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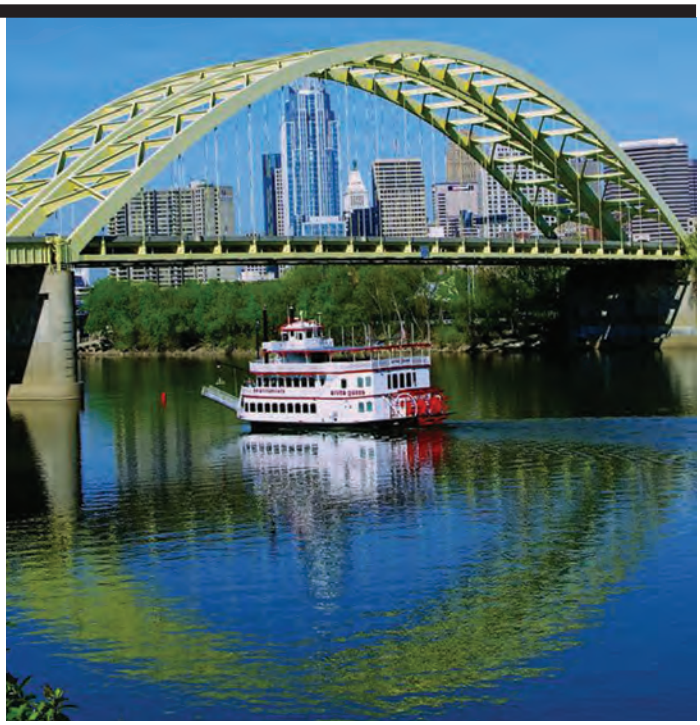

Features

ON THE COVER

The Staten Island Ferry is run by the City of New York and its vessels make more than 37,000 trips annually. Pictured on the cover is the 277' LOA ferry "John F. Kennedy," which was commissioned in 1965.
(Photo: Greg Trauthwein)

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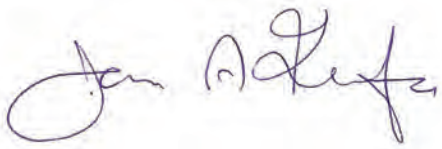
Our annual Ferry and Passenger Vessel edition kicks off the New Year in high gear, even if oil prices aren't necessarily following suit. As vessel operators – our ferry drivers included – celebrate lower bunker prices, another maritime subset frets over what might happen to the offshore service market if the downturn in crude oil prices continues unabated for a significant length of time. That said; if your market focus is ferries and/or passenger vessels, then you won't find another more comprehensive or diverse look at this sector than that which is depicted in the pages that follow. It turns out that the passenger vessel and ferry industry is a forward-thinking, innovative and problem solving group of businesses.

From the *Passenger Vessel Association* to the *World Ferry Safety Association* and all the way to global ferry advocates *Interferry*, we've got you covered. And, there is tremendous amount of activity ongoing in this sector. For example, and despite some well-deserved criticism over the past year, most of which revolves around international events as opposed to that which happens on this side of the pond, the domestic ferry industry has shown itself to be resilient, safe and well operated. That's not to say there isn't room for improvement – clearly, there is. It's also true that the U.S. ferry sector is one of the most highly regulated of any maritime business. This edition naturally deals with those challenges, and much, much more.

January also brings us, appropriately enough, sharp focus into the world of cold weather and Arctic operations. And, when we talk about cold weather issues, Alaska comes to mind first. There, workboats face unique challenges as they go about their myriad mission sets. Ice navigation and related issues aren't necessarily confined to the great snowy North, however. For that reason, the U.S. Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL) in Hanover, New Hampshire focuses on phenomena such as icing on superstructures, brash ice and propulsion systems, and controlling ice dams. And, while CRREL scientists are at home in the highest polar latitudes, it's also true that a lot of its work takes place in the "lower 48," where cold weather can put a crimp on Great Lakes and inland waterborne commerce. That story begins on page 41.

Separately, and as the USACE plies their innovative research to improve the plight of brown water mariners working in adverse weather conditions, private industry isn't sitting on its collective hands, either. Cutting edge, safer deck equipment and machinery has been introduced to the inland towboat and barge sector. The same firm – Patterson Manufacturing – that in a very short period of time made the YoYo barge winch just another part of everyday riverboat lexicon has introduced a potentially game-changing boat-to-barge coupling system. Everyone, whether they reside in the ferry, offshore, inland or cold weather sectors, is looking for the same things: efficiency, economy, safety and yes, profitability. And it all stems from the same place: innovation.



Joseph Keefe, Editor, keefe@marinelink.com

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Ferries: Numbers, Safety, and more.

The 2014 National Census of Ferry Operators is all but done, with statistics due out in the first quarter of 2015. On a biennial basis, the Research and Innovative Technology Administration's (RITA's) Bureau of Transportation Statistics (BTS) conducts a census of all ferry operators operating in the United States and its territories. The latest effort will augment and supersede existing information regarding ferry systems including routes, vessels, passengers and vehicles carried, funding sources and scores of other information. The numerous detailed data elements are provided in a relational database allowing access and analysis at various levels – operator operator, route segment, terminal, or vessel. The NCFO was first conducted in 2000 by the Volpe Center, another office within RITA. By legislative mandate (SAFETEA-LU), BTS assumed the role in 2006 and has subsequently conducted the NCFO in 2006, 2008 and 2010. If you are in the domestic U.S. ferry and passenger vessel game or do business with any of the players, then the BTS RITA numbers arguably should be your first, "GO TO" resource. Table 1 gives a nice snapshot of what the fleet last looked like when BTS took its temperature.

The geographic scope of the database of existing ferry operations includes the United States and its territories, encompassing the 50 States, Puerto Rico, the U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands. In addition to ferry operators providing domestic service within the U.S. and its territories, operators providing services to or from at least one U.S. terminal are also included. Ferry operations that were included within the scope of this census are those providing itinerant, fixed route, common carrier passenger and/or vehicle ferry service.

It's interesting to note that no particular region leads in all categories, although the western United States seems to be the most active users of ferries, followed in distant second place by the Northeastern region. Nearly two-thirds of U.S. ferry operations are privately run, with about one-third publicly administered, and the rest are a combination of both. Federal funding is authorized by the Moving Ahead for Progress in the 21st Century Act, or MAP- 21, Public Law 112-141, under section 1121, which set aside $67 million in 2014 for maintenance and improvement of the nation's ferries. Under the act, the Federal Highway Administration uses ferry-operators census data from the Bureau of Transportation Statistics to allocate funds.

But, ferry statistics aren't just about routes and passenger numbers. It's about safety, too. And, North America is just one of many, diverse and varied ferry markets around the globe. Separately, Roberta Weisbrod, Executive Director Worldwide Ferry Safety Association (WFSA) – who also has another article within these pages – maintains very well prepared statistics on her website (**www.ferrysafety.org**). Indeed, the past 14 years of fatal ferry accidents are keyed to causations. The WFSA advocates for ferry safety internationally, and sponsors an international student design competition for a safe affordable ferry. ***BY THE NUMBERS***, the WFSA database reports:

- ***162 ferry accidents have occurred around the world from January 2000 to December 2014.***
- ***17,098 people died in these accidents.***
- ***Accidents occurred in 40 countries around the world***
- ***4 countries – Bangladesh, Indonesia, the Philippines, and China – account for more than 50% of accidents.***
- ***95% of accidents occurred in developing world countries.***
- ***Bangladesh is far and away the most dangerous place to board a ferry.***
- ***Adverse weather is implicated in over 50% of accidents***
- ***Overloading is implicated in 34% of all cases.***
- ***Human error is implicated in 77% of accidents.***
- ***Human error is implicated in 87% of fatalities.***

According to the parameters used in the WFSA analysis, human error includes not only direct, deadly errors like overcrowding, collisions between vessels, and improper loading of rolling cargo, but also factors like a captain's misjudgment of safe weather conditions and vessel disrepair. Also included are cases where human error led to increased fatalities in an otherwise unavoidable accident (for example, in one case, a SAR vessel didn't have enough gas to reach an accident site in time) or where error was likely but never proven (for instance, passengers said the vessel was overcrowded but capacity information or passenger manifests are not available to bear this out). All of that said; safety issues – although very, very good, by comparison in North America – are not limited to developing, so-called third world countries. And, we have our own share of issues. That said, the U.S. passenger vessel industry is, by any benchmark, one of the nation's most highly regulated marine industries. Stay tuned for the latest BTS ferry data, due out in 2015. We'll compare growth, trends and benchmarks in a future edition. Click: **www.rita.dot.gov** to find out more.

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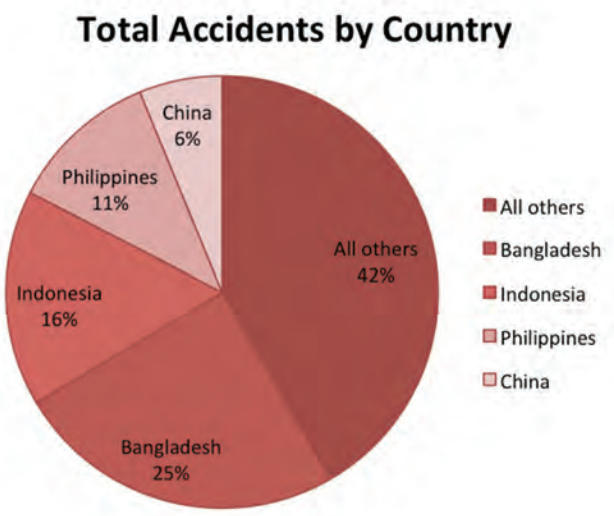
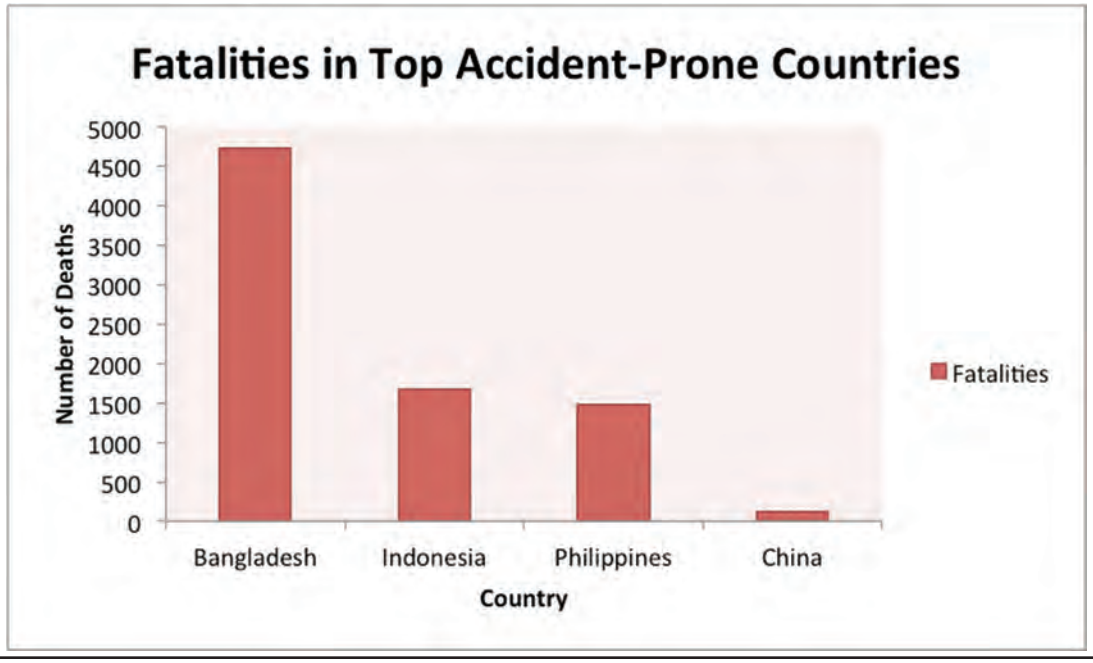
Table 1

Census Region	Number of Passengers	Number of Vehicles	Operators	Terminals	Route Segments	Mean Route Dist.	Total Route Dist.
Northeast	26,628,636	5,421,907	58	136	123	9.9	1,113
Midwest	11,385,756	4,455,728	37	73	72	13.0	794
South	26,273,595	9,777,894	79	134	121	6.0	662
West	35,986,494	15,271,437	44	123	131	41.4	4,887
Other	2,548,062	138,919	10	12	14	45.0	331
Total	**102,822,543**	**37,094,351**	**3**	**7**	**461**	**18.6**	**7787**

Source: Research and Innovative Technology Administration's (RITA's) Bureau of Transportation Statistics (BTS). Leading numbers highlighted in RED.





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Executive Director of European Union and IMO Affairs, Interferry

Johan Roos is Interferry's executive director of European Union and IMO affairs based in Brussels, Belgium. He took up the newly created regulatory affairs post in September 2011 after previously serving as director of sustainability with Sweden's Stena Rederi AB. He holds a masters degree in environmental sciences from the University of Gothenburg. In 2000, he left classification society DNV to join ferry operator Stena Line to develop internal environmental management systems and for many years, he was in charge of sustainability issues for all of the Stena group's shipping activities. In his current role, he works closely with the International Chamber of Shipping and the European Community Shipowners Association and represents Interferry at the IMO. Interferry is an association representing the global ferry industry, with 230 members representing some 600 individuals from 35 countries. The membership includes operators, shipbuilders, equipment manufacturers, classification societies, shipbrokers, finance and legal professionals, consultants and IT specialists. Over the past decade Interferry has emerged as a major force representing the industry on regulatory issues – notably through its consultative status at the International Maritime Organization and observer status at the European Community Shipowners Association. Listen in this month as John Roos weighs in on all things "Ferry."

