mitigate a multitude of emergencies aboard vessels. For example, the environmental performance of the marine industry itself has all but eliminated much of the oil that formerly entered the water through marine error or equipment failures. Nevertheless, the incidents with vessels that do occur, large and small, bring into question the effectiveness of the training.

A fire aboard a vessel can be a nightmare. That's because a firefighter ashore, in certain circumstances, can fight a fire defensively; that is from outside the structure. Mariners can't do that, so their choices are limited – use the tools they have to combat the fire or abandon ship.

The Best Fire is No Fire

When I taught fire safety for commercial fisherman in Seattle, one point I always stressed was that the best way to fight a fire is not to have one. As obvious as this seems, it's very important and the key to safety at sea. Studying the accident reports published by the USCG or the NTSB makes it clear that human error can be attributed to the causation of most incidents. Deferred maintenance, poor housekeeping, failure to follow guidelines and complacency are key factors in the causes of any marine incident including fires.

Once a fire starts, crews are instantly playing catch up. Early detection and alerting are important to reduce the time needed for a fire to grow. Smoke alarms should be tested and maintained as well as engineroom alarms or other fire detection systems.

This is Not a Drill

When the alarm is sounded it's time for training to kick in. Has your crew trained on the equipment provided to them? Are they proficient in all aspects of its use? A good example of this occurred recently when a student demonstrated the proper way to don a self-contained breathing apparatus (SCBA) but then did not know how to change out the air cylinder when it was exhausted. Lack of proficiency in this crucial step can cause lost time in a rescue effort or a fire attack that may change the outcome of the event. Drills should include all elements of the natural progression of a fire emergency, like changing out air bottles.

A fire, even a small one, aboard a vessel will produces lots of acrid, choking smoke that will quickly reduce visibility possibly throughout the entire boat. If your vessels are equipped with SCBAs, then ensure that crews train in using them in limited or zero visibility. Can they don them quickly in the dark? If your vessels do not have SCBA, can your crews escape in zero visibility?

One of the best firefighting tools, and maybe the only one, on your vessels are portable fire extinguishers (PFE). A PFE has the ability to control a wide range of fires, as most are rated for Class A-B-C fires if used properly. To learn the capabilities and limits of PFE's there is only one sure way to train and that's live fire training. What comes out of the extinguisher nozzle and how it impacts the fire is best learned in hands-on training on the actual type of fires encountered onboard. Firefighters are often chided for running in to burning buildings when others are running out. They do this because they also know the capabilities of the tools that are being brought to bear on the fire; the hoses, ladders, axes etc. The knowledge and confidence comes from experience but also from training and task repetition. The same training and task repetition can help mariners when they face the challenge of a fire onboard.

Specific Pre-Incident Planning

Crews should discuss where fires can occur on the vessel and then plan how they will respond. Ashore, this is known as pre-incident planning and most fire departments perform them for potential responses. For example, a fire in the engine room will cause what to happen? Which way will the smoke go? What if a crewmember is trapped and needs to be rescued? If crewmembers need to enter the engineroom, how long will it take to get ready and what else can be done during that time. Pre-incident planning should cover escape/rescue of any crewmembers in the space, isolating the fire, combating the fire by various means – PFE's, hoses, fixed extinguishing systems and what the consequences of those actions will be. If you dump the fixed extinguishing system, what happens next?

Loss of propulsion can compound the incident and greatly magnify the consequences of the fire.

Pre-incident planning should also include looking at the big picture of an event. If a fire occurs in any given space what will happen to liferafts and other survival gear? Will you be able to get your survival suits and liferafts in the event of a fire in the galley? Take care of Plan B in case you have to shift gears and abandon the vessel.

When developing pre-incident plans, the next step is, of course, training. Live fire training gives mariners the hands-on knowledge and understanding of the tools they have available to them. Portable fire extinguishers are great tools, but if you've never used one on a real fire (and this means oil and wood, not propane) then you can't truly understand its capabilities and limitations – both of which are crucial pieces of knowledge. The use of personal protective equipment (PPE) or fireman's outfits is a big financial decision for any company. The equipment is not "one size fits all" and it's expensive. If worn properly, by trained personnel, they can make the difference in the outcome of an onboard fire.

The heat and toxic smoke produced by today's construction materials can quickly overcome non-protected mariners in even a small fire like a waste basket in the galley or a pile of rags in the engineroom. The combination of SCBA and PPE can protect mariners and give them valuable time and safety when combating a fire onboard. Once again, training is the key to success with this equipment. When a fire starts, that's not a good time to discover that the crewman designated to wear the equipment has claustrophobia when they can't see out of the face piece. Mariners should train on board with this equipment so they can learn the best way to use it but they should also be given the opportunity to train in live fire conditions. The heat, limited visibility and exertion found in live fire training will help improve a mariner's confidence in the equipment they wear and use. It will also show them their own limits, which are more important than the limitations of the equipment.

Operators Have Tough Choices

As operators, vessel managers have tough choices. Training is expensive and so is the equipment necessary for that training. The requirements of STCW and 46CFR part 27

are minimal and don't adequately prepare a mariner for an actual fire aboard a vessel. As an example, the CFR requires only that a mariner be able to don a fireman's outfit and breathing apparatus, if equipped. It says nothing about being competent at the task or being able to accomplish the task in a given time frame. Your crew can (probably) comply with this requirement, but are they prepared?

Land based firefighters drill on these tasks until it becomes muscle memory and they can do it without thinking. Too often, though, a vessel manager will insist, "That's fine, but my crew aren't firefighters." But, the reality of the matter is that once a fire starts aboard their vessel, they are firefighters. The fire doesn't care about your level of training – it will burn until it's stopped or it runs out of fuel.

Amortizing the Cost: It All Adds Up

Does the time and money invested in training payoff in a real event? The answer is a resounding "Yes." A good rule of thumb is that every dollar spent on preparedness saves about four dollars in recovery costs, and that's without a pollution event. How much does an oil spill cost your company? Crowley Maritime is one such organization that makes a considerable investment in its people and their training, to ensure their crews have the skills and confidence to mitigate shipboard emergencies. Continued training onboard, beyond the regulatory requirements, will improve crew readiness and build the muscle memory needed to respond quickly.

Operators should continue to improve their training, but remember the adage that the best way to fight a fire is not to have one. An ongoing commitment to maintaining not only safety equipment but operational equipment and creating a culture that doesn't tolerate complacency is the key to a safe operation. It's the little things that can come together to create the conditions needed for a fire to start. If a fire does start, your crews will be playing catch up as they make the crucial decisions needed to cope with the incident. The tools and the training they have will make the difference. Start now by training to a standard in excess of simple compliance with the regulatory scheme.

Is your crew really prepared? What if they are not?

*(Captain) **Luke Carpenter** is a 1977 graduate of the Massachusetts Maritime Academy started his fire service career in 1993 after sailing for 13 years as a deck officer for SeaRiver Maritime. As a member of the Seattle Fire Department's Marine Response Unit and later as an Assistant Chief for the Bainbridge Island Fire Department he has contributed to standard setting agencies such as the NFPA and helped develop training materials for organizations such as IFSTA and the Seattle Fire Department.*

On Patrol: with the U.S. Coast Guard

Building programs continue, spanning the full range of missions, despite budget concerns.

By Joseph Keefe

Amidst all the talk of Beltway budget cutbacks and sequestration, the U.S. Coast Guard is quietly investing approximately $30 billion in major acquisition projects to modernize its physical assets. The process of recapitalizing these older and difficult-to-maintain assets has never been an easy task, and the Coast Guard has seen its share of bumps along the way. For example, the initially messy *Deepwater* debacle initially kicked off what has evolved into today's more successful recapitalization process, now run by the Coast Guard's Acquisition Directorate, which stood up in July 2007.

Not all of that $30 billion in spending is allocated for boats, of course, but plenty is being spent today to replace outdated and inefficient platforms that no longer meet the needs of a rapidly evolving Coast Guard. The Coast Guard's core mission capabilities arguably stem first from the readiness of their fleets of cutters and boats, using a variety of waterborne platforms to conduct its daily business. All vessels under 65 feet in length are classified as boats and usually operate near shore and on inland waterways. A cutter is defined as any Coast Guard vessel 65 feet in length or greater, having adequate accommodations for crew to live on board. This month we highlight six different ongoing acquisition projects – including the 154 foot Fast Response Cutter – that are actively underway. A quick snapshot of those hulls is depicted in table 1.

45' Response Boat Medium (RB-M)

The 45-foot Response Boat-Medium (RB-M) boasts an improved design, new ergonomics, and enhanced safety features, making boat crews more effective in performing their multiple missions. The RB-M replaces the aging 41-foot and other non-standard utility boats which are at the end of their 25-year economic service life. The new boat boasts significantly increased speed and performance, improved response time and agility. The boats also are designed with human factors systems engineering concepts in mind, decreasing crew fatigue on extended patrols. The RB-M has entered full-rate production, meaning that the service is delivering at least 30 boats per year, which is more than one boat every two weeks.

Since the first RB-M was delivered to Station Little

Table 1. – USCG Buy Program

	45'Response Boat – Medium (RB-M)	Long Range Interceptor (LRI II)	32' Transportable Security Boat (TPSB)	29' Response Boat – Small (RB-S II)	26' Cutter Boat – Over the Horizon IV	WPC 154' SENTINEL CLASS
Ordered FY13	4	1 (*)	0	35	22	6
Total Orders	170	5	52	99	23	24
Delivered Totals	144	1	52	67	10	8
Delivered FY13?	32	1	3	46	3 (+)	4 (Numbers 5-6-7-8)
Builder	Marinette Marine Corp.	Metal Craft Marine	Kvichak Marine	Metal Shark Boats	Safe Boat International	Bollinger
Where Built	Green Bay, WI/ Kent, WA	Cape Vincent, NY	Seattle, WA	Jeanerette, LA	Port Orchard, WA	Lockport, LA
Replacing which hull?	41' Utility Boat (UTB)	Does not replace an existing hull	25' TPSB	25' RB-S	CB-OTH III	WPB 110' ISLAND CLASS
How much did the boats cost?	~ 2.5M each	~ 900K each	~ 490K each	~ 300K each	~ 400K each	$44 million each
# to be Acquired?	As required by mission	As required by mission	As required by mission	As required by mission	As required by mission	58

(*) 4 more have been ordered since then in FY14 / (+) 7 more have been delivered already in FY14)

Creek, VA, in April 2008, RB-Ms have been delivered to Coast Guard boat stations throughout the United States, with a current average of about 30 boats per year. To date, 144 of 170 RB-M boats ordered have been delivered.

Team RB-M was formed by Kvichak Marine Industries (KMI) of Seattle, WA and Marinette Marine Corporation (MMC) of Marinette, WI in 2002 with the goal of obtaining the U.S. Coast Guard contract for the 45' Response Boat Medium (RB-M). This multi-year RB-M contract was awarded to Team RB-M in 2006. The partnership is a win-win for both companies. KMI was tasked with the design and production engineering and to produce half the boats; MMC provided purchasing, logistics, and program management. The success of MMC and KMI's management of the program has allowed both companies to deliver the boats ahead of schedule and on budget. In addition to the construction, MMC provides full logistics support including a Field Support Desk and extended warranty for up to 250 boats. Through innovative Lean Manufacturing processes and state of the art technologies, over 1700 hours have been cut off the construction time of the boats and all have been delivered on cost.