The introduction of 0.1% sulphur in ECA's may be a less dramatic short term development than expected due to unexpectedly low oil prices. It still represents a financial burden for ferry operators. What's the long term financial impact?

In North America, there will be virtually no impact on the ferry industry, short or long term, because low sulphur fuel has been the norm for a long time. Elsewhere the current relatively low oil price will lessen the immediate impact of the 1 Jan 2015 transition, but ferry operators are still facing the fact that fuel costs will increase by 50% overnight, which has to be pushed on to clients or taken from low, or even negative, margins. The first round will be rising ferry prices, a fall in traffic and a reduction in capacity as the modal backshift kicks in. But then we might expect some re-adjustment. Additional road congestion may drive some traffic back to ferries or governments may respond with policies such as road pricing to limit road traffic and the resulting congestion.

In Europe there will be a process of adjustments as the market tries to re-establish equilibrium. It's very difficult to know where the balance will be in five or ten years - any predictions will be impacted by outside factors like changing fuel prices or the emergence of new technologies.

Internationally – what's the number one thing on the plates of ferry operators? What are you doing about it?

It's hard to generalize within such a differentiated ferry industry, but the number one thing with regard to international operations is poor profitability. There is little that Interferry can – or even should – do on that issue, besides engaging on transport system developments on a policy level.

Industry-wide, there is clear commonality on concerns over the avalanche of regulations we have seen in the past decade, which does not seem set to subside any time soon. The International Chamber of Shipping has estimated that environmental regulations alone could cost the global maritime industry $500 billion over the coming ten years. Ferries are particularly vulnerable to such dramatic costs due to competition from non-maritime transport alterna-

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tives. Interferry recognizes the need to improve shipping's environmental performance, but seeks a more nuanced approach from regulators and governments – such as the stepwise, gradual improvements in the automotive industry over many decades. By comparison, recent maritime regulations have tended to be aspirational and binary - aspirational in the sense that the requirements have not been anchored in what is feasible but in what is theoretically possible with new technology; and binary in the sense that either there is a new rule to reduce something by 99%, or no rule at all is imposed, as with ballast water. Another example is the requirement to reduce NOx emissions from 20% to 80% in one go – a step so dramatic that countries shy away from designating NECA's. As engines today can be designed for something like a 50% NOx reduction, it would make more sense to abolish the NECA concept and, instead, gradually require all new engines to perform better. Interferry believes it would be possible to design phase-in/phase-out schemes for new regulations making allowances for ships near the end of their life cycle.

Just thirteen years after 9/11, the passenger vessel industry has to look inward to ask itself: Are we secure? What more can be done? What has the global community done?

The shipping industry invested a lot of money on security after 9/11. If piracy is excluded – which in any case is criminal activity – there have been no serious terrorist attacks on shipping. We are comfortable with the security provisions put in place by the IMO very shortly after 9/11 and believe those rules have lifted the industry's security awareness to an appropriate level. We also find that cooperation with Flag Administrations on security matters works well in general. However, we look forward to any future revision of the International Ship & Port Facility Security (ISPS) Code, as it was done in quite a hurry. There are certain elements that could be made more effective and adapted to local conditions.

Is ferry transportation growing globally? Is the international version of 'shortsea shipping' more developed than in North America? How do you see its role in the future?

We do not have any reliable figures on domestic transport volumes in non-OECD countries, but for international OECD markets we do not see any significant changes – the tendency in North America and Europe is a slow decline since the turn of the century, exacerbated by the financial crisis.

Short sea shipping is well developed in Europe, particularly in the north, and there is a common political ambition to increase the market share of short sea shipping – although preciously few functional policy instruments ever materialize. Since ferry services exist due to bodies of water separating local markets, the situation in North America is quite different to that in Europe or the Far East. The areas most conducive to short sea shipping in the US and Canada are the Pacific Northwest, the Great Lakes and the Gulf of St Lawrence.

Have North American ferry operators been impacted by the Korean ferry incident? How about international operators? If so, how?

The Korean ferry incident was soon recognized to be the outcome of malpractice rather than any structural flaws in the regulatory frameworks. We have not seen any strong impact for operators outside Korea, where the repercussions are still highly visible and prompting a very bad market downturn. One direct consequence of the tragedy is that it prompted the IMO Secretary General to actively seek ways of improving passenger ship safety on domestic operations, which is beyond the IMO's normal influence. Interferry is closely engaged with the IMO in this initiative, although we recognize that finance to take proper action is limited in some countries and that ultimately each sovereign state has to develop and enforce rules of its own.

Domestic and international ferry safety has been questioned in the wake of the Sewol ferry disaster in South Korea earlier this year. In a nutshell – how is Interferry addressing safety in that context?

There is no basis in the Sewol disaster to criticize international ferry safety. What is most concerning to Interferry is that the accident occurred in an advanced nation like South Korea and has many similarities to ferry accidents in developing countries. Our partner organization the Worldwide Ferry Safety Association has compiled a record of all ferry accidents in the public domain since 2000. During this period, some 15,000 people have lost their lives or are missing due to ferry accidents, with 93% of these casualties occurring on domestic operations. No casualties have been recorded for international services between OECD countries. After the major ferry casualties of the 80's and 90's – Herald of Free Enterprise, Jan Heweliusz, Scandinavian Star, Estonia – very effective measures have been enforced through the IMO Conventions and European legislation. The international industry's track record underlines Interferry's confidence in these regulations.

Have the IMO and U.S. Coast Guard taken into account the cumulative burden of regulatory mandates? What is the regulatory hammer's real impact – operationally and financially?

Regulators don't take the cumulative burden into account. Although many countries have prerequisites to undertake cost benefit analysis for national laws, this mentality does not seem to follow suit when they negotiate at the IMO. It doesn't help that, very often, environment ministry officials represent their country at the IMO on issues that obviously should be dealt with by the transport and trade ministries.

The passenger vessel industry represents half of the U.S. inspected fleet, and a large percentage of the international fleet. How safe is the industry and what is Interferry doing to ensure safety?

Actually, passenger vessels do not represent a large percentage of the world's merchant fleet. The US anomaly results from the market distortions of the Jones Act. Interferry is mainly engaged at international level, helping to develop functional requirements that ensure safe operations without imposing unnecessary costs on operators. Those international rules should then, ideally, form the basis for domestic rules in individual countries, ensuring safe ferry transportation in all markets – but there is no such requirement, which unfortunately is evident in certain parts of the world.

Ten years after the Ballast Water Management Convention was adopted by the IMO, it has still not entered into force. When it does and for ferry operations, it has become increasingly clear that the original intention of the Convention – to prevent spread of invasive species between areas far apart – has not factored in properly the situation for ships continuously operating in the same geographic area. What is Interferry doing to address this?

Interferry was not present at the time, but it seems something was lost during the final deliberations of the Convention back in 2003-2004. Coastal states were given the obvious right to assess whether any measures were needed for domestic operation in their territorial waters – we expect very few, if any, of these states to actually impose such measures. However, the right was not given for neighboring states to agree how to act for ships crossing their common national border, even if the relevant body of water is only 100 meters long. In effect, this would require fitting equipment to the tune of half a million dollars per ship in order to kill organisms in the same water. Supported by Denmark, Croatia and Singapore, Interferry has requested the IMO to modify the legal requirements to allow coastal states to agree as they see fit. We now hope to see a clear indication from the upcoming IMO PPR2 meeting in January that the purpose of the Convention is to prevent the inter-continental spread of organisms, and nothing more.

The IMO Marine Environment Protection Committee (MEPC) could exempt certain ferry operators from fitting equipment required by the impending Ballast Water Management Convention to reduce the spread of invasive species. Would it apply to U.S. markets?

The IMO Marine Environment Protection Committee included provision for exemptions in the 2004 BWMC, but it is up to the Coastal States concerned to exempt certain ferry operators. The challenge, which makes these provisions almost unworkable, is that even in obvious cases the operators must undertake extensive biological risk assessments, sampling for species in their ports of call and putting together a comprehensive scientific file proving that all species concerned are present in all the ports. Apart from the risk that such a biological survey can easily be misguiding if the sampling is not done in all the right places, there is also a high financial cost for the operator. There are no prior guarantees, or even indications, on whether or not the assessment will support a positive decision. Furthermore, an existing exemption could be swiftly revoked if a species not spotted during the survey pops up at a later stage. The commercial uncertainties are just too great. For ferries operating in a limited body of water, crossing a national border thus means that the burden of proof goes from the coastal states – which with their local knowledge would not apply the BWMC on domestic ships – to a 'precautionary principle' nightmare requiring on board treatment even in a low risk scenario.

Interferry represents a global group of ferry stakeholders whereas its North American Counterpart, PVA, has a more domestic audience. Where are the goals of the organizations similar and where do they diverge?

We don't think the goals diverge – it's simply a matter that PVA engages domestically and Interferry internationally. The same set-up is common in many countries, where a national association deals with national situations. PVA is very well positioned to support domestic US operators in ways that Interferry could never do. Likewise, we are well positioned to help develop rules at the IMO, which eventually percolates in parts to domestic US requirements. We consider these two different roles to be highly complementary. Most of our US members are also PVA members.

Interferry welcomed a decision at the IMO Maritime Safety Committee meeting (MSC94) setting out rules for the location of fuel tanks on LNG-powered ships. What has IMO decided actually and why is it important, especially for North American operators considering the LNG option?

LNG has long been promoted as the fuel for the future, not least due to the pending low sulphur requirements. Some Interferry members have successfully built LNG-powered ferries, but many others have waited to see how the cost structures would develop and what the rules would be. The recently agreed IGF Code emerged after discussions at the last few IMO sessions on a proposal on the permissible length and location of onboard LNG fuel tanks. This proposal was so restrictive that the vast majority of ferries already built would not have met the proposed requirements if they had been in place at the time. Interferry obviously advocates high safety for all issues, including LNG tanks, but given the limited experience gained to date in the passenger ship market, we believe that traditional prescriptive rules based on the successful approach for LNG tankers – going back decades – are preferable to the more sophisticated probabilistic requirements, which rely on calculations from questionable statistics. In short, the IGF Code will permit LNG-powered passenger ships to be built to the same high safety standard as other ships carrying LNG on-board. This minimizes the risk of LNG tanks being impacted by collision or grounding, but without imposing size limitations that would require excessively frequent refuelling – which effectively would have ruined an already weak return-on-investment calculation.

A Commercial Marine Lender and Lessor's Lexicon

A primer for lenders and borrowers alike.

Richard J. Paine, Sr., National Marine Sales Manager at Signature Financial LLC

We are often "not aware of what we do not know." Nowhere is that adage more appropriate than in the world of marine finance, especially for the smaller workboat operator. Lost amidst the sometimes confusing language and 'mumbo-jumbo' that lenders and lessors use in describing their sometimes arcane products, it is a fact that, often, 'the devil is in the details.' Therefore, it never hurts to review what we think we might already know.

With the so-called subchapter M towboat rules still lurking perhaps just around the corner, and the continuing requirement for inland and offshore repower work to comply with coming EPA tier and localized ECA regulations, there will no doubt be plenty of reasons for a myriad of inland, offshore and coastal marine operators to be looking for short or long-term financing. The primer that follows includes a few definitions of some common terminology and should go a long way in helping to understand some of those details.

A Primer for Borrowers

Abstract of Title: a brief history of the titles, legal actions, liens or other claims against a vessel. An abstract of title is secured prior to the disbursement of proceeds of a loan or other financial transactions involving the vessel.

Acceleration Clause: Or "Acceleration Covenant" is usually included in a typical loan agreement wherein the lender may require repayment of part or all of an existing loan before maturity. Such a clause may be triggered by failure to pay, material adverse change or other negative change(s) in the obligor.

Amortization: The amount of time required to pay off a debt in regular installments. It is also an accounting method of spreading out capital expenses over a period of time for tax and accounting purposes. Amortization, usually over the assets useful life roughly matches the asset's expense with its revenue. It is similar to depreciation.

Balance Sheet: One of three financial statements normally part of a complete financial package. The balance sheet provides a "window in time" reporting of a company's assets, liabilities and shareholder's equity. It provides a look at what the company owns and owes and the amount invested by shareholders. The balance sheet balances: Assets = Liabilities + Shareholder's Equity.

Balloon Payment: a final, unequal payment on a loan consisting of all unpaid principal, interest and other charges due at the time of payment. Balloon Payments are found in instruments which have a longer amortization period than the term or the loan.

Capital: Generally refers to the financial resources available for use by the company and is comprised of cash, other financial assets, and the hard assets owned by a business used in production.

Deferred Interest: Interest that is added to the principal balance of a loan when the terms of the loan allow for a scheduled payment lower than the amount of interest that is due. Similarly, "Capitalized Interest" allows for the interest on a loan (such as a construction loan) to accrue during the construction period when the vessel is not producing revenue.