"Marinette Marine is grateful for its well established partnership with the US Coast Guard. We are especially proud of the success in delivering the RB-M to further the Coast Guard's important mission," notes MMC President and CEO Chuck Goddard. "Our facility was designed to embrace new production technology and implement innovative lean manufacturing processes. This purpose driven design, coupled with the talent of our exceptionally skilled workforce, has allowed us to deliver on time and within budget."

Designed by Camarc Design, UK, the RB-M is a 45' self-righting patrol boat utilized by the US Coast guard for a broad range of missions including homeland security and search-and-rescue. Powered by twin Detroit Diesel 60 series diesel engines coupled to Twin Disc MG5114SC marine gears with Rolls-Royce Kamewa FF375S waterjets, the RB-M is capable of speeds in excess of 40 knots. A full cabin provides crew protection from the elements and is equipped with a robust navigation system, heating and air conditioning, shock mitigating seats and a communication system capable of communicating with other federal, state and local homeland security partners.

Long Range Interceptor (LRI II)

The U.S. Coast Guard placed a delivery order on December 12, 2013, for four Long Range Interceptor-II cutter boats. The delivery order is valued at $3.973 million. The

MCM
MetalCraft Marine
INCORPORATED

METAL SHARK
ALUMINUM BOATS

order was placed as part of a five-year production contract awarded in June 2012 to MetalCraft Marine U.S. of Cape Vincent, N.Y., to produce the LRI-II. The Coast Guard has contract options to procure up to 10 boats, which will be deployed aboard the Coast Guard's National Security Cutters (NSC). The contract has a potential total value of up to $10.2 million. The first LRI-II was delivered to the Coast Guard February 20, 2013, and commenced testing activities soon thereafter. The LRI-II project was approved for full-rate production June 27, 2013, after successful operational and interface testing with Coast Guard Cutter Bertholf.

The LRI-II is 35 feet long with a range of over 220 nautical miles and capable of achieving speeds in excess of 38 knots. The stern-launched LRI-II's high speed and extended range significantly enhances its host cutter's ability to execute missions while underway, particularly in migrant interdiction and law enforcement operations where teams need to be put on scene quickly. Its ability to extend the reach of its host cutter is also critical to search and rescue operations, enabling NSC cutter crews to patrol larger search areas. The LRI-II can carry up to 15 passengers, including crew, and safely operate in seas up to 13 feet.

Boasting rapid acceleration and using Ultrajet brand waterjets, the vessel has superior steering capabilities. Both weight and thrust were key factors in choosing Ultrajet. The highly maneuverable hulls hull the National Security Cutter to move at speed, launch and recover the LRI-II at speeds of 9 knots. The first LRI II was delivered in February 2013 and was immediately put into service with the National Security cutter Bertholf. Considerable work was put into the design to ensure the boat would perform above the threshold set by the Coast Guard. The key features that make the boat easier to retrieve up the stern ramp than all the previous test boats and LRI I were a combination of hull and system design features and an ergonomic layout that make the boat easy to handle and keep steady in the turbulent water behind the stern of a driving ship.

The key hull design feature was based on MCM's vast experience with white water jet boats; the boat does not require lifting strakes for additional lift to make the de-

sired speed. The boat has a deep V hull with fine entry for wave piercing. Previous small boats regularly got the strakes hung up on the stern ramp guides not unlike on a boat trailer. Also the strakes create more transverse lateral movement for the hull's bow when attempting to enter the narrow gap in the stern.

Metalcraft Marine looked for a larger, over-sized jet, with higher thrust capabilities, that could still meet the vessel's weight and fuel limitations. The range requirement was high at 336 NM, so there had to be a lot of fuel. The Ultra 305 produces considerably more thrust in the lower end where driving up the ramp would be a critical factor to crews. The ability to intuitively steer as the boat is being driven sideways by the water flow was solved by the Jet-master control system designed by Ultrajet, giving the boat an ability of control that no one thought possible.

Also according to MCM, a third key system/hull design standard included using the hull platform for the hull's intact and static stability. Because fabric or foam covered paints do not like to be in salt water and will fail prematurely, MCM had to design a boat that was exceptionally good riding in rough seas, up to sea state 5. MCM's Contract Manager, Bob Clark, told ***MarineNews*** in January, "We may have one of the best riding long range interceptors ever designed." Assisting on the design concepts in all areas was MCM's partner, Brunswick, Commercial and Government Product's and their technical expert, Kelly Webb. A retired USN SWCC Master Chief, Webb brought years of boat handling and servicing knowledge to the design table.

Over the Horizon-IV (OTH-IV)

The U.S. Coast Guard selected SAFE Boats International LLC of Port Orchard, WA, to provide future Over-The-Horizon IV (OTH-IV) cutter boats, with options to procure up to 101 over a seven year period.

The OTH-IV is the quick response boat for the NSC and other host vessels. The OTH-IV features high-speed and larger passenger capacity. Like the LRI-II, the boat is capable of operating from Coast Guard cutters equipped for stern launch.

25' Transportable Port Security Boat (TPSB)

Kvichak Marine Industries, Inc. has delivered 52 Transportable Port Security Boats (TPSB) to the U. S. Coast Guard. These 32' 9" all-aluminum vessels are operated by a crew of 4 and include shock mitigating seats to minimize crew fatigue on extended missions. Ballistic Armor Protection and up to 4 mounted weapons provide increased mission capability and crew safety during tactical operations. Powered by twin Yanmar 315 hp diesel engines with Bravo 1-XR outdrives the TPSB provides security, maritime law enforcement and search and rescue operations in coast areas worldwide. The TPSB can maneuver in as little as 24" of water and can operate safely in 8' seas and up to 30 knots of wind.

The shore-based TPSB is designed as a multi-mission capable boat. Primary missions include "Landside Security" and "Waterside Security" operations providing waterborne security and point defense force protection, in addition to standard Coast Guard missions such as Port, Waterways, and Coastal Security (PWCS), Maritime Law Enforcement (MLE), and Search and Rescue (SAR).

29' Response Boat – Small (RB-S II)

When Metal Shark was awarded the contract to replace the US Coast Guard's aging fleet of 470 Response Boats – Small (RB-S) with the new 29 Defiant, the contract was one of the largest boat buys of its kind for the Coast Guard. The most immediately apparent advancement in Metal Shark's Defiant class is the pilothouse configuration which employs pillarless glass to substantially enhance visibility.

The result is a near elimination of the dangerous blind spots as can be found in many conventional pilothouse vessels.

Metal Shark also employed a unique window system that allows the side and aft windows to quickly drop into the hull, converting the vessel from a full cabin to an open boat. No longer must a choice be made between the utility of an open boat and the all-weather capability of a pilothouse. Each 29 Defiant features solid, welded construction, foam flotation below decks and in the gunnels, and a durable foam collar made of solid foam

Recapitalization at a Glance ...

	LR-II	OTH-IV	25' TPSB	29' RB-S II	SENTINEL	RB-M
# Planned	Up to 10	Up to 101	52 (#)	99 (#)	58	170
LOA	35 feet	26 feet	32 feet	29'	154 feet	45 feet
Speed / HP	38+ KT	40 KT	630 HP		28+ KT	42.5 KT
Range	220+ nm	200 nm			2,500 nm	250 nm
Beam			8' – 6"	8' – 6"	25 feet	14' – 8"
Draft			24 inches	18" or 24" (*)	9' – 6"	3' – 4"

(*) depends on configuration, jets or outboards. / (#) or as required for mission requirements

encased in impact-resistant urethane. It offers reliable impact protection for the craft and its crew, and combines the utility of a full foam collar with the deck space and simplicity of a hard sided craft.

With a deep vee hull and power options up to 600 HP, the 29 Defiant will slice through the waves, and its wide reverse chines provide stability while at rest. The vessel is more responsive and maneuverable – and significantly drier – than the last-generation RB-S it replaces. Thanks to its 8'6" beam, the 29 Defiant is legal for over the road transport. The 29 Defiants are typically equipped with twin Yanmar 6LPA-STP2 diesels mated to Hamilton 241 jet drives. This package delivers the reliability and economy of inboard diesels, plus the shallow-draft capability and maneuverability of propulsion. By utilizing the water jet's split-duct thrust-reversing "buckets," the vessel can be brought from planing speed to a full stop within two boat lengths. Pivoting, turning, crabbing sideways, and other maneuvers are accomplished with ease. Top speed as equipped exceeds 40 knots.

Fast Response Cutter (FRC)

The Sentinel-class Fast Response Cutter (WPC) gives the Coast Guard a patrol boat that is capable of deploying independently to conduct missions that include port, waterways and coastal security; fishery patrols; search and rescue; and national defense. The FRCs are named after Coast Guard enlisted heroes and are replacing the aging Island-class 110- foot patrol boats.

The Sentinel Class patrol boat project will deliver vital capability to the Coast Guard, helping to meet the service's need for additional patrol boats. The current patrol boat gap hinders the Coast Guard's ability to successfully and efficiently complete all potential missions, and this critical FRC acquisition will help address these identified needs.

The now risk-averse Coast Guard selected a "parent-craft" design for the Sentinel Class patrol boat to ensure that the operating force receives new patrol boats, capable of performing the required missions, as quickly as possible. The Coast Guard coined the term "parent craft" to describe the use of an existing ship design that has successfully performed equivalent missions. Bollinger Shipyards have been awarded the contract for this class of vessel, and has so far delivered a total of 7 of these vessels to the Coast Guard, on time and on budget.

The Coast Guard has said that they intend to acquire as many as 58 of these versatile craft. To date, and under the terms of the existing contract, a total of 34 FRC's with a total value of $1.5 billion have been approved for production. According to Bollinger President Chris Bollinger, every delivery so far has been on time and on budget for the fixed price contract. He adds, "We consider ourselves to be ship manufacturers, as opposed to shipbuilders. The series build aspect of the contract allows us to continually improve our processes. Going forward, we hope to deliver 5 to 6 of these vessels annually to the Coast Guard." In terms of the vessels themselves, Bollinger's praise was even more effusive. "These vessels are game changers in the Coast Guard's fleet of vessels."

Looking Ahead: What's Next?

As if the Coast Guard wasn't busy enough with its current acquisition backlog, the high profile Offshore Patrol Cutter (OPC) race is still on. With the first cut already made – something the Coast Guard accomplished rather quietly and without fanfare – there are a reported five shipyard groups still in the mix.

According to *MarineNews* sources, the Coast Guard has all but closed all discussions in the current phase of assessments and the next announcement – the Phase 1 (design stage) winners – could be announced as soon as the end of this month. If so, the announcement will open another chapter in the Coast Guard's seemingly endless quest to recapitalize its waterborne fleet.

Budget battles and sequestration aside, the quest for maritime security in a new era will largely depend on these smaller class vessels, as the era of pursuing multiple missions on the 600-foot vessel rapidly comes to an end. On these various new vessels, the Coast Guard stays *"On Patrol."*

Homeland Security: Gulf Coast Innovative Solutions

Texas Marine Unit Uses Yellowfin-built Shallow Water Vessels for Border Patrol missions.