Depreciation: Allocates the cost of an asset over its useful life for tax and accounting purposes. Effectively depreciation "uses up" the asset during a period dictated by the "class" of the asset. Different types of commercial vessels, or those used in different industries may have useful lives from five to twenty years. When a vessel changes hands and considered "new" to the buyer, the depreciation clock begins anew. For the seller, gain from the sale of the depreciated asset must be reported as income when the tax basis of the asset exceeds the sale price. This is known as "Depreciation Recapture."

EBITDA: Earnings before interest expense, taxes, depreciation and amortization. This and variations such as EBIT, EBITD, EBT and EBITDAR (plus Rent) are methods of measuring the earnings of a company that adds back I, T, D and A to the net income number. When divided by the company's total revenue it is a measurement of profitability. The higher the resulting number, the less operating expenses detract from revenue which leads to a more profitable operation.

Forbearance: Instead of forcing an obligor into foreclosure, a lender may negotiate a temporary postponement of mortgage payments. A temporary measure, forbearance provides the obligor time to repay delinquent amounts due the lender.

General Ledger: a complete record of a company's financial transactions that holds information necessary to prepare financial statements. Account records include assets, liabilities, owner's equity, revenues and expenses. Each transaction is posted as both a debit and a credit as a debit in one account and as a credit in another. Both credits and debits should equal each other.

Interest Rate Swap: An agreement between two parties to exchange a stream of future interest payments for another based on a specified principal. Often fixed rate payments are exchanged for a floating payment linked to an interest rate such as the LIBOR. This is done to manage fluctuating interest rates or secure a somewhat lower interest rate.

Leverage: A measurement of the use of various financial instruments, debt, lease commitments and other obligations used to provide capital, finance acquisitions or other assets or contractual obligations to rent equipment over a specified length of time. The higher the company's leverage, the greater the divergence between debt and equity. In this case, less is more.

LIBOR: The London Interbank Offered Rate is the rate that some of the world's leading banks charge each other for short term loans. It is used to calculate interest rates on loans worldwide. There are thirty-five different LIBOR rates each day including overnight, one week, 1, 2, 3, 6 and 12 months in five different currencies. The one most often quoted is the 90-day U.S. dollar LIBOR.

Maturity: The finite time period a financial instrument will exist. In a loan, when principal and interest are completely repaid to the lender, the loan has reached its maturity and no longer exists. Maturity and the term of the loan are interrelated. In a 60 month term loan, maturity is reached at the end of month 60.

ROI, ROE, ROA: Return on Investment, Return on Equity, Return on Assets. ROI: the return on the investments is divided by the cost of the investment (gain , minus cost, divided by cost = ROI); ROE: Net income as a percentage of shareholder's equity reveals how much profit is generated from the money invested (net income divided by shareholder's equity equals ROE); ROA: Total debt to total assets reveals how successfully the company is using assets to generate earnings (net income divided by total assets equals ROA).

Yield: Simply stated, the income generated by an investment.

There are many, many more definitions of equal importance. ***MarineNews*** readers can stay tuned to this space for future advice and wisdom. In the meantime, the U.S. Government's latest Unified Agenda (published on November 21, 2014) now indicates publication of Sub "M" is planned for August 2015. Many industry stakeholders would characterize that timeline as overly optimistic, especially in light of recent comments by the Coast's Guard's own Chief Executive. That said, it is never too early to prepare for that next financial transaction. Before that happens, you need to speak the lexicon.

SIGNATURE FINANCIAL

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Knowing the Rules of the Road

Mitigating Risk of Dangerous Interactions with Recreational Rental Vessels

By Michael Borgstrom

I am increasingly concerned about the interaction between commercial vessels and recreational craft on the Chicago River. Even more frequently my operation is encountering people in short-term rental craft such as stand-up paddleboards, kayaks, canoes and small electric boats who know little or nothing about the USCG Navigation Rules and who are not aware of the risks of operating on a narrow channel close to large commercial vessels.

This year alone my crew has rescued seven persons in distress, and towed or provided assistance to six other recreational vessels that mitigated dangerous encounters that could have resulted in injury or death. As professional mariners, my team is always ready to assist, but these dangerous encounters are becoming more common on the nation's most congested waterways, and I've heard from fellow passenger vessel operators in other areas that this is an issue of concern in just about every port and waterway in the country.

It is a fact that everyone has a right to use the waterways, however with that right there is an enormous responsibility to use it safely. Unfortunately, our licensed professional mariners assume most, if not all, of the burden of responsibility. In fact, the increase in irresponsible recreational use of the waterways, especially by rental operations, has resulted in greater stress and fatigue for our captains and crew of commercial passenger and towing vessels.

I have great concern about the safety standards of the public vessel rental operations. This situation is analogous to renting a car to a person who has never driven before, with little or no training and sending them out onto a crowded interstate. Such rental operations are, to my knowledge not inspected, licensed or regulated to promote responsible navigation practices. All you need is a credit card and you are on your way. I have found that those who rent recreational vessels receive woefully inadequate instruction in safe vessel operation or Navigation Rules.

This results, more often than not, in reckless and dangerous operation on the waterways. In addition, alcohol consumption is not discouraged and, in some cases, BYOB is actually encouraged by some rental operations. I have to question whether these boat rental operations are appropriate for certain commercial waterways. The risk of a marine incident continues to rise with the proliferation of irresponsible recreational use of our waterways.

In Chicago we have been working to find solutions to this problem. I have personally met with several kayak rental operators to increase awareness and educate each other on navigation and training practices. For example, the U.S. Coast Guard sponsored a Port and Waterway Safety Assessment in 2012 identifying high traffic areas on the Chicago River. And, we formed the Chicago Harbor Safety Committee in 2013 bringing together all key stakeholders and with the mission to develop strategies for safe boating education and awareness.

To elevate this issue to the national level I've worked closely with the Passenger Vessel Association (PVA) to provide industry leadership. PVA and I have briefed the National Transportation Safety Board and Coast Guard leadership on the real world challenges of operating in this environment. Beyond this, PVA recently spoke with members of the National Boating Safety Advisory Council voicing concern and commenting on national boating safety awareness projects.

I call upon all stakeholders to become a part of a proactive national dialogue to identify and analyze this growing problem of unsafe and irresponsible recreational and rental users by engaging all stakeholders to develop solutions that facilitate marine transportation and commerce while enhancing and improving marine safety for all users of America's waterways. We must encourage our government leaders and all stakeholders to get involved finding a solution to this growing problem.

Michael Borgstrom *is the President of Chicago-based Wendella Sightseeing Boats. He is the third-generation owner of Chicago's oldest tour boat company which has been in operation since 1935. A U.S. Coast Guard licensed mariner holding a 100 ton certificate (since 1981), he has served in the industry for 37 years. Mr. Borgstrom is a Past President of the Passenger Vessel Association (2008) and the current President of the Chicago Harbor Safety Committee.*

Setting a Course for Success: Canada's Ferry Industry

By Serge Buy

Our country's past and its future are fundamentally linked to the transportation of people, vehicles and goods over our lakes, rivers and sea. Ferries have always been an integral part of Canada's transportation infrastructure. Today, the geo-political relevance, the economic impact and the environment footprint of ferries continue to show that the sector is a crucial part of Canada's infrastructure.

Nationally, nearly 50 million people and more than 18 million vehicles travel on Canada's ferries each year. When compared to the air and rail travel industry – which transport 50 million and 75 million passengers respectively, according to their recent data – ferries are very clearly an important part of the transportation scene in Canada. Every day, ferries bring tens of thousands of people to work, tourists to their destinations and goods to isolated markets. Indeed, there are places in Canada where ships are the only link to the mainland and all goods need to be moved by ferries, including daily necessities like food and fuel.

Ferry operators provide constitutionally mandated services, the only access to some communities, linkages between parts of major urban centres (such as in Vancouver, Halifax), access to some airports (Toronto and Prince Rupert), and crossing of various waterways. Whether you are traveling across the Georgia Strait to Vancouver Island, voyaging across the Bay of Fundy from Digby to Saint John or commuting to work from Lévis to Québec City, Canadian ferry operators are responsible for getting you there.

Growth in Canada's ferry industry doesn't just stop at ridership. Ferry operators are poised, in the next five years, to make significant investments and upgrades to their fleets. Some are purchasing new vessels while others are retrofitting and upgrading older vessels. That's on top of directly and indirectly providing meaningful employment to more than 20,000 Canadians.

While investments in capital and human resources are a measure of the importance of the sector, what is more difficult to measure is the economic impact of ferries on communities, businesses and residents. Without ferries, some communities would be unable to get crucial goods such as food and fuel while others would need to have these goods transported by trucks with detours of hundreds of kilometres in some situations.

Our ferries are always working toward a greener tomorrow and looking for ways to minimize their carbon footprint. Now, more than ever, we are seeing innovative tech-

A Canadian Ferry underway in light ice conditions.

courtesy of CFOA

"... nearly 50 million people and more than 18 million vehicles travel on Canada's ferries each year. When compared to the air and rail travel industry – which transport 50 million and 75 million passengers respectively, according to their recent data – ferries are very clearly an important part of the transportation scene in Canada."

nologies – such as LNG-fuelled vessels – being developed to help ferry operators achieve this goal. These new investments will reduce fuel costs and help keep the price of fares low while reducing carbon emissions by up to 25%.

LNG has been heralded by major players in the industry – including BC Ferries CEO and President, Mike Corrigan, who recently said it would be a "game-changer" for the country's largest service provider. "After labor, our biggest operating cost is diesel fuel," Corrigan explained in late 2014, adding, "We believe LNG is the fuel of the future."

Canadian operators have ordered 8 new LNG ferries and are taking steps to convert 2 existing ship to LNG. This includes:

- *STQ, which has ordered two 92-meter LNG ferries from Davie Shipyards in Québec and a 133-metre LNG ferry;*
- *BC Ferries, which has ordered three 105-meter LNG ferries and which is converting two existing ferries to LNG; and*
- *Seaspan, which has two 148-meter LNG ferries on order.*

Canada's ferry industry is well-positioned to become a world leader in using LNG technology in their vessels. Already, tucked away in Île Verte, Québec is North America's first hybrid ferry. Operated by Société des Traversiers du Québec (STQ), the MV Peter Fraser moves approximately 20,000 passengers and 5,000 vehicles a year. This vessel is a prime example of how ferry operators in Canada are leading the way in maritime environmental stewardship.

Annually, ferry operators in Canada gather to discuss issues related to our industry and share best practices. The theme of our upcoming conference, ***Cutting Edge: New Technologies in the Ferry Sector***, could not me more timely. We encourage you to attend and showcase your products and services to ferry operators in Canada. To register, or for more information, please visit: **www.cfoa.ca/conference**.

Serge Buy *is the CEO of the Canadian Ferry Operators Association (CFOA). The CFOA represents all the major ferry operators in Canada (responsible for more than 95% of ferry traffic). Our members adhere to the highest professional and operational standards and promote the safe delivery of ferry services.*

Ferry Fixation

The good, the bad and the ugly: it all adds up to the global effort to strengthen bottom lines, safety margins and the collective environmental footprint.

By Joe Hudspeth

The future for ferries seems to be on fire; both in good ways and bad. The good is always a good place to start. And, that's because it is ferry fabrication time. The most notable ferry routes in America are jumping into the construction queue for new vessels and soon the next generation of ferry vessels will be hitting the piers (not literally of course). From the Northwest to the Northeast, construction plans are not calling for more of the same, rather new classes of ferries are under design and in production. The Steamship Authority (Woods Hole), Washington State Ferries, and Alaska Marine Highways are all expecting new car ferries. The San Francisco Bay Ferry (WETA), Massachusetts Bay Transportation Authority (Boston), King County Ferry District (Seattle), Hampton Roads Transit (Norfolk), and Staten Island Ferries will soon be receiving new passenger ferries on their routes. This is truly big news, as ferry construction has been furloughed for far too long.

Ferry Fury

The fury of ferry fabrication also happens to come at a time when ferry design and ferry safety is under fire. Punching just about anything ferry related into an internet search browser of your choice will quickly yield reminders of the tragic Sewol ferry disaster that claimed over 300 lives. As this column goes to print, the news of at least 129 bodies being recovered from a capsized ferry in the Congo is also just being revealed. Sadly, ferry tragedies of this kind are not rare occurrences and poor ferry design, maintenance, and operation often makes the difference between death and life. The Worldwide Ferry Safety Association (WFSA) has initiated a grassroots effort to introduce safe and affordable ferry designs for problematic routes around the world. Each year, naval architecture students from universities spanning the globe, participate in WFSA's ferry design competition in which a comprehensive vessel design and feasibility study is submitted based upon the featured route. A student team from Memorial University in Newfoundland won the 2014 competition with a new design

King County Ferry District is set to take delivery of the very first ferry of 2015, the Sally Fox, as part of their water taxi service in Seattle, Washington.

that can make a difference for the Lae-Kavieng route in Papua New Guinea.

Ferry Foundering

The foundering of ferries is not just a foreign matter. Early last year, the National Transportation Safety Board (NTSB) released their "most wanted" list of transportation improvements and new to the list released last January, was the advancement of passenger vessel safety. NTSB states that "accident investigations involving passenger vessels revealed in numerous cases that the cause of an accident was not the failure of the vessel, but the lack of good safety practices that led to the loss of life and injuries." Boat builders will attest that the design review and inspection services provided by the U.S. Coast Guard are extremely thorough and today's vessels are the most seaworthy. On the surface, it appears as though the Coast guard may be expending more efforts on vessel inspection than crew member competency, which time and time again has been the root of the few, but significant ferry incidents in the U.S.