By Susan Buchanan

Menaced by Mexican drug cartels, the Texas Department of Public Safety operates a fleet of six shallow-water vessels it commissioned in late 2011 and 2012 to patrol its borders. The agency purchased the boats from Bradenton, Florida-based manufacturer Yellowfin Yachts as threats along the Rio Grande escalated. Yellowfin custom builds its 34-foot fishing boats for military and police purposes, company president Wylie Nagler said last month, "The boats for Texas have three, 300 horsepower motors on them, can reach 68 miles an hour and have excellent maneuverability," he said. "They can operate in as little as 22 inches of water." It's easy to see why, in this case, that these powerful response and patrol boats are now an important tool in the Texas border security toolbox.

Nagler, a powerboat racer and tournament fisherman, founded Yellowfin in 1998 to sell high-performance, offshore fishing boats. The Yellowfin 34 is 34'-8" long, weighs 8,800 pounds, has a 10-foot beam and a maximum HP of 1,050. The company's recreational 34 vessel sells for $250,000. Texas, however, paid $580,000 for its six enhanced versions of the Yellowfin 34, which feature retractable, protective ballistic panels for occupants. "Those are the black panels you see on the boats," Nagler said.

New Marine Group Has 40 Fully Trained Officers

The Texas border with Mexico is anything but an easy stretch to patrol. "The Dept. of Public Safety's Tactical Marine Unit commands a state-of-the-art fleet of armored, shallow-water interceptors used to detect, disrupt and deter criminal activity on the Rio Grande River, international lakes and the Intracoastal Waterway," Texas DPS spokesman Tom Vinger said last month. The TMU was founded in 2011.

"Painted in the familiar, DPS black and white pattern, the interceptors are equipped with ballistic shielding and four-to-six FN M240B, fully-automatic machine guns, capable of firing up to 900 .30 caliber rounds per minute," Vinger said, adding, "The vessels have night vision capabilities, allowing them to operate in a day or night environment." And they can move quietly along a waterway for stealthy operations.

"The TMU is comprised of about 40 DPS officers to help detect and deter those who break state laws and endanger our citizens," Vinger said. "These officers have received extensive training from the U.S. Coast Guard. The TMU coordinates with local, state and federal law-enforcement agencies and provides assistance as needed." The TMU is funded by the state legislature and federal, homeland security grants. The U.S. Border Patrol enforces immigration laws, Vinger said.

"The TMU and the patrol vessels represent a significant enhancement of the state's efforts in combating Mexican cartels and other criminal organizations transporting illegal drugs into Texas, as well as a variety of weapons, explosives and munitions southbound into Mexico," Vinger said. "The vessels are used to combat splashdowns, a tactic by which drug smugglers trying to evade law enforcement crash their vehicles into the Rio Grande in Texas." Boat retrieval teams then enter the river from Mexico to recover the drugs. Smugglers involved in splashdowns usually commit multiple offenses, including vehicle flight and reckless driving, and sometimes use weapons as they evade officers and attempt to destroy evidence. In the last five years, Texas has had at least 79 cartel-related splashdowns.

Mexican Cartels: Tough Mission, Wide Swath

According to the Texas DPS, Mexican cartels are the state's biggest, organized crime threat. Six out of eight major Mexican cartels have command-and-control networks in Texas, and they use the Lone Star State as a transshipment center for marijuana, cocaine, methamphetamine, heroin and people to the rest of the United States. The cartels also transport cash, weapons and stolen vehicles through Texas back to Mexico.

Texas has 27 ports of entry, 1,254 miles of border with Mexico and 367 miles of coastline, making it hard to watch smugglers. The Texas leg of the Gulf Intracoastal Waterway, a coastal canal, extends hundreds of miles from Sabine Pass to Port Isabel. Measuring over 267,000 square miles, the state is bigger than France and twice the size of Germany. The Yellowfin border patrol boats help shrink that coastline for the Texas DPS' Tactical Marine Units.

TMU Was Formed As Border Violence Grew

Spending by state and federal agencies on U.S.-Mexican border security has swelled. The U.S. Border Patrol has doubled its staff since 2006, developed more-invasive surveillance techniques and expanded its fencing. The U.S. Coast Guard has duties in the Lower Rio Grande Valley, in addition to its offshore responsibilities.

Texas commissioned its TMU patrol boats after a series of incidents on the border. In a June 9, 2011 event, Texas Parks and Wildlife Game Wardens and U. S. Border Patrol agents interrupted drug smugglers trying to move 450 pounds of marijuana across the Rio Grande from Mexico to Hidalgo County, Texas. Mexican cartel members threw rocks and fired guns at the officers, who shot back, strik-

ing at least three of the smugglers. The cartel members then fled into Mexico.

That was just one of a string of daily threats, DPS Director Steve McCraw told Texas Public Safety Commissioners in their June 2011 monthly meeting. "Our officers already are seeing incidents where the cartels are using blocking and chase vehicles, throwing caltrops to puncture law enforcement tires, using organized boat recovery operations and conducting surveillance on law enforcement," McCraw said. "We're concerned about the escalation of violence against our officers." A caltrop is several twisted nails or spikes, with one end sticking straight up. It can puncture the tire of a moving vehicle.

McCraw spoke about Mexico's cartels in testimony before the U.S. House Subcommittee on Border and Maritime Security on May 1, 2012. "The Mexican cartels will continue to undermine the domestic security of Mexico and the safety and security of Texas and the nation until the U.S. border with Mexico is secured at the International Ports of Entry or POEs, between the POEs and along our coast," he said. As security is stepped up in one area, cartels quickly exploit vulnerabilities elsewhere. A comprehensive and fully integrated approach to cartels is essential, he said.

TMU Vessels Named After Fallen State Troopers

The first of the six TMU patrol boats built by Yellowfin was commissioned by DPS in December 2011, and the final boat went into service in November 2012, Vinger said. Each vessel was named after a DPS highway trooper killed in the line of duty in the state's six regions. At a Nov. 28, 2012 ceremony in Austin, DPS commissioned the TMU's sixth vessel, named after Trooper Scott Burns, who was shot and killed pursuing a suspect in Marion County in April 2008.

The Scott Burns joined five shallow-water interceptors patrolling the Rio Grande and Intracoastal Waterway. The other TMU boats are the Bill Davidson, the J.D. Davis, the David Rucker, the Troy Hogue and the Russell Boyd. Trooper Davidson was shot and killed in Jackson County in 1992; Trooper Davis was shot in Lubbock County in 1980; Trooper Rucker was shot in Cameron County in 1981; Trooper Hogue was shot in Howard County in 1994; and Trooper Boyd was shot in Waller County in 1983.

In addition to its six-boat marine unit, the Texas DPS maintains a fleet of planes and helicopters to augment their marine presence.

Yellowfin 34s: Fulfilling Its Mission In the Texass

Before Nagler founded Yellowfin 15 years ago, he owned Back Country Powerboats, which built inshore vessels. Eventually, he sold Back Country to Champion Boats. Yellowfin, a manufacturer of inshore and offshore fishing boats, has made a name for itself in the large-center-console market. As for his client Texas DPS, "we have a good relationship with them," Nagler said.

"The patrol boats are doing what they were intended to, and everyone is pretty happy." Nagler also has a Central American client for his militarized Yellowfin 34s, and, like many other niche builders in this market, sells his boats internationally.

Homeland Security can take on many faces, especially along the Texas-Mexico marine borders, where increasingly, marine-based assets are necessary to address a border security threat better known for its land-based battles. The Yellowfin 34's are quickly demonstrating that they are a necessary and important part of this mission. On the water, it's just not a good idea anymore to mess with Texas.

Can Fracking Waste be Carried on the Water?

The Barging Industry has the Answer. It's nowhere near as complicated as it looks.

By Eric Haun

As shale gas production continues to ramp up across the United States, millions of gallons of wastewater is created through the process of hydraulic fracturing, or fracking. That waste, referred to as shale gas extraction wastewater (SGEWW), or frack water, needs transport to storage and reprocessing facilities around the U.S., including disposal sites in Louisiana, Texas and Ohio. At the moment, the cargo is carried solely by rail and truck. But that's due to change as the inland towing and barge industry works toward obtaining approval to carry bulk loads of SGEWW via inland waterways.

Under current United States Coast Guard (USCG) policy, barges are not permitted to load SGEWW due to varying chemical compositions caused by a number of factors, such as differing chemicals and fluids used at the drilling site and various dissimilarities in the drilling sites and wells themselves. For barges to carry these varied types of cargo, a USCG Certificate of Inspection endorsement or letter is required. And, therein lies the problem. Or, does it?

Conventional Wisdom: Barges are the solution

On October 30, 2013, the Coast Guard issued a policy letter formally proposing conditions under which barge owners could gain certification to carry SGEWW by way of inland waterways. The policy letter, which puts forward steps for the request and obtainment of USCG Certificate of Inspection endorsements allowing transport of SGEWW on the water, also notes requirements the Coast Guard considers imposing on eligible carriers. After inviting public comment, the USCG is still processing a flood of remarks from across the industry, and a date has yet to be established for any formal guideline issuance, though it is said to be expected sometime in 2014. That remains to be seen, especially for an industry that has waited seemingly forever for the finalization of the subchapter "M" rule.

As part of the terms and requirements of the USCG's initial proposal, barge owners must have each consignment load of SGEWW chemically analyzed prior to carrying it on board the barge, and the results must be documented and filed on records open to the Coast Guard for two years. Additionally, tank surveys must be performed before any change in cargo and prior to personnel entry to ensure the barge is safe to enter and that radioactivity levels do not exceed contamination limits established in Pipeline

and Hazardous Materials and Hazardous Materials Safety Administration (PHMSA) regulations. The Coast Guard's proposal also stipulates that barge tanks carrying SGEWW must have open ventilation to prevent the accumulation of radon. In other words, these conditions are not much different than that which face any operator or shipper moving chemicals, crude oil or any other exotic liquid cargoes.

Though the Coast Guard's bid has gathered much support from the commercial maritime industry, the proposition is not without resistance. Various environmental agencies have publically denounced the notion of SGEWW transport via rivers. But the collective uproar, fired at SGEWW waterway transport, seems more in opposition to fracking in general, especially when barging safety and environmental numbers are compared to those of truck and rail. That's the real story.

Safety & the Environment: Everyone's concern

Government data shows barge transport to be statistically safer and more environmentally sound than rail or truck, and many other chemically hazardous liquids, such as oil drilling waste, are already traveling throughout the country by way of barges with very little record of incident. Indeed, perhaps the most visible signature of the maritime industry is its environmental record. It gets a bad rap in some circles, but it's far better than you might think. Consider Table 1, below, which shows the overwhelming improvement in the environmental performance of the domestic marine industry in just the last fifteen years alone. Statistics weren't kept prior to that. We can only imagine what those numbers might have looked like.

The American Waterways Operators (AWO), a national trade association representing the tugboat, towboat and barge industry whose members account for more than 80 percent of domestic barge tonnage, including the vast majority of tank barges, is a firm believer that SGEWW can be carried on the water safely. In endorsement of the Coast Guard's proposal, Jennifer Carpenter, AWO's executive vice president, emphasized the organization members' "strong record of success in moving environmentally sensitive cargoes safely, securely and efficiently."

"AWO strongly supports the carriage of SGEWW by barge and believes that such transportation offers significant environmental advantages given the tugboat, towboat and barge industry's strong record of transporting hazardous or potentially hazardous materials safely," Ms. Carpenter said.