While inherently safe, new ferry designs are not always an immediate success. And, problems do not always confine themselves to developing, underfunded nations and operators. For example, the nation's largest ferry system, Washington State Ferries, recently introduced two new classes for various routes within Puget Sound that have experienced more than a few operational issues. Most of those challenges have subsequently been addressed and corrected. But, that situation underscores the need for all stakeholders – builders, designers and, yes, the operators themselves – to more closely coordinate on all aspects of a vessel's ultimate mission set from the very outset. All of that said; it is also unfortunate that few praises are sung for the safe and on-time performance that makes up the overwhelming majority of WSF's sailings.

Ferry Firsts

Perhaps WSF will achieve favorable recognition if they can implement a revolutionary LNG fueled propulsion system re-power project which they have been trying to fire up for the past four years. The project will remain permanently anchored until an amicable design solution can be reached with the Coast Guard, however. Along with WSF, other ferry operators will establish new "firsts" with current projects. King County Ferry District is about to receive a new 250 passenger ferry for Seattle, which will be one of the first U.S. Coast Guard inspected subchapter "K" passenger vessels built under the latest revision to the struc-

tural fire protection guidelines. San Francisco Bay Ferry is also pushing industry to reach EPA Tier IV emissions standards in their current construction solicitation for two new 400 passenger ferries – which is quite the challenge, especially given that the technology is still under development for the relevant horsepower range of this particular application.

Frequent "Ferriers"

In rare instances, a ferry can be a magical conveyance to a new land otherwise unobtainable. The masses, however, are typically enslaved to ferry ridership as the only viable option to transit to various workplaces and chambers of commerce. There is no novelty for those who dwell on board as a notorious ferry commuter. Commuter culture is something to behold and identifying such frequent voyagers is an easy task. If you happen to counter their culture, they will let you know in one way or another – most commonly with rolled eyes, or in extreme situations, a horn may be honked. Those who embrace mass transit commuting take ownership of their vessel, favorite seat, and have a firm routine. Any disruption to the normalcy of their commute is bound to ruin an entire day. Kowtowing to the needs of the commuters goes far beyond high speed internet, convenient power ports, and serving Seattle-style coffee.

"Most successful operators primarily focus on serving the commuter first, ensuring adequate level of service and amenities to get the commuters to and from their employment centers across the water. Time savings has been found to be the most important factor for most commuters, of course followed by fare price and amenities offered,"

– Mike Anderson, Director of Marine Transit at KPFF Consulting Engineers.

Designing a ferry for the rider certainly has value, but operator's can also exercise liberties or choose ignorance to a certain extent without risk of losing their captive ridership. While the needs of frequent 'ferriers' do hold some weight, they will be forced to take a back seat when the route is under public subsidy, as is the usual case. Mike Anderson, who once led Washington State Ferries, is now Director of Marine Transit at KPFF Consulting Engineers in Seattle. Anderson and his team specialize in a full range of consulting services for the ferry and water taxi industry, including guidance on getting in good with the customers. "Most successful operators primarily focus on serving the commuter first, ensuring adequate level of service and amenities to get the commuters to and from their employment centers across the water. Time savings has been found to be the most important factor for most commuters, of course followed by fare price and amenities offered," states Anderson. Safety and the environment are not the commut-

King County Water Taxi

er's primary concern, but if those boxes also get ticked on their list, this often leaves little room for anyone to complain.

Ferry Fundamentals

Ferries will remain where bridges don't make sense and shortening the distance between points A and B is a priority. We have to have ferries, must maintain them, and like it or not, they must be kept funded. Some grumble as to why the land lubber masses must support infrastructure used only by a few, but as the system becomes better, use will increase, and less congestion on the roads will ultimately benefit all intermodal stakeholders. The key to running a successful ferry will remain hard to turn, but collectively progress is being made and the next generation of ferries looks promising. For the latest insights on what is happening within the ferry industry, the Passenger Vessel Association is hosting their annual convention, Maritrends, year in Long Beach, CA January 31 to February 3.

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

A Moment of Opportunity

By Roberta Weisbrod

A convergence of forces makes for market opportunities for new safe ferry systems in the developing world. Need, policy, and funding are poised to provide a moment of opportunity.

The expanding global economy has resulted in economic and population growth in developing world cities, resulting in horrendous road congestion. In response, governments and businesses have begun planning for intra-urban ferries wherever possible. Ferries in the developing world have a deserved reputation for being unsafe. A recent in-depth study commissioned by the Worldwide Ferry Safety Association found that that since the year 2000, there have been over 160 accidents causing 17,000 fatalities; the vast majority—95%—of these accidents occurred in developing nations. That said; the resources exist to "do ferries right."

WFSA: engaging global ferry stakeholders

The Worldwide Ferry Safety Association (WFSA) has been engaged in this arena throughout the past decade. WFSA is a not-for-profit spinoff of the joint ferry safety project between the International Maritime Organization (IMO) and Interferry, the international ferry association. The WFSA tracks ferry fatalities and their causes, commissions research, is developing an e-training program, advocates for ferry safety internationally, and sponsors an international student design competition for a safe affordable ferry.

To develop the design competition, WFSA works with key officials in a chosen country to prepare the specifications for the ferry's route, route characteristics, such as controlling depth, number of passengers, stops, projected journey time, and cargo if any. Student teams that register

Images above: (left) Ferry Design Winner in the 2013 Contest and the 2014 Winner (right).

with WFSA are given terms of reference regarding the level of detail needed. Students have been solicited from maritime institutions all over the world, and the competition has attracted teams from schools in China, Turkey, India, Greece, Germany, France, Belgium, Australia, and the United Kingdom, not to mention the U.S. and Canada. Each year, as many as thirteen student teams initially register, but only six or seven teams stay the course and actually have completed designs.

The Competition

An international team of five professionally prominent judges, based in the United States, Scotland, Bangladesh, and Papua New Guinea, select the winning designs. Interestingly, many student teams took it on themselves to address the problem of overcrowding by designing their vessels to be safe even if substantially overcrowded. There were many variations presented in terms of hull shape, site-specific safety features, and fuel type employed. Some of the most creative vessels were unfortunately not appropriate to the situation, but could work elsewhere. For example, the Webb Institute team's vessel could be expanded to handle variable numbers of passengers with an insert like the leaves of a table.

In 2014, the competition was specified for an oceangoing ferry with a carrying capacity 200 passengers and ro-ro cargo between Lae on the main island of Papua New Guinea to Kavieng on an outer island via two stops over a transit distance of 700 NM. This vessel was a surrogate for a host of other needed inter-island ferries for the South Pacific.

After deliberations, the judges concluded that the student team from Newfoundland's Memorial University won the competition for their design of a double-hulled vessel using such affordable features as mild (low carbon, readily wieldable) steel, standard components, and a chined hull (method of attaching the bottom to the sides), all of which allow for simplified construction. The design calls for diesel electric propulsion, which, while somewhat more expensive to acquire, is expected to be cost-effective in terms of fuel consumption and maintenance savings. The Newfoundland team, which received the top prize of $5,000, was led by Edward Moakler, with teammates Logan Miller, Nicholas Boyd, Luke Hancox, Bethany Randall, and Aron Ng. Dr. Heather Peng served as faculty advisor. University of British Columbia students were awarded second prize with Nantes and Bremen student teams were third prize awardees for a total of an additional $5000 in prizes.

In 2013, the competition to design a 500 passenger ferry for Bangladesh river travel between Dhaka and Barisal, a distance of 250 miles. The winning team was University of British Columbia with the runner up Tolani from Pune (near Mumbai) India. The UBC vessel was designed to run on CNG and featured outstanding workmanship in the design effort.

Running the competition over the course of two years, WFSA has discerned from conversations with professors and students that we should make some modifications. These include streamlining the terms of reference to markedly reduce many of the calculations that aren't significant to the final result, but also use up time and resources which may have discouraged teams from going forward. Additionally, and responding to the academic schedule, we will start the competition earlier in the academic year (instead of January 1).

Regarding research, WFSA and the competition organizers have commissioned in depth analysis on issues and nations by students from leading maritime and academic institutions. In addition to the in-depth report and analy-

Edward Moakler receiving the 2014 WFSA Ferry Contest award.

sis of global ferry fatalities over the past fourteen years, we have obtained reports on ferry systems in the Philippines, Guizhou, China, the Amazon and Tanzania-Zanzibar. We will shortly post our commissioned paper on e-training for the ferry industry, and have papers in progress about the ferry systems of Indonesia and Bangladesh.

Training

One of the issues that surfaced from our two trips to Dhaka was the lack of crew training. To address that, members of Interferry contributed their expertise to create a course based on Bangladesh needs as communicated by the Director General of the Bangladesh Shipping Department. IMO contributed resources for Videotel to prepare a professional presentation. Interferry paid for the translation, salaries and food for the crew and teachers over the two days each time the course was given. The course, presented in PowerPoint format, was trialed successfully in Bangladesh with 100 crewmembers, administered twice to classes of 50 seafarers each. Learning that owners would not pay to have crewmembers take the course encouraged us to look for other ways to supplement hands-on training. WFSA therefore explored ferry safety training by owners and vendors. We will shortly report out as well, as we begin a new trial using a distance learning, e-training system.

"After deliberations, the judges concluded that the student team from Newfoundland's Memorial University won the competition for their design of a double-hulled vessel using such affordable features as mild (low carbon, readily wieldable) steel, standard components, and a chined hull (method of attaching the bottom to the sides), all of which allow for simplified construction. The design calls for diesel electric propulsion, which, while somewhat more expensive to acquire, is expected to be cost-effective in terms of fuel consumption and maintenance savings."

Where's the Money?

So, where's the opportunity for a business market beyond the resources of the developing nations themselves? Most of the nations and cities that could use more and better ferries know that they need them – we know that by direct communication as well as tracking their reports and releases. With growth they have more resources than in the past.

But the true promise to jumpstart ferry service could

well be through the $175 billion Multilateral Development Bank fund for sustainable transport in developing nations. The eight banks, African Development Bank (AfDB), Asian Development Bank (ADB), Development Bank of Latin America (CAF), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), Inter-American Development Bank (IADB), Islamic Development Bank (ISDB) and the World Bank (WB) have pooled their resources for the ten-year effort which is currently in year three of its development. It is not clear at this point what the criteria might be for selecting projects, but from all indications, there is clear recognition of the positive sustainability features of non-road transport solutions.

In a parallel effort, the UN Secretary-General Ban Ki-moon in August appointed a High-level Advisory Group on Sustainable Transport, whose role is to review and recommend policy options for sustainable transport particularly for developing nations over the coming five-year period. The ferry sector is represented on the twelve-member panel by Len Roueche, Executive Director Interferry. WFSA Executive Director Roberta Weisbrod will second Interferry on this panel.

Looking Ahead, Getting Involved

How can industry get involved in the market place for safe ferries for the developing world? One way is to first dial into the News section of the WFSA website: **www.ferrysafety.org**. Another would be participate in the upcoming Ferry Safety and Technology conference where we will discuss pushing the envelope on ferry design, materials and construction, as well as technology advances in e-training, weather & wave information detection and dissemination, and advanced personal communications for ferry safety. The conference will be held April 16-17, in New York City and is being co-sponsored so far by Interferry, Society of Naval Architects and Naval Engineers (SNAME), and the Transportation Research Board (TRB). Contact **ferrysafety@gmail.com** for more information.

Roberta Weisbrod *is the Executive Director of Worldwide Ferry Safety Association, a not-for-profit organization dedicated to reducing ferry fatalities in the developing world. Prior to founding WFSA with colleagues she helped coordinate the Interferry-IMO ferry safety project for Interferry. Dr. Weisbrod is also the Principal of Sustainable Ports, a planning consultancy for ferries and waterborne freight.*

U.S. Ferries Are Safer, but Regulatory Burdens Grow

By Susan Buchanan

In recent years, ferries have been in the spotlight, in part because of growing mass transit needs and increased road congestion, but also because of concerns about the deadly South Korean ferry sinking last April. We asked Captain Terri Bernstein, the Passenger Vessel Association's 2014 President, about the industry's status in the United States. Based in Alexandria, VA, the PVA has over 500 member companies. Ferries are safer, especially since 9/11, but regulatory requirements have swelled and can be onerous, Bernstein said. She's the owner of BB Riverboats, Inc. in Newport, Kentucky, and is a Coast Guard-licensed mariner with a 100-ton captain's license.

"We've seen an increase in building new vessels, an increase in routes and in new areas of the country served by ferry vessels," Bernstein said last month. "These are indicators that the ferry industry is experiencing solid growth."

Ferries whisk commuters to work and reduce highway, bridge and tunnel accidents. "As our roadways become more and more congested, the role of ferries in our nation's comprehensive transportation network increases," she said. "Ferries provide important services to communities in major metropolitan areas and also in more remote locations across the country."

According to the most recent federal data from the Bureau of Transportation Statistics in 2010, U.S. ferries carried nearly 103 million passengers and 37 million vehicles in 2009. "I believe that the results of the 2014 National Census of Ferry Operators by the BTS will show a substantive expansion since then," Bernstein said. That report is being finalized this winter for release next spring. In the last survey, the highest ferry ridership was in the western and northeastern United States.