Table 1

Environmental	1960	1995	2010
Spills: # Incidents	Not available	9,038	3,304
Spills: Total (gallons)	Not available	2,638,229	211,600
Spills: via Vessel	Not available	1,624,153	126,657
Spills: other sources	Not Available	1,408,303	54,275

Source: U.S. Department of Transportation's Bureau of Transportation Statistics

Table 2

SAFETY	1960	1995	2010
Accidents: Vessels	Not available	13,368	8,899
Accidents: Recreation Boats	Not Available	8,019	4,604
Accidents: Large Trucks	Not available	362,883	Unavailable
Accidents: Rail	Not available	7,092	3,911
Injuries (Total all modes)	Not Available	6,165	3,709
Injuries (commercial marine)	Not Available	154	139
Injuries (recreational)	929	4,141	3,153
Fatalities: Water	Not available	53	32
Fatalities: Rail	Not Available	1,146	725
Fatalities: Highway (Trucks)	Not available	648	Not Available

Source: U.S. DOT and RITA

Records show barge/inland towing numbers to be superior to rail and truck in nearly all measurable categories, from stack emissions and fuel efficiency to modes for safety and economy of scale. According to the industry report, Modal Comparison of Domestic Freight Transportation Effects on the General Public, barges accounted for just 25 large spills from 2001-2004, while rail and truck tallied 115 and 643, respectively. Barges also provide a cleaner option in terms of emissions, the study found; CO2 emissions for barge/tow transport average 17.48 grams/ton-mile, while rail is 24.39 and trucks 64.96. And the capacity of just one 15-barge tow equates to 216 railcars with six locomotives or 1,050 large semi tractor trailers.

In terms of injuries, accidents and fatalities, all mods of transportation seem to be getting safer, over time. Here again, however, commercial marine again compares very well with other transport modes. The U.S. Department of Transportation's Bureau of Transportation Statistics and the Research and Innovative Technology Administration (RITA) both compile a wealth of *National Transportation Statistics*. To be sure, all modes are improving; some faster than others. Judge for yourself in Table 2.

Inland Report Card: Passing Grades

Presuming SGEWW will eventually be carried by barge, the effects are sure to be many and diverse across the marine industry. In 2012, roughly one-third of inland marine transport revenues (32.8 percent) came from bulk liquid and gas cargoes, the highest percentage of all cargo types, and adding a new liquid cargo should only serve to increase that percentage. With that said, barging rates and availability will be affected consequently, but the question remains to what extent. The numbers, nevertheless, add up to definitive conclusions about ocean and inland commerce, the state of our transportation systems, and the manner in which all of these modes are operated, regulated and the rapidly changing benchmarks of their performance.

The Inland Barge report Card:

- **The Environment:** Perhaps no other area shows as much progress. The marine transportation industry has stepped up its game significantly in the past 25 years. Less spills, the movement towards cleaner burning engines, etc.
- **Safety:** Despite a marked increase in the number of hulls on the water, a decrease in accidents, injuries and fatalities.
- **Fleet Age:** A marked improvement in fleet age numbers; down 12 years in the past 15. That will continue to improve as SubM and environmental regulatory protocols push operators into replacement programs.
- **Future Prospects:** In terms of safety, environmental impact and fleet renewals, the U.S. sector report card is a good one. With that, hopefully, greater efficiencies, economy of scale and with any luck, an increase in market share will also come.

Beyond what the addition of fracking transport might add to domestic inland water freight pricing, it is all but a foregone conclusion that waterborne transit is the best option for oil producers today. Fracking waste is anything but a time sensitive cargo, with no consumers dependent on its arrival.

Regulatory Rant – Vessel General Permit

By Robert Lewis-Manning, President of the Canadian Shipowners Association (CSA).

The initial implementation of the United States Environmental Protection Agency's (EPA) Vessel General Permit (VGP) is now theoretically astern of the marine industry, but unlike any other new regulatory effort, this one has numerous unintended consequences, many of which remain "submerged" and undetected by vessel owners, their customers, insurers, and indeed the EPA itself. Although the protection of the marine environment is essential, it would appear as if the evolving American approach to regulate ballast water discharges will not achieve this quickly.

At the heart of the challenge is the reality that the development of the technology to treat ballast water discharges has not progressed adequately to provide sufficient reliability for the end-user – the ship owner. There are many reasons why this has evolved in such a manner, including a long delay with the coming into force of a global ballast water convention, a lack of robustness and transparency in the approval of technology, and in the case of the U.S., a situation in which two federal regulators have implemented dissimilar enforcement policies. In short, the consequences and liability of this poor regulatory environment have been devolved to the ship owner through an obligation to comply with U.S. law without yet having the means to do so. An obligation exists to employ such technology that first must be certified by the United States Coast Guard (USCG).

The USCG was quick to realize that it could not expect a requirement of industry that was impossible to achieve. Practically, it has extended its compliance deadline to accommodate the lack of certified treatment technologies. In contrast, the EPA has selected a course that is far less definitive, choosing to make enforcement of the technology requirement a "low priority." This is of little comfort to ship owners who will not risk knowingly being non-compliant. Many ship owners must now decide whether to avoid discharging ballast water in a U.S. port, which in most cases would mean not calling on the port, or to manage their fleet in such a manner as to use vessels that are not yet required to employ treatment technology due to the implementation schedule. In most instances, this will equate to inefficiencies in transportation, which will ultimately lead to higher cost and a net-loss environmentally.

The EPA has stated unequivocally that one of the objectives of the VGP is to provoke pressure for the development of suitable technology. If one were to evaluate this objective through the lens of a twenty-five year period, the EPA's approach might one day appear effective. However, is this approach the most effective option and will it deliver increased protection to the marine environment in the most judicious manner? How is the effectiveness of the potential technology being measured against the risk? Arguably, it is already clear to most informed stakeholders that pressure to comply is already tangible so the imposition of an unachievable requirement is not accelerating the development of technology, but instead providing a considerable distraction. Regrettably, this regulatory landscape is not providing incentives to technology developers or ship owners. Technology developers have had to endure a lengthy process of approval through the International Maritime Organization (IMO) and must now adapt to the USCG type-approval process. In a similar vein, the ship owner has little confidence that the type-approval process will certify treatment technology adequately and ensure a high-degree of performance in a multiplicity of environmental conditions. Time may vervy well help to mitigate some of this risk as the process and transparency of type-approvals improves, but time has now expired for many ship owners obligated to comply with the VGP in 2014. Predictability is paramount in a heavily regulated industry with significant capital cost and the EPA has failed to recognize the importance of this principle in the development and implementation of the VGP, leaving the marine industry searching for solutions of how to address the conundrum in the short-term. The current framework is increasing uncertainty and will lengthen the implementation, while concurrently producing unnecessary and negative economic impacts and little environmental benefit.

No rant would be complete without a healthy prescription so, on a positive note, there are many engaged stakeholders willing to work diligently towards solutions that make sense. I am certain that everyone in the industry appreciates that this challenge is significant and that it will not resolve itself without a concerted effort. The complexity of the task-at-hand requires leadership from government, industry, technology developers, and the scientific community. Although it would be demanding and complex to revisit the U.S. regulatory framework now, the industry needs a regulatory environment that promotes research and development without negative consequences and undue risk, supports early adoption of technologies that match a recognizable risk, and includes assurances of longer-term predictability – this is essential to accelerating viable solutions.

Silver Ships Delivers
on DoD & FMS Programs

Silver Ships, Inc. located outside Mobile, Alabama has recently delivered 11M RHIBS to the U.S. Navy under its Foreign Military Sales (FMS) program. Currently, the firm has an Indefinite Delivery / Indefinite Quantity (IDIQ) through the US Navy to provide this year 100 High Speed Maneuverable Surface Target (HSMST) boats which operate either manned or unmanned with another 295 expected over the course of the following 4 years. Another IDIQ contract through the US Navy awarded in early January is to provide the next generation 11M Naval Special Warfare (NSW) Surface Support Craft (SSC). This contract is to provide 36 SSC's over the course of five years.

Developing successful solutions has continued to allow Silver Ships to be awarded DOD contracts which integrate ballistic protection, counter measures, C4ISR systems, as well as the ability to maintain low-level sound and also reduced impact to crew; through use of shock mitigated seats and floors as well as the ergonomics throughout the entire craft.

Silver Ships, Inc. also completed delivery of Riverine Patrol Boats (RPB's) awarded through the Navy's FMS in 2013. The RPB has a 40-length overall, center-console configuration, with a bow area capable of transporting troops and equipment and providivng rapid egress through a bow door.

The RPB is beachable, with the ability to work in shallow or open water, powered by inboard diesel waterjet propulsion. "It's designed to facilitate maintenance, inspections and repairs to provide ease of operation and extended service life, and the PRB has multiple, crew-served weapon foundations," said Scott Clanton Silver Ship's Director of Special Projects.

Clanton adds, "Our competitiveness with US/foreign shipyards is based on our quality of workmanship, along with our QA standards and our understanding and implementation of design in accordance industry standards. That has always kept us in the fight, whether they're U.S. or foreign small-boat manufacturers."

AAM Wins Contract for Two Passenger Ferries

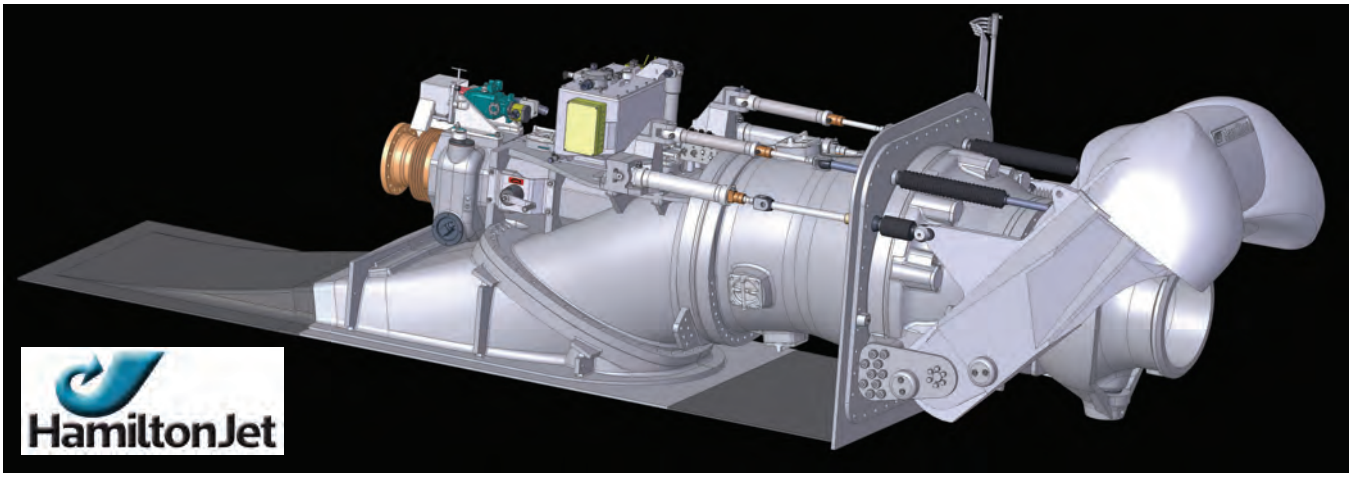
Bellingham, Washington-based All American Marine, Inc. (AAM) has signed a $11.8 million contract with the King County Ferry District for the construction of two identical 250-passenger aluminum catamarans. AAM partnered with naval architecture firm, Teknicraft Design Ltd., of Auckland, New Zealand for the hull design. The vessel will be constructed in accordance to U.S. Coast Guard subchapter-K regulations and each 105' x 33' vessel will feature the Teknicraft Design signature hull shape with symmetrical bow, asymmetrical tunnel, and integrated wave piercer. The vessels will be powered by twin Cummins QSK-50 tier III engines, rated 1800 bhp @ 1900 rpm. King County will utilize the new ferries to replace the outdated 172-passenger vessels that are currently leased as part of the water taxi fleet. The design features interior seating for 250 with additional outdoor seats available on the upper aft deck. The layout of each passenger deck was configured to help streamline the boarding and disembarking process. The main deck is ADA-accessible and the cabin includes designated seating areas for families and those with disabilities. Storage Shelves will be provided for strollers and luggage and the aft deck features a staggered height bicycle storage rack with accommodation for 26 bicycles. Construction is expected to start during the first quarter of 2014. The first vessel will be delivered by mid-2015 followed by delivery of the second vessel in late 2015.