Korean sinking raises awareness

Bernstein said the mid-April 2014 sinking of the MV Sewol ferry in South Korea was tragic and of great concern to her as a marine professional. The disaster claimed 304 lives, mostly secondary school students. "We were asked several times if an accident like this could happen in the United States," she said, adding, "We hope that it never does and understand the importance of learning from the disaster. We must remain vigilant and strive for continued improvement in our emergency preparedness, particularly in crew training and exercises and in communications with our passengers."

Overall, U.S. ferries have a long record of safe operations. "The industry places systematic emphasis on sound

risk-management practices and a commitment to safety," Bernstein said. "Ferry operators focus on implementing organization-wide training programs and best practices that aim to prevent accidents before they occur."

Bernstein told *MarineNews* in December that PVA is developing a safety management system called Flagship. "It's a framework around which we can structure our current processes and procedures. It provides a focal point to direct our attention to preventative maintenance and continuous improvement. My company has been beta testing the new Flagship program, and we've found it to be of immediate benefit." She added that the success of any safety-management system depends on an organization-wide commitment to it.

Security increases after 9/11

Ferry security has been beefed up in the last decade or so. "Since the terrorist attacks of September 2001, PVA has worked closely with the Coast Guard to promote the need for workable security measures on U.S. ferry vessels," Bernstein said. "The Coast Guard has provided security-related information to PVA members on many occasions, including articles in PVA's "FOGHORN" magazine and presentations to our national conventions and regional meetings."

PVA and the U.S. Coast Guard established a ferry security working group, developing best practices with operators around the country. "PVA worked with the Transportation Security Administration to develop and distribute a comprehensive training program in early 2007 to assist with screening at terminals and vessel boardings," Bernstein said. Beyond this, PVA has encouraged its members to apply for federal maritime security grants, and it developed a template for applicants to use in seeking grants to purchase and install Automatic Identification Systems for vessel tracking.

PVA has an Alternative Security Program, approved by the Coast Guard, that's available to members and is used by more than 50 percent of the PVA fleet. "This alternative meets the requirements of the Maritime Transportation Security Act for vessel and facility security," Bernstein said.

New marijuana laws add to operator concerns

Ferry owners have to contend with legalization of marijuana in several states. "We operate in waters governed by federal laws that define marijuana as an illegal substance," Bernstein said. "The contradictory environment is challenging because passengers might bring drugs on board. While it's still illegal to smoke marijuana in public in states that allow marijuana, the mere sight of it on board our vessels can cause the Coast Guard to take enforcement action, as it did in a couple of recent instances. This can be disruptive to operations and may even make customers think twice about riding our members' vessels." And, in this regard, the nation's passenger vessel industry is one of the most highly regulated to begin with.

The impact of marijuana legalization in some states on crews has yet to be fully realized. "Our crews must commit to a drug-free workplace and also to drug-free off time," she said. "PVA has worked hard to reduce the mandatory, random drug-testing rate from 50 percent to 25 percent, implemented in early 2013. This has provided major savings in time and cost to the passenger vessel industry. We'd hate to see an increase in positive test results and/or a need to return to the 50-percent test rate because of legalization in certain states."

Passenger vessels tend to have higher turnover because of seasonal crew members, adding to recruitment and retention issues, she also said. Bernstein weighed in on another matter – known simply as rail jumping. "We remind people at every opportunity that jumping off boats is illegal," she said. "It remains a problem for our industry. Enforcement lies with the Coast Guard, and we urge them to assist us with this issue."

Federal regulations expand

Bernstein, meanwhile, is concerned about the onus of federal rules on ferry operators. "At every possible opportunity, PVA has spoken out about the need for the government and the Coast Guard to take into account the cumulative burden of regulatory mandates," she said. "The industry is in danger of being overloaded. We always put safety first. But we find ourselves challenged by it, along with other demands on our crew and resources, particularly during emergencies."

She pointed to the financial cost of compliance for small businesses. In a study conducted for the Small Business Administration, small firms faced a regulatory cost of $10,585 per employee in 2008, she noted. Bernstein further insists, "This was probably an understatement for the comprehensively regulated passenger-vessel industry."

Bernstein also discussed marine casualty investigations. "The most frustrating aspects of the Coast Guard's casualty investigation and reporting processes are its inconsistent application, inappropriate restriction of operations and an outdated reporting form." She explains, "Industry has been waiting for Navigation and Vessel Inspection Circular, or NVIC, guidance from the Coast Guard for years, and during that time operators have struggled with running a

business in an uncertain environment." According to Bernstein, the Coast Guard sometimes halts vessel operations amidst conflicting interpretations of requirements. "It second guesses seasoned mariners' professional decisions," she said. "Whatever happened to honoring the mariner?"

In the Coast Guard's reporting form 2692 for Marine Accident, Injury or Death, "We'd like to see the $25,000 threshold for damages increased to reflect inflation," Bernstein said. "This amount is outdated and hasn't changed in over 25 years." She said the PVA has worked with the Coast Guard to find workable solutions on casualty reporting. "PVA appreciates the tackling of big picture issues on form 2692 by the Towing Safety Advisory Committee." TSAC includes members of the barge, towing and other industries.

Most U.S. ferries are privately run

Nearly two-thirds of U.S. ferry operations are privately run, with about one-third publicly administered, and the rest are a combination of both. Federal funding is authorized by the Moving Ahead for Progress in the 21st Century Act, or MAP- 21, Public Law 112-141, under section 1121, which set aside $67 million in 2014 for maintenance and improvement of the nation's ferries. Under the act, the Federal Highway Administration uses ferry-operators census data from the Bureau of Transportation Statistics to allocate funds.

In addition to ferries, the PVA represents owners and operators of sightseeing, excursion, dinner cruise and gaming vessels, overnight cruise ships, private charter boats, whale watching and eco-tour vessels, day-sailors and windjammer sailing boats. Looking ahead, Bernstein says PVA will continue liaising with the Coast Guard to keep these vessels safe. She encourages members to take advantage of PVA's safety and security products, including a Risk Management Guide, DVDs and videos. As MarineNews went to press, Bernstein was awaiting results from the 2014 census of ferry operators to find out how much the industry has grown in recent years and a host of other statistics. It all adds up to heady times for America's passenger vessel industry, which finds itself facing many obstacles while at the same time, steams full speed ahead. What comes next should be just as exciting.

__Susan Buchanan__ is a New Orleans-based business writer, specializing in energy, maritime matters, agriculture, the environment and construction. She holds a master's degree from Cornell University in agricultural economics and an undergraduate degree from the University of Pennsylvania.

Terri Bernstein, the Passenger Vessel Association's 2014 President

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Taming the Arctic: One Ferry at a Time

Ferries for Alaska's harsh conditions, built in Alaska by Alaskans. Vigor and Elliott Bay Design Group team up for a winning combination as the new Alaska Class Ferry Project takes shape.

By Sarah McCoy

With its network of islands and fjords, rugged mountains and spectacular tidewater glaciers, Alaska's Inside Passage may make a perfect summer cruise destination, but locals can't choose when they travel. So when Alaskans need transport, the Alaska Marine Highway System (AMHS) must find a way to move them. For the past eight years, the ferry system has been planning replacements for mainline boats that are over 50 years old. Now, for the first time, the state of Alaska has commissioned new ferries that will be built at home. They will be the largest ships ever built there. And, not a moment too soon.

Vigor Alaska won the contract and identical twin ferries are being built in Ketchikan for $101 million. The keel equivalents were laid by December, 2014. Designed by Seattle-based Elliot Bay Design Group (EBDG), the two ferries will go into service along the Lynn Canal route between Juneau, Haines and Skagway. Lynn Canal is not a man-made canal but a fjord, which, at about 90 miles long, is one of the deepest and longest fjords in the world.

Logistics and Performance: rolled into one

Vigor will deliver the pair of 280-foot ferries in 2018 on a stretched-out schedule designed to keep costs down. The ferries will be built as Day Boats that operate on a 12-hour schedule. Without the need for crew quarters, the AMHS will reduce capitol and operational costs. Having two identical boats also helped offset design costs. At 280 feet, shorter in length than the ferries they will replace, the new Alaska Class boats will eventually take over from 350 to 400-foot ships. Each new ferry will have seats for 300 passengers, plus carry 53 vehicles. The beam will be 67 over guards, the draft 12 feet, six inches, with a 3,013 LT full load displacement.

Doug Miller, New Vessel Project Manager for AMHS, said that "Vessel One will have a schedule speed of 15.5 knots for the route between Juneau and Haines and a predicted sprint speed of 16.4 knots at 100% MCR (maximum continuous rating of the horsepower of the engines installed)." To achieve those goals, two EMD 12 cylinder engines at 3,000 horsepower will propel each vessel. Each ship will have two controllable pitch propeller systems made by Rolls Royce. Each ferry will have a bow opening door and bow loading ramp.

Ferries: by Design

When it came time to put pen to paper, AMHS chose the Elliot Bay Design Group, naval architects who frequently design ferries. And, why not? Over time, they have planned everything from a new, unnamed ferry for the Nantucket-Martha's Vineyard-Woods Hole route, up to the giant Staten Island ferry, a 4,500-passenger behemoth. Beyond this, EBDG has also designed ferries for Washington State, North Carolina and Texas. EBDG has offices in Seattle and New Orleans and in 2013 opened a new office in Ketchikan. Together with Vigor's growing Alaska footprint, the project has taken on a distinctly Alaskan feel.

Weather can never be far from mind for naval architects, particularly when it comes to Alaskan weather. The Gulf of Alaska generates a fire hose of heavy rain and snowstorms that inundate southern Alaska. In the winter in Lynn Canal, daylight shortens to six hours. Winter winds blow at 40 miles per hour or above several times each month and temperatures can drop to minus five degrees Fahrenheit. Ferry captains find themselves battling freezing spray.

"Lynn Canal is part of the Inside Passage but it's a pretty large body of

Courtesy: Vigor

Some of Vigor's Alaskan Shipyard operations staff

"In the Seattle yard, we're now on our second class for building ferries for them. There's a wonderful sort of momentum around building ferries. Again, now both in Alaska and in Seattle, and we're seeing a national interest and we're becoming known as ferry builders across the nation."

– Joe Corvelli, Vigor Industrial's Sr. Vice President of Fabrication and Sales

water and it's pretty prone to weather conditions, as much of Alaska is," said Vigor's Adam Beck. "Some of the big challenges that they deal with are not only the heavy seas, but high winds and freezing spray, where the spray is coming off of the ship, coming off of the bow. It tends to freeze on contact." Beck continues, "When they originally came out with the smaller ship concept, the cars were just on an open car deck. There was a lot of public concern that folks would come out to get in their cars and the cars would be blocks of ice. So the state went back and made a pretty significant change and enclosed the car decks."

When weather turns nasty, the ferry system must consider what it calls "Traveler Comfort." As part of the design process, the ferry system and EBDG did wave-tank testing of the hull design in Denmark. Miller of AHMS said that the hull form was tested in Denmark at Force Technology.

"Force worked with Elliot Bay Design Group to perform numerically based optimization on the hull form. A model of this optimized hull form was then created by Force and tested to confirm numerical based performance predictions, analyze the vessel's sea keeping characteristics and predict maneuvering characteristics," Miller said, adding, "The goal was to design the vessel capable of handling the forecasted vehicle and passenger loads in the future, and reduce the Motion Sickness Incidences that are found on the smaller vessels."

There are myriad variables to consider. "The overall vessel length impacts the motion of the vessel in waves, and the effect of those motions on the passengers, crew and vehicles. The weather data for the area was used and the Motion Sickness Incidences was forecasted to estimate what percentage of the passengers would feel ill over a two-hour period in the most exposed area. These tests were run on several models to determine the overall length and used as

Courtesy: Elliot Bay Design Group

An Alaska Class Ferry Rendering

a comparison to other ships in our fleet," Miller said.

The design led to a 280 foot vessel. The flare above waterline, as well as the bulbous bow shape, were carefully developed to minimize slamming forces in heavy seas. The passenger spaces were arranged to provide more space in the midship area of the vessel for passengers to gather during rough seas. With these results, EBDG designed the ferries' hull and bow shape to minimize spray generation and fore body slamming. Controllable pitch propellers will maximize maneuverability and efficiency.

Though many ferry systems have begun to use catamarans for speed and stability, Miller said, "We have two aluminum catamarans in our fleet. They are fast, but in rough weather they have limitations due to pounding when the waves hit the wet deck between the two hulls." For this reason and many others, and in the Lynn Canal, the ferry system has chosen a monohull.

Home is Where the Money Is

Recently retired Governor Sean Parnell redirected federal money away from ferries in order to allow the state build the new boats at home. Securing the contract was a coup for Vigor Alaska, but it didn't come easy. "All along, the state was very clear," said Vigor's Beck, adding, "We had to give them a competitive price. I would characterize it as a challenging negotiation with the state of Alaska. By challenging, I mean: this was not an easy contract for us to win. We really had to sharpen our pencil over and over and over again to get there."

Among other things, Vigor stretched out the construction timeline. Longer lead times will allow Vigor to charge lower labor costs. While Vigor operates the shipyard, it is actually owned by Alaska Industrial Development and Export Authority, a public corporation created in 1967 by the Alaska Legislature. Vigor acquired the right to operate the shipyard in 2012. "The Vigor Alaska shipyard, the people of Alaska, and its elected officials shared the same goal of keeping tax payer dollars in the state and supporting family-wage jobs," said Beck.

Joe Corvelli, Vigor Industrial's Sr. Vice President of Fabrication and Sales, said that Vigor's experience building ferries for the state of Washington helped it procure the Alaska Class ferry contract. "In the Seattle yard, we're now on our second class for building ferries for them. There's a wonderful sort of momentum around building ferries. Again, now both in Alaska and in Seattle, and we're seeing a national interest and we're becoming known as ferry builders across the nation."

The Ketchikan yard has a 130,000 square foot ship production facility designed from the ground up to build ships upwards of 500 feet in length. It includes an adjacent five-story production center to minimize material flow and maximize efficiency.

It rains 13 feet a year in Ketchikan. Beck said that the shipyard has been upgraded so "fortunately, much of the work is now indoors. We actually experience very few overall project delays due to weather. Again, by employing

The Russian tanker Renda transits through the Bering Sea with the Coast Guard Cutter Healy's assistance. The Renda was carrying 1.3 million gallons of petroleum products for delivery to Nome.

U.S. Coast Guard photo by Petty Officer 3rd Class [illegible]

resident Alaskans who are accustomed to working in extreme conditions, we are able to perform high quality ship maintenance and repair work in Ketchikan, Seward, and remote locations across Alaska. Our people have developed a whole host of very unique production processes to overcome working in wet, windy, dark, and remote locations. I would like to tell you what they are, but those are Vigor's competitive advantage for working in Alaska," Beck said.

The Ketchikan shipyard has already built to suit for the unique challenges of Southeast Alaska. Back when it was Alaska Ship and Drydock, the shipyard built the one-of-a-kind ice-capable M/V Susitna. The 194-foot Susitna was built for about $75 million as a prototype for possible use by the Navy. Beck emphasized that workers are multi-skilled and cross-trained so that they can work steadily all year. With the Alaska Class Ferry project, Vigor's local workforce will expand from 160 to about 250.

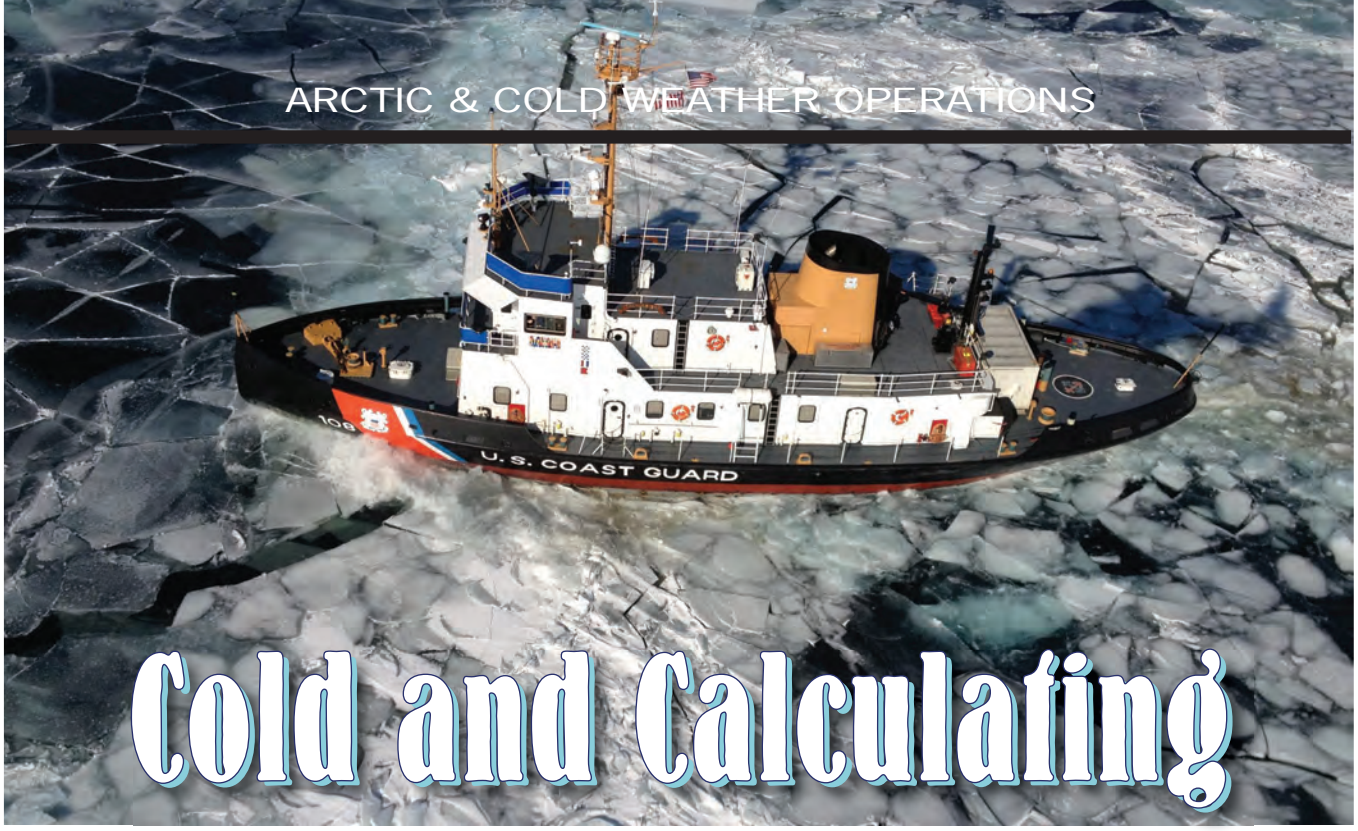
Alaska's Emerging Arctic Markets

Beck said that Vigor is looking ahead to more work in the near future. "It's the upcoming Arctic and what's known as OCS, oil and gas exploration. We see both of those as a very emerging market, repairing the ships that will be operating in those areas. Particularly not just the Arctic in terms of the shipping lanes that'll be used more and the upcoming Beaufort and Chukchi Seas as a new market."

The precise timing, Beck admits, remains to be seen. "They've got some final permitting to get in place, but it's looking like things will start in the summer of 2015. There's already vessels that have been in the waters there, some even in the Pacific Northwest that we have already begun working on."

Asked to name the projects, a Vigor representative would only say, "We have been working with several companies on RFP's, but we cannot disclose details of those projects as we have signed non-disclosure agreements." The expanding Northwest résumé of this growing, Pacific Coast-based builder will likely help build that already substantial portfolio and backlog even further. Not even the cold, icy weather of Alaska's Arctic environment can stop that.

***Sarah McCoy** is a journalist based in Seattle, WA. She has written articles for the Cleveland Plain Dealer and Business Ethics, among others. She enjoys living in the maritime neighborhood of Ballard on Puget Sound and sailing out of Shilshole Bay Marina."*



Cold and Calculating

Army research laboratory helps vessels deal with ice in domestic waterways.

By Edward Lundquist

Ice, snow and extremely low temperatures can put a big chill on maritime operations in ports, lakes, rivers and waterways. Thanks to the U.S. Army's Corps of Engineers Cold Regions Research and Engineering Laboratory (CRREL) in Hanover, New Hampshire, mariners have a better understanding regarding phenomena such as icing on superstructures, brash ice and propulsion systems, and controlling ice dams. And, while CRREL scientists are at home in the highest polar latitudes, it's also true that a lot of its work takes place in the "lower 48," where cold weather can put a crimp on waterborne commerce.

Icing

Ice is a natural material. But it has almost magical properties. It can appear and disappear; and can change its shape and physical characteristics. Superstructure icing is a significant problem for ships and other craft in the Great Lakes. Lakers can ice up in storms, and icing on structures and decks can render infrastructure unusable and vessels unsafe. "Superstructure sea spray icing and atmospheric icing from snow, freezing rain, freezing drizzle, rime, sleet, and frost reduce the safety of offshore platform and boat operations," says Charles C. Ryerson, Ph.D., a research physical scientist at CRREL.

Sea spray icing comes from lofting drops from the wind and wave tops—from cloud mist to large raindrops. Offshore supply vessels, fishing trawlers and other commercial fishing vessels, tugs and other work boats can be especially susceptible to icing because of their low freeboard, exposed deck equipment, and their seakeeping characteristics in heavy weather. "Smaller vessels interact more vigorously with the sea and thus create more spray and more icing," says Ryerson.

The problem exists on the ocean and on inland waters, but there are differences between salt and fresh water icing. For example, superstructure icing forms more rapidly in the Great Lakes because it is fresh water freezing at a higher temperature (0 deg C) than salt water (about -2 deg C). "Fresh water ice is much harder, denser and adheres to superstructures more strongly than saline ice," Ryerson says.

CRREL has studied various ways to prevent or remove ice buildup and provide more stable ships and safer work areas. "Heated decks, coatings that cause ice to adhere less strongly to surfaces, tarps and covers, pressure washers, chemicals to loosen ice, expulsive systems, and inflatable boots can work, but each technology must be tailored for specific areas of the ship tolerant of that technology," explains Ryerson, adding, "And, of course, avoidance."

Image above: The Coast Guard Cutter Thunder Bay breaks ice in the Straits of Mackinac between Lake Huron and Lake Michigan. (U.S. Coast Guard photo)

Most often, ice is removed the old fashioned way, using mallets, baseball bats and shovels. In addition to vessels, bridges, piers and other structures can be affected by ice and icing. Both fresh and salt water ports and harbors are at risk. Smaller boat harbors are vulnerable. Ice can lift piles completely out of harbor bottoms, and shove harbor structures off their foundations. New harbors should be designed and built to control ice's harmful effects.

CRREL Produces Tangible Benefits

The Hanover facility is a world-class laboratory to study the effects of low temperatures. That's useful when investigating the phenomena associated with icing. CRREL has produced reports for what used to be called the Mineral Management Service (now called the Bureau of Ocean Energy Management), focused on the effects of icing on oil and gas platforms. Ryerson created a decision matrix of what areas would be affected versus the type of ice and came up with a tool that would be useful for ice management in the most effective manner to maintain safety and operational efficiency.

The lab's hydrology and hydraulics (H&H) work includes significant research into the physics of river ice processes; developing models and simulation tools; how ice affects hydroelectric production; the impacts of ice forces on structures and vessels; the impact of ice on locks and improving ice jam flood control. Much of the work involves design and prevention, and much is aimed at mitigating the impact after the ice occurs. Ice jams can prevent traffic from passing, and can cause both high and low water issues and flooding if not dealt with promptly and properly.

Locks, Jams and Dams

The Coast Guard is responsible for icebreaking to keep inland lakes and waterways open to vital commercial vessel traffic, such as coal and taconite shipments on the Great Lakes. Locks are closed after the season ends and no further ships are scheduled for the season, but ice can form that impede navigation (before the locks close), requiring ice breaking to open and maintain channels.

Leonard Zabilansky, a research civil engineer, says CRREL's physical digital and physical models help vessels navigate the Great Lakes and river. "We're improving the winter performance of locks and dams, and managing the ice accretion that can narrow lock openings. Sometimes we have ships that push the ice into the lock ahead of it, and we have to 'ice' the lock, to open the lock and clear the ice before we bring the ship through. We're looking at bubbler screens, lock wall coatings and heated gates to keep the locks operating in winter."

CRREL's ice jam database catalogs ice jam information that can be used to predict and prevent ice flooding. "Ice jams accumulate in the same general areas, and we can build ice control structures to that store ice upstream of problematic areas that minimizes flooding," Zabiliansky says, adding, "We basically take ice out of the river and put it in storage."

If an ice jam is allowed to accumulate and freeze it will block the river and impeded spring discharge and it can block traffic on navigable rivers. Ice moving downstream can create ice dams that clog channels, clogging waterways while backing up the water and causing flooding. Zabiliansky explains, "The ice creates a ridge. The velocity of the river delivers ice into the ridge, but there's no velocity to deliver the ice out."

In the lower Great lakes, ice breaking can be required to break ice dams which can cause flooding behind the blocked waterway. In some cases, the ice dams are beneficial because they can hold back ice flow. It gets even busier during the spring breakout. Ice can be five feet deep, yet there can be open water nearby in a channel. When the ice begins to break up, very large "plates" of ice can break free and start moving, creating a dangerous situation.

Coast Guard ice breaking tugs work open channels on rivers like the Kennebec in Maine, where Bath Iron Works builds ships, and the Penobscot, which leads up to Bangor, as well as keeping a channel open on the Hudson River to allow heating oil to be delivered the Albany, NY area.

The Coast Guard Cutter Biscayne Bay provides a direct assist to the motor vessel Presque Isle, which was stuck in ice just below Winter's Point Turn on the St. Mary's River, just south of Neebish Island on December 13, 2013. U.S. Coast Guard photo by Lt. j.g. Paul Junghans.

Chuck Ryerson and Len Zabilansky at the lab. They are holding a 3-D printed test article for understanding the effects of frazil ice in a water jet propulsion system.

Test Facilities

As the Coast Guard plans for an increased Arctic presence, it is looking at vessels that are not designed to break ice but may be capable of operating in the presence of brash ice. Tugs, work boats and small craft in fresh and salt water environments in any maritime area with extreme cold temperatures may find themselves slogging through slush. The Arctic and extreme latitudes presents unique challenges to USCG operations with cold temperatures, a range of ice conditions, and a lack of infrastructure to support small-craft operations. To best understand how brash ice affects boat propulsion, CRREL engineers and scientists have studied the range of operating conditions for current craft, how to modify or improve current craft, and how the next generation of craft may be more suited to these cold operations.