HamiltonJet HT900s for *World's Biggest High Speed Crew Boat*

Waterjet manufacturer HamiltonJet recently got great news when four HT900 waterjets were selected for Incat Crowther's latest project – a first-of-type 70 meter Catamaran Fast Crew Boat for operations in the Caspian Sea oil industry in Azerbaijan. When completed, this vessel will be the world's largest high speed crew boat operating in the global oil industry. It will also be the largest vessel HamiltonJet has been involved in to date, and will further showcase waterjet's performance and maneuvering benefits over other forms of propulsion in this demanding marine sector. HT Series waterjets feature a mixed flow pump with a greater nozzle to inlet ratio than comparable size axial flow waterjets. This provides high efficiency over the entire vessel speed range.

DP & Waterjets – a natural connection

The DP2 class vessel will have four control stations, each utilizing HamiltonJet's MECS control system integrating with a DNV DYNPOS-AUTR dynamic positioning system. This system provides improved safety during crew transfers in conditions up to sea state 4. In designing this new 70m vessel class, Incat Crowther drew on its previous experience with the SEACOR CrewZer class of fast catamaran crewboats, with the fourth of these recently launched in the US. These vessels also utilize HamiltonJet waterjet propulsion (quad HM811s) and the combination of catamaran hull form and waterjets has proven very successful. HamiltonJet waterjets work particularly well in DP capable vessels, where the powerful 360 degree thrust forces generated by the jet's split duct reverse deflector at any boat speed effectively act as an azimuth thruster. The effect of the waterjet maneuvering thrust is further enhanced with the wide spacing of the jet units in a catamaran configuration – two jets per hull – which provides even better control of the vessel's stern and can even assist with sideways movement of the bow.

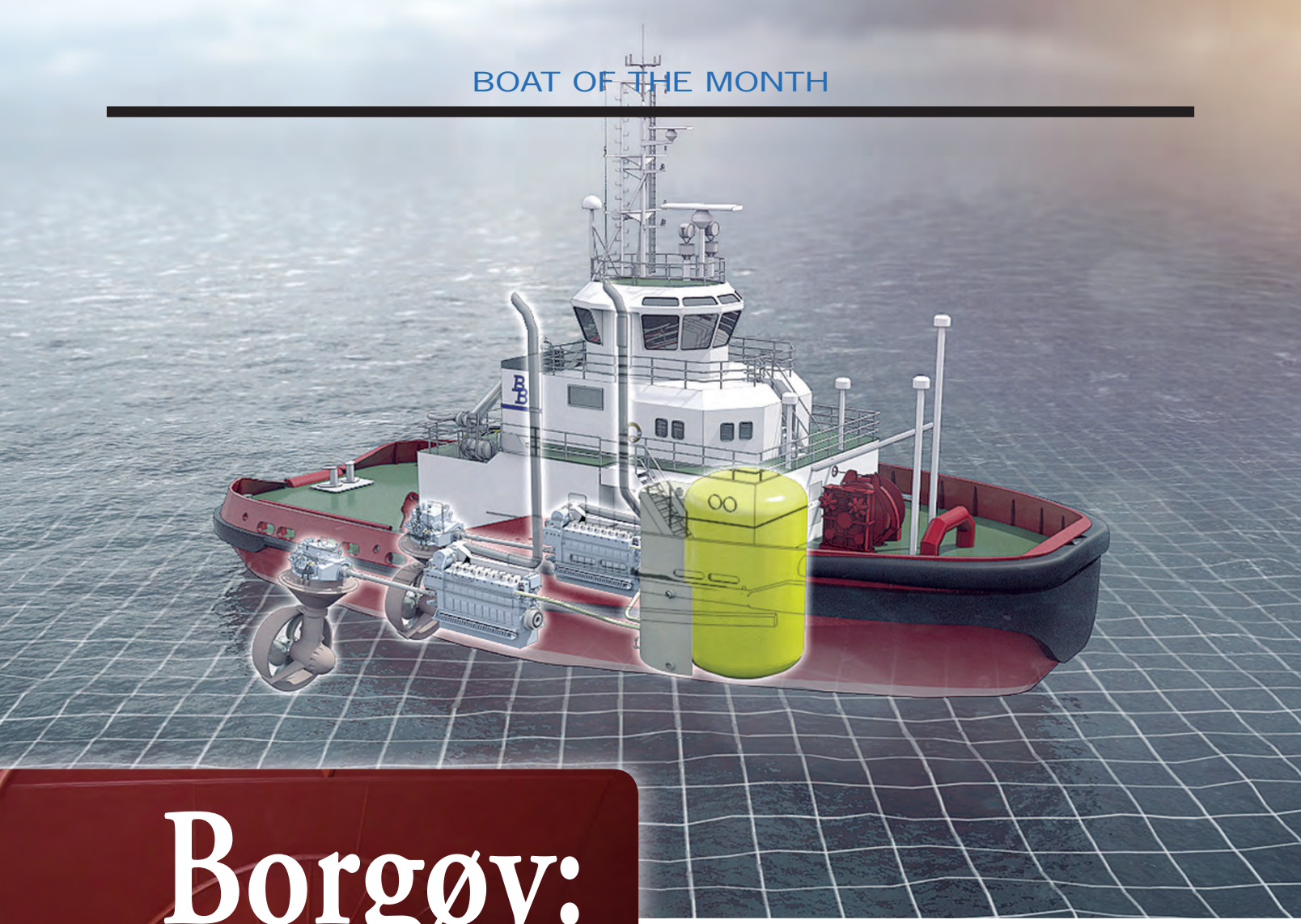


Propulsion: Power, speed and Performance, too

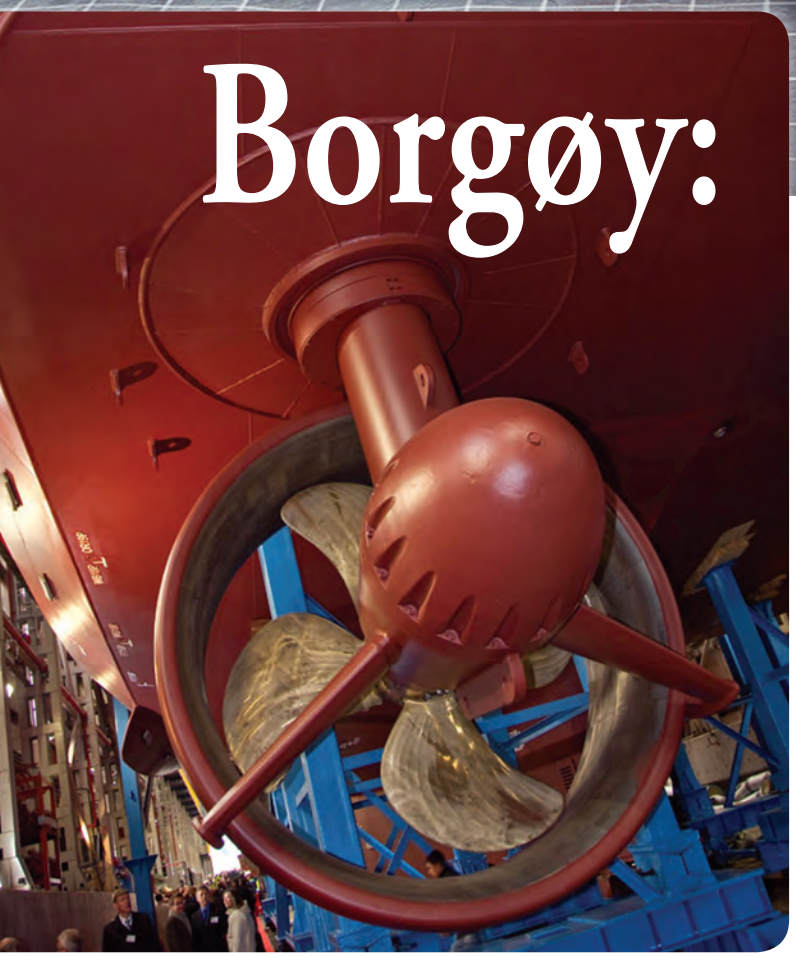
With four 2880kW MTU engines each turning 900mm diameter waterjets expected top speed is 36 knots with an efficient service speed of 30 knots at full load and 90% MCR. This speed performance will make the vessel more cost effective than helicopter transfer of crew and cargo, while the semi-SWATH hull design of the vessel, along with active ride control, will reduce stress on passengers so they arrive at an oil platform fit to work.

Options & More Advantages

A new optimized compact astern deflector retains the performance of HM series type ducts but with reduced weight and width for installation in narrow hulls. The deflector is actuated by two fully inboard hydraulic cylinders. The HT waterjet models are fitted with the JT nozzle steering system, also actuated by two fully inboard hydraulic cylinders. Shafts for both steering and astern deflectors are protected from wear and marine growth through the use of sealed rubber bellows on external shaft surfaces. Installation of HT series waterjets has been simplified by the use of a compression seal type transom plate arrangement, which allows for an increased tolerance for transom axial alignment. The transition duct extends from the flat surface aft of the intake opening to an area forward of the front intake screen mount (HT900 & HT1000 only). For an aluminum hull, the transition duct casting is surrounded by a section of 5083 aluminum plate so the shipyard does not need to carry out plate-to-casting welds. As the HT series waterjets utilize a tapered outside diameter impeller, the mainshaft axial position is adjustable in order to set and maintain impeller tip clearance. Aluminum anodes are used throughout HT series waterjets, with tailpipe internal anodes able to be replaced without removing the tailpipe. Like other HamiltonJet waterjet models a jet mounted and driven hydraulic power unit (JHPU), driven via multiple vee-belts from the jet coupling, is used for normal hydraulic operations. An optional auxiliary AC hydraulic pump (one per jet) is also available for actuation of the steering and reverse without the gearbox engaged. Hydraulic and thrust bearing oil cooling is provided by oil coolers integrated on the waterjet.



Borgøy:



the World's first LNG-Fueled Tug

Late last year, an innovative project to design and build the world's first LNG fuelled escort tugs became a reality when the Borgøy was handed over for sea trials by builder Sanmar in Tulza Bay near Istanbul.