Zabilansky says the CRREL's three ice engineering facilities—test basin, flume and research area—permit a wide range of environments to be created or simulated to test systems in different conditions and validate computer models to improve simulations. "We use the test basin for testing ice forces on structures, mobility, ship dynamics, and the interaction of a structure in floating ice. The flume is a rectangular river that is more for sediment transport and frazil ice control, and the research area is a large refrigerated space for all kinds of icing studies. We can make and blow all kinds of snow and freezing rain," Zabilansky says.

"We try to replicate the freezing process and the physics of the removal process. If you don't test for the right things under the right conditions, the right type of ice forming with the proper adhesion properties on the substrate, and then test it in the manner that it's going to be removed, such as with hitting it with a baseball bat or whatever, shaking a tarp, or whatever – then you're wasting your time. Because you're testing for something that may not ever happen," Zabilansky says.

CRREL has studies brash ice and how it affects powerplant coolant intakes and propulsion systems. Beyond this, CRREL has conducted much of research with frazil ice freezing up the "trash racks" that strain debris from entering the hydroelectric turbines in dams. The turbines have a grating system so that large objects don't get into the turbines that can accumulate frazzle ice. Super-cooled water forms ice crystals, but the water is moving so quickly that it can't congeal into large pieces of ice. When it accumulates on the trash racks and grows, it eventually clogs and reduces and stops the flow.

CRREL research has examined the range of speed and brash ice conditions (i.e., thickness) in which a conventional, propeller-driven small craft can operate. The lab also examined outboard propeller shrouds and waterjet intake systems to determine how best to protect the propellers from ice impacts.

Zabilansky says propeller-to-ice interaction is an important factor to consider for small craft operations in ice-covered waters. "The impact of ice on propellers threatens the integrity of the propulsion system and decreases efficiency because more torque is needed to produce the required thrust."

It's Cold Up There – and Down Here, too

When mariners and operators think of cold weather operations or ice navigation, they typically conjure up images of the Arctic in the winter months. But, that sort of thing can and does happen in the 'lower 48' as well. And, that's why the U.S. Army's Corps of Engineers Cold Regions Research and Engineering Laboratory is so important. That's not going to change any time soon. Thanks to CRREL, however, the way you navigate through cold weather, ice and freezing precipitation just might.

Captain Edward Lundquist, USN (Ret.) *is a principal science writer with MCR Federal and frequent contributor to naval, maritime and defense publications. He lives in Springfield, Virginia.*

Bridging the Competency Gap

SUNY Maritime's Cutting Edge Tug & Barge Simulator fills an enormous training hole in the tri-state area.

By Joseph Keefe

When Morton S. Bouchard, III, maritime and political dignitaries officially opened the Bouchard Transportation Co., Inc. Tug & Barge Simulation Center on the campus of the State University of New York (SUNY) Maritime College last October, it opened a new era in maritime transportation for SUNY cadets and professional mariners in the greater New York area. That's because the only other available simulator in the area had long since been moved to the Gulf Coast. With the snip of a ribbon by an oversized pair of ceremonial scissors, however, that situation was immediately resolved.

Captain Robert Glas, Vice President of Regulatory Affairs at Bouchard Transportation made the traditional ribbon cut, as Morton S. Bouchard, III, his two sons, US Congressman Joseph Crowley, RADM Michael Alfultis, USMS, Ph.D., President of SUNY Maritime and a host of industry executives and dignitaries looked on. The simulation center was funded by a gift from Bouchard Transportation, the largest independently owned ocean-going petroleum barge company in the United States.

SUNY Maritime College is the oldest and largest of the seven maritime academies in the nation. Founded in 1874, SUNY Maritime is a four-year college which offers a solid academic program coupled with a structured cadet life in the regiment for both men and women, or a civilian program. Maritime offers undergraduate and graduate degrees with the option of either US Coast Guard license or intern programs, summer training cruises abroad, ROTC options, and 15 varsity athletic teams. This year the College celebrates its 140th anniversary year, but the training now available will be anything but 'old school' for future users of the academy's growing simulation training assets.

Morton S. Bouchard, III perhaps put it best when he said, "The contribution is to, first and foremost educate the cadets that go to school here (SUNY Maritime), to give them a good foundation when they graduate to come and be employed in an industry that is booming and lacking qualified employees right now." He added, "We partnered with SUNY Maritime to build a first-class simulator on campus that would not only benefit cadets, but would benefit our employees. We're going to do our training here with our captains and mates." Without a doubt, they'll do so on some of the most modern equipment available.

Simulation Center Opening

Kongsberg State-of-the-art Equipment

The Bouchard Transportation Company, Inc. Tug and Barge Simulation Center is the latest in Kongsberg Polaris Bridge simulation technology, utilizing an industry-inspired bridge console arrangement, with the latest hydrodynamic ship models and exercise areas. The Center offers full mission bridge simulators, instruction stations, and a de-briefing area, where instructors can discuss topics including navigation, seamanship and bridge resource management skills required in the operation of tugs and barges.

According to Eric Johannson, SUNY Maritime's Vice Chairman, Professional Education & Training Department, Kongsberg simulation features high end hydrodynamics, as well as the ability to steer the tug into the tug notch and connect with either wire push gear or PINS (ATB). He adds, "This is a very high end feature. Each connection method has dead on degrees of freedom and handling characteristics." At SUNY, attention will be given to the complexities of all operating tugs and barges, ranging in size from 3,000 to 12,000 horsepower, which carry all types of commodities. The Center creates new opportunities and better prepares future and current professionals for successful careers in the maritime industry.

Target Markets

While the simulation center was funded by Bouchard and features replica simulation models of the Bouchard fleet and will serve to train and maintain Bouchard seamen, the center is first a critical resource for SUNY Maritime cadets. It is also open for business industry companies and professionals. SUNY Maritime continues to invest in the latest simulation technologies for its students and corporate clients. Not content to sit on their hands, SUNY will augment the new center in early 2015 with a new Engine room Simulation Center and a new Liquid Cargo Handling System Simulator.

Morton Bouchard III sums up the effort nicely by insisting, "Training and education is 200% more today. You cannot be profitable in this industry unless you are safe," he said, adding "You cannot be safe unless you train, but that's not only in the simulator, it's every day on these vessels. The captains in our company are held to the highest standards to be safe, and that is the only way that you can be profitable."

For SUNY Maritime, the first priority for simulator training focuses on Deck Cadets in the Towing Program seeking Mate 1,600 Ton license for STCW Bridge Resource Management and boat handling skills. Externally, the simulator

President and CEO of Bouchard Transportation, Morton S. Bouchard (second from left) joins (l. to r.) Morton S. Bouchard IV, Congressman Joseph Crowley (NY-14), SUNY Maritime President, Rear Adm. Michael A. Alfultis and Brendan Bouchard at the ribbon-cutting for the Bouchard Transportation Co., Inc. Tug & Barge Simulation Center located in historic Fort Schuyler on the SUNY Maritime campus.

will be marketed to Towing Companies for STCW Bridge Resource Management, Ratings Forming Part of a Navigation Watch, CAPT/MATE Evaluations, MATE Training Programs, and more. The Kongsberg Tug Barge Simulator joins a multitude of state of the art modern training simulation offerings as follows: Tank Barge, ECDIS, GMDSS, Navigation, RADAR, and Engine Simulation. SUNY's Johansson adds, "Maritime College is a one-stop-shop for all Tug and Barge industry training needs and we welcome the opportunity to train mariners in both scheduled classes and industry specific training modes."

It is clear that Johansson means what he says. Appropriately enough, the 15th Annual Towing Industry Forum, organized for the past 15 years by Captain Eric Johansson, served as the venue for the opening of the new Simulation Center at the New Academic Building on the SUNY Maritime Campus. The annual Towing Industry Forum is an intimate event drawing just over 100 industry executives, including many of the country's most prominent workboat companies and U.S. Coast Guard personnel. In other words, the perfect backdrop for what's to come next. Training on this state-of-the-art Center ensures that students enrolled at the College, and professional mariners alike, are well-educated and trained in a controlled environment.

Deep Ties + Effective Partnerships = unlimited potential

Bouchard Transportation Co., Inc. has a wonderful history with SUNY Maritime College. Each year it awards scholarships to several deserving students. The company also employs many Maritime alumni following their graduation. The official opening of the Bouchard Transporta-

"The contribution is to, first and foremost educate the cadets that go to school here (SUNY Maritime), to give them a good foundation when they graduate to come and be employed in an industry that is booming and lacking qualified employees right now. We partnered with SUNY Maritime to build a first-class simulator on campus that would not only benefit cadets, but would benefit our employees. We're going to do our training here with our captains and mates."

– Morton S. Bouchard, III

"Maritime College is a one-stop-shop for all Tug and Barge industry training needs and we welcome the opportunity to train mariners in both scheduled classes and industry specific training modes."

– Eric Johannson, SUNY Maritime's Vice Chairman, Professional Education & Training Department

tion Co., Inc. Tug & Barge Simulation Center is just the latest example of its generosity bestowed upon the SUNY Maritime campus. For example, and in 2011, Mr. Bouchard established the Morton S. Bouchard Jr. Scholarship Program at SUNY Maritime in memory of his father.

Reflecting on the relationship, Bouchard III offered, "I am very proud of this investment, and yes, Bouchard wheelhouse employees will do their required training at the BOUCHARD TUG & BARGE SIMULATION CENTER. I believe anytime a company can make an investment that will educate students and employees, and at the same time make operations safer, it is an investment worth making. It will pay dividends in the future for all involved."

Eric Johansson took it a step further, saying, "The Bouchard investment with Maritime College is a testament to Bouchard's generosity true commitment to safety and Maritime Colleges Commitment to the Towing Industry. The Kongsberg Tug Barge Simulator is specifically built to server the towing industry benefiting mariners from Cadet to Captain. We are very grateful to Mr. Bouchard for his unconditional support and this Simulator will serve the entire region and beyond for training needs."

In return, SUNY Maritime and its growing, high-tech simulation center provide the same support to maritime professionals everywhere. Eric Johansson explains, "In terms of research, our first concern will be resource management by area of operation – Ocean, Near Coastal, Inland, and Rivers, Tugboat maneuvers, emergency management, and mariner development/assessments. Additionally, we hope to utilize simulation for infrastructure siting studies, new terminal operations, and special circumstance marine evolutions."

That sounds like a more than fair return on investment for Morton Bouchard III, but he would be the first to tell you that this is about more than just money. Dividends come in many shapes in forms. In this case, it's the waterfront – brown water mariners in particular – who reap the rewards. The Bouchards and SUNY Maritime wouldn't have it any other way.

(Credit: all images courtesy of Patterson Manufacturing)

'Securing' the Inland Markets with *Innovative Standardization*

Patterson Manufacturing follows its substantial success in the barge winch markets with an equally impressive boat-to-barge coupling system.

By Joseph Keefe

In 2008, Pittsburgh-based Patterson Manufacturing Company developed the YoYo Barge Winch, a revolutionary design that reflected a total re-thinking of the way winches do their job. Fast forward to 2015 and the YoYo has penetrated North American inland markets in a big way, in just a few years. Even as the "YoYo" winch has arguably become the inland standard in barge winches – especially considering the 10,000th YoYo unit sale was recorded last year – Patterson has plans to engineer the same sort of revolution in the niche boat-to-barge coupling markets.

On the heels of the now ubiquitous and highly successful YoYo winch, Patterson Manufacturing has now introduced an equally innovative Self-Aligning Roller Chock (SARC) for the inland barge industry.

According to Patterson itself, their patent-pending Self-Aligning Roller Chocks (S.A.R.C.) are the next evolution in boat to barge coupling. Effectively utilized for both face

wires and wing wires, the Patterson line of S.A.R.C's include all of the features a quality inland operator expects: optimized sheave materials for both synthetic rope and steel cable, rounded edges to minimize wear points, corrosion resistant construction utilizing stainless steel and protective coatings for extended life, and extreme durability.

Addressing the never-ending need for innovation and increased safety within the inland marine industry, Patterson CEO David Grapes told ***MarineNews*** in December, "At Patterson we are constantly trying to help simplify our customers processes through increased efficiency and safety. In regards to the Self Aligning Roller Chocks, we were able to recognize, through working directly in the field with customers, that current solutions were not meeting their needs. With the transition to synthetic rope across the industry and potential issues created by this, we dove head first into the details of how the synthetic ropes are utilized on vessels, and were able to engineer innovative solutions to these issues that help solve both safety and functionality problems inherent with previous products and methods, while at the same time extend the life of the customers high cost consumables."

Patterson's Self Adjusting Roller Chocks & Roller Buttons

Until now, chocks could only align vertically. This helped extend the life of the rope, but allowed for dangerous side loading that could lead to permanent yielding of the product causing it to become non-functional, or worse, cause catastrophic failure. With the Patterson Horizontal Alignment Mounting System, the S.A.R.C. becomes the first truly self aligning design. The entire unit always orients itself to the center of the line pull, both vertically and horizontally, regardless of the angle. In short, these units are the ideal solution for fleeting boats that face many barges that have different heights, deck fitting configurations, and widths (one wide, two wide, four wide, etc.).