For the Christening at the Sanmar Shipyard in Tuzla, representatives from the Turkish shipyard were joined by executives from Norwegian tug operator Buksér og Berging AS and from Rolls-Royce. Neil Gilliver, Rolls-Royce, President – Merchant, believes that delivery of the Borgøy and Bokn, each with 65-tonne bollard pull and a transit speed of 13.5 knots, will mark a step change in tug propulsion.

Gilliver added, "The completion of this vessel is highly significant for Rolls-Royce, Sanmar Shipyard and Buksér og Berging. We are extremely proud to have worked together on this successful project which heralds a new era for tug boat propulsion. Gas is gaining in popularity as a maritime fuel, and its environmental credentials, combined with lower costs are seeing many operators select it over traditional fuels, across a range of ship types."

The project makes sense on many levels. Most of the world's tug fleets operate close to shore, where emissions regulations are most stringent and as LNG becomes more widely available, it is expected that more major ports will also opt for the clean, lower cost and smoke-free fuel to power their tugs.

Following sea trials, the vessel sailed in mid-January for Kårstø Terminal in northern Norway where gas from some thirty offshore fields is landed and processed. There the ground-breaking craft will commence long-term charters with Norwegian state energy firm Statoil ASA and Gassco, the operator of the gas transportation network in early in 2014.

As Europe's largest export facility of natural gas liquids and third largest in the world, the Kårstø Terminal will depend on these escort tugs, together with others, for the safe handling and manoeuvring of LNG tankers, LPG carriers and chemical tankers 24/7 and 365 days a year. The Borgøy and Bokn, each with fire-fighting and oil recovery capability as well as escort notation, are now the world's most environmentally friendly tugs.

Propulsion

Both vessels are powered by a pair of Rolls-Royce Bergen C26:33L6PG lean-burn gas engines that have a combined output of 3,410 kW at 1,000 rpm and are directly coupled to Rolls-Royce US35 azimuth thrusters, each fitted with a 3m dia CP propeller in a nozzle. The propulsion package also includes a vertically-mounted gas tank to save space. The single cryogenic fuel tank has a capacity of 80m³, containing enough fuel to last up to five or six days and can be bunkered in around 45 mins. The rest of the fuel system is split and duplicated into two separate gas supply lines and power trains. Each is monitored by the sophisticated Rolls-Royce Acon safety, alarm and control system with gas detection in all areas. The two parallel propulsion trains provide full redundancy. Unlike conventional diesels which require fuel pumps, filters and injectors, gas is fed to the engines by pressure in the LNG storage tank. This will mean significantly less maintenance for the fuel supply system over time.

The Environment

The benefits of LNG as a marine fuel, particularly for inshore harbour craft which often operate in pre-defined areas where access to bunkering facilities does not present the same challenge as for deep-sea operators. And, a 25 percent and 80-90 per cent reduction in CO2 and NOx emissions respectively, and the virtual elimination of SOx emissions and particulates – means that Rolls-Royce gas fuelled Bergen engines meet IMO Tier II and Tier III regulations as well as US Environmental Protection Agency rules on NOx. The tugs are expected to have improved fuel consumption, lower maintenance costs, reduced lube oil consumption and a much-improved working environment for ships' crews.

The Borgøy at a Glance

Builder: Sanmar	Props: 2x Rolls-Royce US35, four-bladedCP
LOA: 35 meters	Owner / operator: Buksér og Berging
Beam: 15.4 m	Engines: 2x Rolls-Royce Bergen C26:33L6PG
Crew/Cabins: 6/4	Designer: Marine Design
Depth: 7.5 meters	Draft: 5.8m, fully loaded
Speed : 13.5 KT	LNG tanks: Rolls-Royce


Casey


Whitfield


Pyne


Carpenter


Nilssen

Casey, Whitfield Honored by WCI

U.S. Senator Bob Casey (D-PA) and Congressman Ed Whitfield (R-KY) will receive the 13th Annual Waterways Council, Inc. Leadership Service Awards on February 12, 2014 in Washington, DC. Senator Casey is a long-time champion of America's inland waterways, and original sponsor of the "Reinvesting in Vital Economic Rivers and Waterways Act" of 2013 (RIVER), S. 407. Rep. Ed Whitfield was elected to Congress in 1994 as the first Republican to represent Kentucky's First Congressional District. An ardent supporter of the nation's waterways, Congressman Whitfield is the original sponsor of "Waterways are Vital for the Economy, Energy, Efficiency, and Environment Act" of 2013 (WAVE 4), H.R. 1149.

Kirby Purchases Tank Barges

Kirby Corporation announced the purchase of the stock of Coastal Towing, Inc., the owner of 37 inland black oil tank barges, for approximately $19.3 million in cash, subject to post closing working capital adjustments. Kirby has been operating the Coastal tank barges since October 2002 under a barge management agreement. Kirby also announced the purchase of 21 tank barges from Cypress Barge Leasing, LLC for $15.0 million in cash. Kirby has been leasing the barges since 1994 when the leases were assigned to Kirby as part of Kirby's purchase of the tank barge fleet of The Dow Chemical Company. Both the Coastal and the Cypress purchases were financed through Kirby's $250 million revolving credit facility. Joe Pyne, Kirby's President and Chief Executive Officer, commented, "Kirby always prefers to own rather than lease whenever possible due to the tax advantages of ownership."

Carpenter Promoted at AWO

The American Waterways Operators (AWO) announced that Jennifer Carpenter, AWO's Senior Vice President – National Advocacy, has been promoted to the new position of Executive Vice President, effective immediately.

Ørbeck-Nilssen New Maritime president in DNV GL

Knut Ørbeck-Nilssen has been named president in DNV GL Maritime. He will be member of the Executive Committee and operate out of Hamburg. Ørbeck-Nilssen holds a Bachelor of Engineering degree from Heriot-Watt University and he also has an undergraduate degree from Oslo Polytechnic in Civil Engineering from 1987.

AWO Urges Common-Sense in Fighting Great Lakes Invasive Species

Responding to the Great Lakes and Mississippi River Interbasin Study report released in January by the U.S. Army Corps of Engineers, American Waterways Operators President & CEO Tom Allegretti reiterated the tugboat, towboat and barge industry's understanding of the need to prevent the movement of invasive species between the two watersheds by utilizing a comprehensive set of science-based control measures that protect the free flow of waterborne commerce that is vital to the regional and national economies. "We appreciate the detailed work that the Corps has done to lay out options for solving this complex problem," Mr. Allegretti stated. "We believe it is clear from the GLMRIS report that one of the alternatives, physical separation, is neither economically feasible nor will it be effective at eliminating all identified pathways for the spread of invasive species, including Asian carp." He continued, "The GLMRIS report has given Congress a great deal of information to consider, and AWO looks forward to working with other stakeholders as part of a constructive dialogue to find a path forward that benefits the environment and the economy."

Signet's Promotes Dahl, Invests

Signet Maritime is investing $7.2m in infrastructure improvements to their Pascagoula, Miss., shipyard, Signet Shipbuilding & Repair (SS&R) to support an increased workload and future growth. In addition to the recent acquisition of the 150-ton crawler crane, the shipyard facility modernization includes the dredging and renewal of a 1000-foot waterfront bulkhead, a new fabrication shop, expanded drydock and concrete base for vessel repairs, and improved sand blasting and painting area. SS&R specializes in the


Allegretti


Dahl


Kirincich


Brooks


Lewis

new construction, repair, maintenance and refurbishment of tugs, workboats and barges. With a new Tractor Tug under construction and numerous repair projects, SS&R has experienced steady growth in their Pascagoula operations. The company has also promoted Joseph W. Dahl to Vice President & General Manager of SS&R. With a Marine Engineering degree from the U.S. Merchant Marine Academy, Dahl has over thirty years' experience in the industry as Chief Engineer, maintenance, repair and new construction.

Mahmood Appointed Manager for MRA

Samina Mahmood has been appointed manager for Marine Response Alliance, an association of emergency responders providing OPA 90 Salvage Marine Firefighting (SMFF). Mahmood will lead the MRA administrative team and work closely with the alliance's emergency response center and the U.S.-based emergency response and salvage team. Prior to joining TITAN and the MRA, Mahmood worked for Crowley Maritime Corp., TITAN's parent company, servicing oil and gas projects around the world.

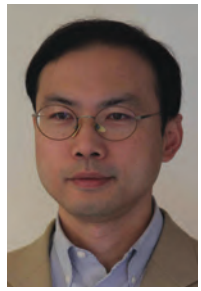
Kirincich to Head Port of Oswego

The Port of Oswego Authority appointed of Zelko N. Kirincich to the position of Executive Director effective January 6, 2014. Kirincich comes from the Port Authority of Tampa, Florida, where he most recently served there as Deputy Port Director and Chief Operating Officer.


Bausch


McDonald


Braitmayer


Wang


Donahue

Brooks joins Glosten Associates

Zenzile Brooks has joined The Glosten Associates as Assistant Marketing Director. Brooks earned her PhD in Civil Engineering from the Massachusetts Institute of Technology in 2013 and prior to that, a BS in Civil Engineering from the University of Southern California.

Lewis to Head New CANDEN Marine Fuel Office

CANDEN Marine Fuel Services Ltd. – an independent marketer of marine fuels in Canada – opened a Montreal office, to be led by Gayle Lewis. She brings with her a wealth of knowledge and years of expertise in the Canadian markets as well as her strong ties to the Montreal and East Coast shipping communities.

PPG appoints Bausch

PPG Industries said that Shelley J. Bausch has joined the company as vice president, global industrial coatings. Bausch joins PPG from Dow Corning, where she was business vice president, finished products.

PPG appoints McDonald VP; Kerr to retire

PPG Industries announced the appointment of Kevin E. McDonald, as vice president, fiber glass, effective March 1. McDonald is currently PPG general manager, reinforcements, and leader for fiber glass in the Americas and EMEA (Europe, Middle East and Africa). McDonald will succeed Thomas P. Kerr, who will retire effective March 1.

IMTRA Restructures Management Team

IMTRA named Eric Braitmayer President and CEO. Braitmayer previously served as COO, succeeded IMTRA's longtime President and CEO, Nat Bishop. Bishop followed former Chief Financial Officer (CFO) Ned Rogerson and Controller Nancy Lyons into retirement in 2013, having together provided nearly 100 years of service to the company.

Willard Marine Appoints Wang

Willard Marine appointed Ning Wang as director of operations and program management. Wang will be responsible for overseeing Willard Marine's planning, purchasing, stockroom and IT operations.

PwC Appoints Donahue

PwC US has announced the addition of John Donahue as a director in the firm's transportation and logistics sector within the larger Industrial Products practice. With more than 25 years of experience in all aspects of the transportation and logistics industry, Donahue will be responsible for leading the freight-related segments for the firm's transportation and logistics engagements.

Donjon-SMIT, MSRC Announce Alliance

Donjon-SMIT and Marine Spill Response Corporation (MSRC) have announced the establishment of a cooperative alliance. This alliance, while it can support both tank and non-tank vessel owners, will include the ability of non-tank vessel owners to establish their pre-arranged agreements with both Donjon-SMIT and MSRC, required under recent NTVRP regulations by January 30, 2014 through enrollment linkages on either company's website, as well as cooperation between the two companies in the event of a spill response or salvage/firefighting incident.

Historic Steam Powered Tugboat Raised

Built in 1945, the 141-foot steam powered tugboat was utilized by the Atchison, Topeka, and Santa Fe Railroads. Originally named the Edward J Engel, it moved railroad car barges from Oakland to San Francisco until 1969. After which she passed through several hands and eventually her name was changed to TV 'Respect'. She remained a steam powered vessel till 2007, when she sank at her moorings in the Oakland Estuary. In 2013, the United States Environmental Protection Agency embarked on a program to clean up the Oakland Estuary. By October, the United States Coast Guard was involved due to the presence of the bunker oil. Complicating the salvage operation was the orientation of the vessel, listed hard over at 110 degrees starboard, and fully submerged at low tide. Heavy lift rigging and equipment was brought to the site and used to dead lift the 705 ton vessel to the surface, where the vessel was patched and pumped out. The vessel was refloated, and delivered to CalRecycle who will take custody of the vessel.

Historic Steam Powered Tugboat

Ottosson

Baton Rouge Water Campus

Marine Response Alliance Relocates

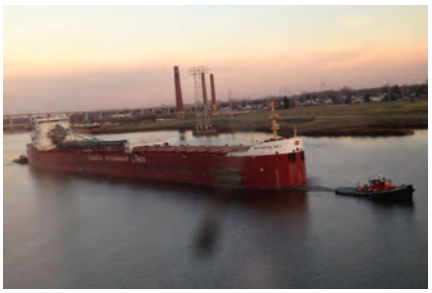
Marine Response Alliance (MRA), an association of U.S. emergency responders providing OPA 90 Salvage Marine Firefighting (SMFF), has relocated from Pompano, Fla., to Houston to be situated with international salvage partner TITAN Salvage. Conveniently located near George Bush International airport, the new office boasts a 102,500 square-foot maintenance and warehousing facility with 4.61 acres of outside storage. The facility includes a state-of-the-art Emergency Response Center manned 24/7, which will act as MRA's incident command center as needed during a casualty and be utilized for clients' pro-active needs such as drills, exercises and training.

Water Campus to be Built in Baton Rouge

The Baton Rouge Area Foundation has taken the leadership role in master planning a world-class Water Campus to be built just south of the Mississippi River Bridge in downtown Baton Rouge. The 30 acre campus will be the home of The Water Institute of the Gulf, an independent applied research organization currently focused on producing and providing unassailable scientific solutions to the Coastal Protection and Restoration Authority as it works to implement Louisiana's $50 billion Coastal Protection and Restoration Plan. In addition, CPRA and LSU will also construct a River Modeling Center which is a small scale physical model of the lower Mississippi

World Ferry Safety Association

Tognum America Inc.


Great Lakes freighter

River operated by LSU for the study of all facets of ground and water behavior.

Second Annual Safe Affordable Ferry Design Competition

The World Ferry Safety Association has announced the coming year's challenging international student design competition for a Safe Affordable Ferry. The goal of the design competition is to elicit new approaches for ferry design in the developing world as well as to encourage designers to enter this arena for which there is a need and an emerging market. For 2014, the specifications of the competition are for a ferry that can carry up to 200 passengers as well as freight (in light trucks) on an open water route for the Pacific Island nation of Papua New Guinea. Ideally, the design would have applicability to other Pacific Island nations such as Kiribati, Vanuatu, and the Solomon Islands. Students interested in competing should notify the Executive Director of the Worldwide Ferry Safety Association by April 1, 2014 with their names, academic institution and contact information as well as name and contact information of faculty advisor.

Tognum America Changes its Name

Effective immediately, Tognum America Inc. has changed its name to MTU America Inc. Based in Novi, Mich., the company is responsible for the manufacture, development, sales and service of MTU engines, propulsion and drive systems and MTU Onsite Energy distributed energy systems in North and Latin America. MTU America's holding company, the former Tognum AG, has also been renamed Rolls-Royce Power Systems AG.

Mixed Results on Great Lakes, St. Lawrence Seaway

U.S.-flag Great Lakes freighters (lakers) carried 8.7 million tons of dry-bulk cargo in November, a decrease of 4.7 percent compared to a year ago. The total was also 8.7 percent below November's long-term average, and down 11.2 percent from the 9.8 million tons the fleet moved in October. Weather delays were a factor in the decreases. Through November, the U.S.-flag float stands at 82 million tons, a marginal increase compared to a year ago. Iron ore and limestone are slightly behind last year's pace, but coal cargos have increased by 3.8 percent.

Separately, the St. Lawrence Seaway reported that year-to-date total cargo shipments for the period March 22 to November 30 were 33 million metric tons, down 6 percent over the same period in 2012. U.S. grain has been a consistent bright spot throughout the shipping season. In November, 1.4 million metric tons of U.S. grain moved through the System, representing a 17 percent increase year-to-date over 2012. Steel is driving tonnage for some U.S. ports, but iron ore shipments remained down in November by nearly 7 percent while coal shipments dropped only .09 percent for the month. The liquid bulk category posted an 11 percent jump over the same time in 2012.

Navico Acquires Consilium Radar Business

Navico Holding AS, parent company to the Simrad brand and Consilium AB, announced that Navico has acquired Consilium's radar business. As part of the transaction, Navico takes over all operations of the radar business in Italy, including research and development, product management and manufacturing. Navico and Consilium have also entered into a sales and distribution agreement.

NMRA Extends 2014 Scholarship Opportunities

The National Marine Representatives Association (NMRA) is offering scholarships to students pursuing education and training in the maritime trades. Interested high school seniors and college students can request an application from NMRA at info@nmraonline.org. NMRA will award two $500 scholarships to outstanding students seeking careers in marine-related fields. Applications are due on May 1, 2014, and winners will be announced in the summer.

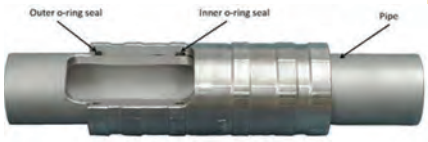
Seaway Tolls to Increase by 2.5% in 2014

The St. Lawrence Seaway Management Corporation (SLSMC) announced a toll rate increase of 2.5% for the 2014 navigation season. The new revised tariff will be posted and available on the Seaway website on January 6, 2014.

5 NM Masthead Light from NaviLED

The NaviLED PRO 5 nm masthead lamp from Hella marine offers operators an ultra-durable navigation lamp package for vessels up to 150'. With a worldwide reputation for reliability, NaviLED PRO lamps boast IMO COLREG, USCG, RINA, ABYC A-16 and BSH approval. Photometric testing of every individual NaviLED PRO lamp assures compliance with intensity and cut-off requirements of international navigation lamp standards.

www.hellamarine.com



PYPLOK mechanically attached connector system

Certified by DNV, ABS, BV CCS, RMRS and LR, PYPLOK connectors are attached cold, in seconds, by swaging the connector on the pipe or tube with a hydraulic hand held tool. Costs of a conventional welded connection, hot work permits and fire watch personnel are eliminated. The PYPLOK system has been successfully used in Marine & Offshore applications.

www.pyplok.com

Safe Harbor Online Broker Portal

In a new website rollout, Safe Harbor Pollution Insurance (SHPI) delivers electronic convenience with its My Harbor broker portal. Enabling real-time policy and claim access, the system empowers brokers to better service customers. Brokers enter the personalized gateway by registering at www.safeharborpollution.com/myharbor. The portal grants access to quotes and policies, and the ability to view claims, print loss runs and make non-rated changes.

www.safeharborpollution.com

Tier I Marine Engines Gain New Life and Emissions Compliance

Worldwide Power Products (WPP) is rebuilding Tier I engines to meet Tier II emissions standards, making them compliant with offshore certifications. WPP is offering these newly rebuilt engines for sale globally. WPP's program gives operators with Tier 1 engines an affordable path to compliance and equips them with Tier II engines that will meet both ABS and IMO standards for the foreseeable future.

www.wpowerproducts.com

CEACT 2.6.10 - Enhanced Safety and Performance

CEACT improves efficiency and situational awareness. The new CEACT version 2.6.10 is now available and introduces a modernized user interface for enhanced readability in all ambient conditions. It helps the river pilot to safely navigate and focus on relevant data which preventing accidents. With widely shared Western River Chart packages, weekly updates, and USACE buoy overlays, CEACT significantly increases safety on board.

www.sevencs.com

BMT's Cargo Handbook Goes Mobile

BMT Surveys has launched a new App which will provide mobile access to its world-renowned CargoHandbook database. The App is now available as a free download for both Android and iOS users. CargoHandbook (www.cargohandbook.com) is the world's largest online database for cargo transportation in the marine industry. Users can access information on the shipment/storage requirements and the risks associated with the product.

www.bmt.org

Laborde Diesel Generators Power Energy Giant

Greene's Energy Group recently chose custom generators packaged and installed by Laborde Products. Laborde customized four new 40 kW diesel generators for placement in galvanized crash cages. The generators were outfitted with spark arrestors and manual air shutdowns, demanded by the rigors of offshore use. Flexibility is increased by facilitating placement of the pump's fluid end inside classified areas while the engine remains outside.

www.labordeproducts.com

USCG / ABS Type Approved Fire Detection System

Elite RSM Analog Addressable Fire Alarm Control Panels are designed to accommodate up to 256 devices on Commercial Marine Applications. Apollo protocol USCG / ABS Type Approved Smoke and Heat Detectors are available for a complete approved system. Two full SLC loops and leading edge microprocessor based electronics are standard. Up to 15 E-View Serial Annunciators may be installed to each control panel.

www.fireboy-xintex.com

DNV Class A Certification for Kongsberg DP Simulator

JK-Sim DP, a Dynamic Positioning (DP) simulator from Kongsberg Maritime, has received Class A Certification from DNV. K-Sim DP is the most advanced in a long line of Kongsberg Dynamic Positioning simulators. It is built on the same advanced technology platform as the market leading K-Sim Offshore (KONGSBERG Offshore Vessel Simulator) and provides realistic DP training in various simulated conditions and environments.

www.kongsberg.com

Northport Systems Actisense Engine Monitors

Northport Systems' intelligent National Marine Electronic Association (NMEA)-compliant gateway, the Actisense Engine Monitoring Unit (EMU-1) is designed to digitize analog engine data. The EMU-1 gateway is an innovative, cost-effective, and easy-to-install solution that allows mariners to monitor engines on any NMEA 2000 displays. The Actisense EMU-1 gateway can be configured to meet the versatility of various engine makes and models.

www.fugawi.com

Mustang Survival's Lil' Legends PFDs

Redesigned in 2013, the Lil' Legends line delivers quality construction along with updated aesthetics and improved cooling and mobility features. The Lil' Legends designs are focused on keeping children comfortable, happy and safe. The personal flotation devices (PFDs) incorporate a cooling-channeled interior back panel and wicking fabrics to reduce heat stress, and are built around segmented AirSoft foam for enhanced mobility and comfort.

www.mustangsurvival.com

Gumdrop Cases Rolls Out the Marine and Industry Series

Gumdrop's Marine and Industry Series feature a weatherproof enclosure, and easy access to buttons and plugs. Features include a weatherproof enclosure, front and rear hard plastic enclosure with integrated screen protector, weatherproof sealing clamps, quick-release mounting feature and port plugs, easy access to all buttons and ports via watertight plugs and seals and a quick-release boat-mounting option designed for rough seas.

www.gumdropcases.com

AVEVA Reduces Design Time

Significant cost savings can be had using AVEVA Laser Modeler. AVEVA ensures up-to-date, accurate project documentation using 3D laser scanning technologies and processing. AVEVA Laser Modeler software is hardware-neutral, accepting data from all leading laser scanning systems. Unique in the laser scanning market, it removes the need to produce interim 'dumb' geometric models.

www.aveva.com/AVEVA_Laser_Modeller

Ecofix Corrosion Repair with Ecoshield Application

Subsea Industries has a solution for filling and building up a corroded and pitted steel surface to its original form prior to recoating with Ecoshield. Ecofix is as tough as the steel itself, machinable, and can be used to repair pitting or corrosion damage on underwater gear. Ecofix restores the surface of the rudder and Ecoshield protects the area from suffering corrosion and cavitation damage again.

www.ecospeed.be

Xflow Watermist from Wilhelmsen Technical Solutions

Wilhelmsen Technical Solutions' patented Unitor XFlow low pressure water mist fire fighting systems is being installed for two leading Norwegian shipowners. The contract includes a total flooding water mist system for the ship's engine room and a local protection water mist system. The system covers with a penetrating mist that extinguishes fires quickly, with compact design and low water consumption and power demand.

www.wilhelmsen.com/technicalsolutions

Engineered Ventilation Systems from Delta T

Delta "T" Systems offers a single comprehensive source for all the components that make up an engineered system. Delta "T" provides the expertise necessary to engineer the ultimate engine room formula for commercial vessels of all sizes and engineers its fans for tough marine environments, rather than adapting units from other industries. Products include centrifugal blowers, fans, AC and DC axial and inline duct applications.

www.deltatsystems.com

Chukar Deepwater Subsea Waterjet System

Chukar Waterjet's ultra-high pressure waterjet equipment for underwater cutting and cleaning operations is capable of operating at depths in excess of 3000 meters, producing 3800 bar ultra-high pressure that can cut through 250 mm steel or quickly blast away coatings and marine growth. The system improves the safety of subsea operations and cuts without heat, reducing the hazard of ignition during cutting.

www.chukarwaterjet.com

New 3D Animation Illustrates Cost and Time Savings

A 3D animation from Bernard and Tregaskiss explains benefits of the QUICK LOAD Liner AutoLength System, a combination that increases throughput, lowering operating costs for MIG welding operations by minimizing quality issues caused by incorrect liner length. 3D animation details how MIG gun liners that are too short contribute to weld quality issues such as premature contact tip wear, poor wire feedability, bird-nesting and burnbacks.

www.tregaskiss.com

Miller Releases 2014 Full-Line Catalog

A free copy of the WE BUILD-themed 2014 Full-Line Catalog of welding and cutting products from Miller Electric Mfg. Co. can be downloaded at MillerWelds.com, or at MillerWelds.com/mobile. Miller provides specifications and comparisons on MIG welders, TIG welders and torches, Stick welders, the newly expanded metal cutting offering (formerly Smith Equipment), engine-driven welder generators, fume extractors and more within the color, 84-page catalog.

www.MillerWelds.com

Hobart Brothers New Product Catalogs

Hobart Brothers Company has released two new product catalogs, detailing its extensive line of filler metal solutions. Free copies of the product catalogs can be downloaded from the Catalogs page via HobartBrothers.com or hard copies can be requested at the Literature Request page (Hobartbrothers.com/support/literature-request) on the website. Both catalogs represent an interim stage in the company's brand consolidation announced in May 2013.

www.HobartBrothers.com

World Wide Metric Introduces Hatch Sealing Tape

World Wide Metric has recently added DrySeal Hatch Sealing Tape to their wide variety of products. DrySeal is an adhesive "winter grade" hatch sealing tape manufactured in Canada from SBS Modified Bitumen, making the product water resistant, elastomeric, and durable with cutting edge technology. The premium solution for waterproofing hatch covers, it ensures that valuable cargo arrives damage free at unloading.

www.worldwidemetric.com

Resolve Maritime Academy's Engine Room Simulator

Resolve Maritime Academy recently completed its installation of a leading Transas engine room simulator platform, the ERS 5000 TechSim. The engine room simulator is connected to Resolve Maritime Academy's full mission bridge simulator, allowing integrated training options for a variety of courses. The Transas ERS meets STCW code requirements. The scope of training objectives corresponds to specifications of standard competence for engine department personnel.

www.resolvemaritimeacademy.com

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The Safariland Group celebrates its 50th year of providing trusted and innovative life-saving equipment to law enforcement, military, outdoor recreation and personal protection markets. Throughout its history, the company has been committed to developing quality, technologically-advanced equipment, resulting in many industry firsts and 1,875 saved lives. Safariland offers 25 leading brands with at least 2,500 distinct models.

www.safariland.com

Ergonomical trackball

NSI's waterproof ergonomical trackball with integrated IP68 scroll wheel allows easy scrolling and rolling throughout applications in harsh environments. The trackball combines patented optical trackball technology with the new hall-effect scroll wheel to provide a fully waterproof desktop trackball solution. Due to its outstanding sealing and industrial robustness, these trackball units are best suited for harsh environments, indoor and outdoor.

www.nsi-be.com

20th Anniversary of PPG PMC Polysiloxane Coatings

PPG Industries' protective and marine coatings business is celebrating the 20th anniversary of polysiloxane coatings. PPG polysiloxane products, specifically the PSX(R) brand of coatings, have coated more than 1 billion square feet of surface area in energy, infrastructure and marine markets. The Peace Bridge connecting the U.S. and Canada was painted with PSX coatings nearly 20 years ago and has not needed repainting.

www.ppgpmc.com/northamerica

AtoBviaC Distance Tables Now Offered Through Voyager Planning Station

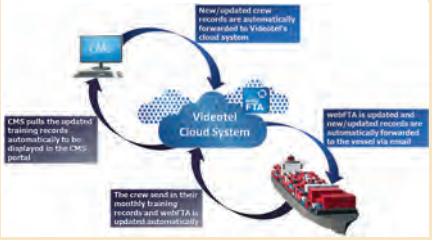
AtoBviaC announces that its BP Shipping Marine Distance Tables are now incorporated into the Voyager Planning Station solution. Personnel can take advantage of the accuracy and quality of AtoBviaC's distance tables while at the same time enjoying the state-of-the-art route planning, intelligent data management and quality of compliance provided by Global Navigation Solutions' Voyager Planning Station.

www.atobviaconline.com

Videotel Simplifies Crew Records Management

Videotel Marine International's Application Programming Interface (API) allows clients to manage their crew training records within Videotel's cloud-based training records management program from their own Crew Management System portal. Videotel's API service pulls data from the Videotel cloud so it can be displayed in the CMS portal and pushes data from the CMS portal to the Videotel cloud which triggers crew data to be sent automatically.

www.videotel.com



Matched Ground Tackle Components

Rocna anchors and the new Titan High Strength Shackles from Canada Metal (Pacific) create a balanced ground tackle system. Titan High Strength Shackles are matched in strength to grade 40 chain and Rocna anchors offer high holding power. A hot dip galvanized finish covers the entire surface of every Rocna with protective zinc. Titan anchor shackles offer breaking strength exceeding high test G4 chain.

www.canmet.com

COXREELS Re-engineered 1195 Series

Coxreels' re-engineered 1195 Series reels now come standard with an in-line swivel and low profile outlet riser offering superior full-flow characteristics and improved pressure range. The reel features a sturdy one-piece, all welded "A" frame base for maximum stability and designed to handle 50 to 125 feet of 2" hose I.D for increased delivery applications and has an in-line electroless nickel plated steel NPT swivel.

www.coxreels.com

Scorpion shows their sting with Dyena

The Dyena Acceleration Recorder (DaccR) is a valuable tool for the development and comparison of fast boats. DaccR can be fitted in any position for simple analysis of a boats performance and ride quality. Sampling at 2400 times per second, the DaccR continuously monitors the shock and vibrations received by the vessel structure and stores the data to the onboard solid state memory, alongside position, speed, heading and time.

www.dyena.com

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- TWIC

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- TWIC

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

Senior Business Development Consultant

Job Location: USA, Cleveland / Tampa

The Senior Business Development Consultant (SBDC) is a senior position with responsibility to meet the strategic business goals of Netsco. The SBDC oversees and manages the entire sales process and all activities related to developing and maintaining key external relationships with vessel owners, operators, suppliers and market influencers. The position is responsible for the promotion of Netsco with a sharp eye toward increasing revenue while staying within expense targets. The SBDC will collaborate and coordinate with other departments within Netsco to ensure customer satisfaction on existing projects; and to uncover and develop new opportunities. Extensive domestic and some limited international travel will be required. Essentially, the SBDC will be the face of Netsco in the marketplace; and so the successful applicant must possess the qualities that will reflect favorably on Netsco: professionalism, credibility, and integrity.

Qualifications

1. Position requires a technical degree such as BSME or equivalent experience
2. Minimum 10-15 years of marine sales or technical experience required
3. International business experience is beneficial

Netsco, formed in 1984, is a marine engineering, naval architecture and design firm. Netsco provides a full range of services to the maritime industry, including vessel design services, naval architecture, marine engineering, facility services, project management, and a broad range of consulting services. Netsco specializes in specialty vessels, especially those which carry bulk materials (dry and liquid), and are capable of self-discharging. Netsco has offices in Cleveland, OH and Tampa, FL.

Rich Mueller
Netsco
Email: jobs@etsco.us

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1	Brunswick Commercial & Gov. Products, Inc.	www.brunswickcgp.com	(386) 423-2900
21	Euro Marine Ltd.	www.euromarineltdpatrolboats.com	(954) 663-2821
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9	Louisiana Cat	www.louisianacat.com	(866) 843-7440
53	Mariner's House	www.marinershouse.org	(617) 227-3979
51	McDonough Marine Services	www.mcdelevators.com	(504) 780-8100
11	Mercury Marine	www.mercurymarine.com	(920) 929-5040
27	MetalCraft Marine Inc	www.metalcraftmarine.com	(800) 410-8464
17	Modutech Marine	www.modutechmarine.com	(253) 272-9319
7	Norsafe As	www.norsafe.com	Visit our website
C4	R.W. Fernstrum	www.fernstrum.com	(906) 863-5553
43	Ribcraft USA, LLC.	www.ribcraftusa.com	(781) 639-9065
13	Scania USA	www.scaniausa.com	(210) 403-0007
19	Senesco Marine	www.senescomarine.com	(401) 295-0373
23	Silver Ships	www.silverships.com	(251) 973-0000
31	Suny Maritime College	www.sunymaritime.edu	(718) 409-7341
37	Superior-Lidgerwood-Mundy, Corp.	www.lidgerwood.com	(715) 394-4444
16	Tampa Yacht Manufacturing, LLC	www.tampa-yacht.com	(727) 954-3435
47	Tutor Saliba	www.tutorsaliba.com	(818) 362-8391
5	Volvo Penta Americas	www.volvopenta.com	Please visit our website
15	Ward's Marine Electric	www.wardsmarine.com	(954) 523-2815
35	Willard Marine	www.willardmarine.com	(714) 666-2150

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Marine News 2014 Editorial Calendar

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

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