The S.A.R.C. is designed to functionally withstand the maximum strength rating of new ropes properly sized for the unit. What this means is that the rope is the weak point in the system. Its superior alignment capabilities allow for this, while minimizing the need for overdesign. This eliminates product failures common with previously available solutions. What it ensures is that you have the safest possible redirect point for your face rigging between your winches and barges, regardless of the line load, or the redirect angle.

The protection of rope is critical; not only in terms of ensuring safe operating conditions, but also to minimize the replacement cost of this expensive consumable. Addressing this reality, Patterson's Spring Loaded Vertical Assist feature uses a high strength torsion spring mechanism, effectively eliminating the majority of the weight of the sheave housing, allowing your chock to begin aligning with little to no line tension, even when using ultra light synthetic rope. This eliminates abrasion by keeping the rope where it belongs: in the sheave, keeping your crews safer, and saving money. Best of all, perhaps, is the fact that S.A.R.C. units can be used in conjunction with other OEM buttons and/or deck fittings.

Similarly, Patterson Roller Buttons are proven to 50 tons and different from any other product on the market today. The robust base won't yield under pressure, and the high-strength plastic construction has been extensively tested at high-cycle rates that mimic real life. Broken roller buttons lead to downtime, hotwork, decreased productivity — and lower profits.

Safety and Efficiencies: achieved through standardization

For decades, barge owners and operators had no reason to think twice about their rigging. There were only a few choices when it came to winches, and there were ratchets as well. In response, Patterson's YoYo winch answered many if not all of those critical questions. Today, the newly designed S.A.R.C. and Patterson Roller Buttons are set to solve yet another quandary. For the inland waterways shipping industry, it means even more productivity and profitability, achieved through standardized fittings. Ultimately, efficiency increases are achieved through the need for

Self-Aligning Roller Chock Performance Data

MODEL	SARC-65	SARC-40	SARC-20
Rated Load (*)	65 tons	40 tons	30 tons
Working Line Load	65,000 pounds	40,000 pounds	30,000 pounds
Rope Diameter	1-1/8"	1"	0.75"

(*) (Rated Load) – The total amount of continuous pull (load) allowed on the unit at any time.

"We are optimistic that this product will see wide scale adoption in the industry. Once a customer has had a chance to experience the benefits of this new design, we think it will be the obvious choice for all of their future new build and retrofit applications."

– David Grapes, President, Patterson Manufacturing.

minimal maintenance to the unit itself, eliminating cost in both parts and labor, and most importantly, through maximum protection to the synthetic face lines, which are extremely high cost consumables.

While S.A.R.C. and Patterson Roller Buttons are initially more expensive than the competitive product that they are replacing, Patterson's David Grapes says that the return on investment will come from improved life length for the expensive synthetic face lines. Beyond this, the equipment also eliminates the labor intensive practice of positioning and moving chafing gear on the boats.

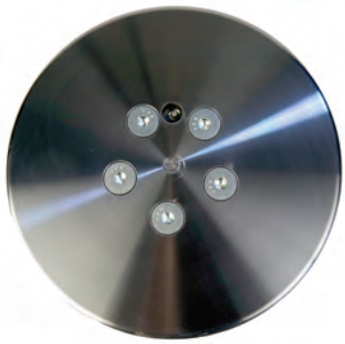
While targeted for the newbuild markets, the units are also practical for retrofit during any visit to the shipyard/repair facility as long as the shipyard is already planning to gas-free the vessel. According to Patterson, the removal of the old unit and subsequent welding of the Patterson pin into place should be a relatively short process. And, that's the last time the customer will ever have the need for hot-work when it comes to Patterson's S.A.R.C.

Today, Patterson reports that it is already in full production with its S.A.R.C. and Roller Button equipment and that units are in use by at least two major inland operators, on the Mississippi/Ohio river corridor and in the Pacific Northwest, in and around the Seattle area. Clearly, Patterson hopes that S.A.R.C. will fast become the new standard for vessel facing deck fittings, in the same manner that the YoYo gained widespread industry acceptance. The newest tool for all pushboat applications, including line-haul, short-haul, and fleeting vessels is now here.

David Grapes summed up the situation for ***MarineNews*** readers nicely, saying, "We are optimistic that this product will see wide scale adoption in the industry. Once a customer has had a chance to experience the benefits of this new design, we think it will be the obvious choice for all of their future new build and retrofit applications." Given his success with the now universally accepted YoYo winch, there's little reason to doubt him and every reason to hope he's right.

SARC Features & Benefits

Automatically find the perfect fleeting angle.	Self-aligning is both horizontal and vertical planes.
Spring assisted design Minimize Line chafing.	Aluminum sheave ideal for synthetic face lines, wire ropes.
Unit can be repaired/replaced w/no hot work.	Carbon steel sheave ideal for boats employing wire rope only.
Standardized Fleeting Configurations	Swivel ensures load always balanced across vertical pivot shaft.



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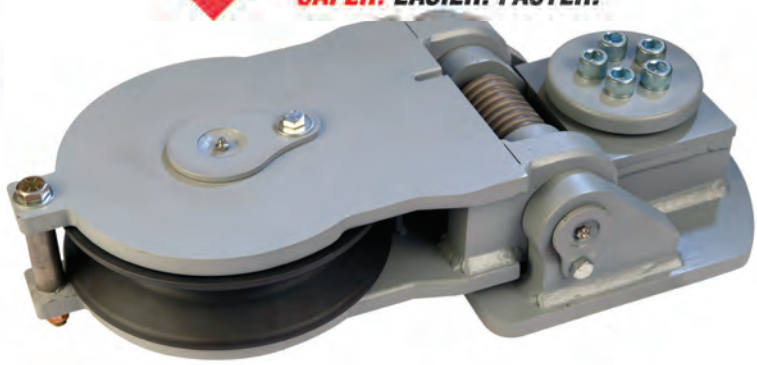
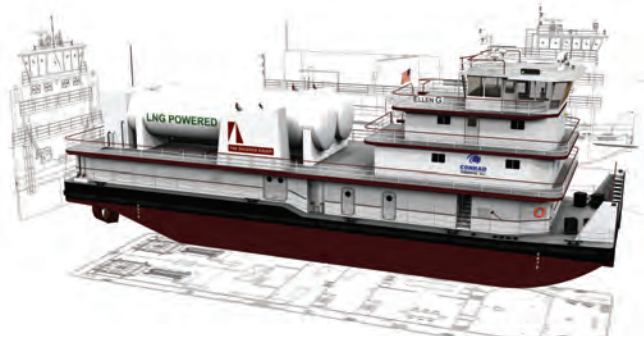


Bollinger Delivers 11th FRC to Coast Guard

Bollinger Shipyards, Inc. has delivered the WILLIAM TRUMP to the United States Coast Guard. The 154 foot patrol craft is the eleventh vessel in the Coast Guard's Sentinel-class FRC program. To build the FRC, Bollinger used a proven, in-service parent craft design based on the Damen Stan Patrol Boat 4708. It has a flank speed of 28 knots, state of the art command, control, communications and computer technology, and a stern launch system for the vessels 26 foot cutter boat. The FRC has been described as an operational "game changer," by senior Coast Guard officials. The Coast Guard took delivery on November 25th, 2014 in Key West, Florida and is scheduled to commission the vessel this month in Key West, Florida.

Shearer Group, Conrad Shipyard
Receive ABS Approval in Principle for LNG Towboat

Conrad Shipyard, L.L.C. and The Shearer Group, Inc. (TSGI) have worked together to develop the design of a Liquefied Natural Gas (LNG) powered towboat utilizing a proven design from TSGI. The team has been awarded an "Approval in Principle" (AIP) by the American Bureau of Shipping (ABS) for the design of the 4,200 horsepower LNG towboat. The towboat is based on TSGI's proven azimuth drive (z-drive) towboat design that debuted in 2008. To date, eight of these towboats have been built for Southern Towing Company. The original Southern Towing boats helped pioneer the use of z-drives for brown water operations and have shown significant fuel savings relative to conventional towboats. The LNG powered towboat design capitalizes on Wärtsilä's proven dual fuel technology, but is not wedded to it. This technology is the most widely accepted dual fuel technology currently in use in the domestic U.S. market. While Wärtsilä's existing dual fuel engines are medium speed diesels, it is anticipated that future engine developments will result in lighter and smaller high



speed units. The design is flexible enough to allow for the use of either engine option as determined by the operator. The Wärtsilä system specified is basically a smaller version of the system currently installed on the Harvey Gulf Multi Purpose Supply Vessels. The TSGI design marries the proven benefits of utilizing z-drives on a towboat. According to TSGI, these efficiencies compound, providing an owner with operational cost savings that can exceed 35% of the cost of operating a conventional towboat.

EBDG-designed CAPE HORN Delivered into Service

Elliott Bay Design Group (EBDG), a leading naval architecture and marine engineering firm with offices in Seattle and Ketchikan, recently announced the delivery into service of the CAPE HORN, a Specialty Oilfield Vessel that it designed. EBDG partnered with Gulf of Mexico Operator SeaMar, LLC and Gulf Island Marine Fabricators on the class design and production engineering for the ship. The design of the CAPE HORN was developed from concept to production in EBDG's Gulf Coast office and features an innovative tank farm unique to Specialty Design Oilfield Vessels. EBDG provided full design services including structural, mechanical, piping and outfitting design, and served as the primary point of contact for all regulatory body requests for information.


Naugle


Hoppes


Socci


Higgins


Lerma

HMS Global Maritime welcomed **Allen Naugle** as the Director of Safety, Quality and Environment. Allen brings 28 years of engineering and leadership experience to the team, including 21 years serving as a United States Air Force Officer. Prior to his position with HMS Global Maritime, Allen was Director of Operations for TEAM Integrated Engineering, Inc. Allen retired as a Lt. Col. from the U.S. Air Force in 2007 received a Bachelor of Science, Civil Engineering from Louisiana State University and a Master of Engineering, Environmental Engineering Sciences from the University of Florida.

Dave Hoppes, Matson's senior vice president, ocean services, will retire March 31, 2015, the company announced. **John Lauer**, vice president at Matson Navigation Company, Inc., will succeed Hoppes as senior vice president, ocean services. Hoppes has been responsible for sales, marketing, customer service, pricing and government services for the ocean transportation division of Matson. He has had an integral role in developing and managing key customer relationships in all of Matson's markets: Hawaii, Guam, China and the South Pacific. Hoppes has a bachelor's degree in psychology and a master's in business administration from the University of California, Los Angeles.

Ship classification group RINA has acquired a majority stake in Montreal-based marine survey company Hayes Stuart. The move gives RINA Services a platform for further expansion into the growing market in Canada. **Stefano Socci**, General Manager Americas, RINA Services, said in December, "Hayes Stuart is a well-established Canadian marine survey company with expertise that complements ours. We see the marine market growing in Canada and Hayes Stuart together with RINA will be well placed to expand with it." Hayes Stuart has offices in Montreal, Toronto, Quebec City and Halifax and employs fifteen full-time marine experts. It provides a range of commercial marine services including hull and machinery surveys, condition surveys, bunker and cargo surveys, loss prevention surveys.

Ice Floe LLC dba Nichols Brothers Boat Builders announced the appointment of **Gavin Higgins** as Chief Executive Officer. Mr. Higgins brings more than 30 years of industry experience to his new role having previously served as COO of Nichols Brothers Boatbuilders (NBBB). Prior to NBBB, Gavin was with Irving Shipbuilding, Inc. as General Manager, Shelburne Ship Repair. Gavin, a Naval Architect, graduated from Southampton College in Southampton, England in 1983, awarded the Chartered Engineers status in 1990 and became a Fellow of the Royal Institute of Naval Architects in 2000. Additionally, in 2007 Gavin completed an M.B.A. from the University of Connecticut. Gavin has been a member of the Society of Naval Architects and Marine Engineers (SNAME) in the U.S. since 1983. The American Bureau of Shipping also named Gavin to their committee on small vessels.

InterAct has appointed **Val Lerma**, P.E., as engineering manager. Lerma has more than 30 years of experience working with major and independent oil and gas operators, both on and offshore. She has experience in drilling, reservoir and production engineering as well as management roles and will enhance InterAct's engineering capabilities. Lerma is on the Curriculum Advisory Board for the University of North Dakota's petroleum engineering department, is a member of the local American Petroleum Institute (API) Board and is a licensed professional petroleum engineer in the State of California.

Crowley Maritime Corporation's Puerto Rico liner services group announced that **Ken Orben** is being promoted to general manager of terminal operations in Jacksonville, Fla., and **Karen Dempsey** is being promoted to director of port operations in Pennsauken, N.J. Orben, a 27-year Crowley veteran will be responsible for all aspects of land operations including line and staff functions, ocean terminal and related container yard and container freight station operations, stevedoring, yard, car, and

Orben

Dempsey

Crowley USMMA

gate operations, safety, security and the transition to new technology. Dempsey, who has been with Crowley for 32 years, has served in managerial roles in port documentation and traffic until being promoted to manager of port administration in 2005.

Crowley Maritime Corporation awarded three Thomas B. Crowley Sr. Memorial scholarships to United States Merchant Marine Academy (USMMA) cadets at Containerization and Intermodal Institute's Connie Awards luncheon in Newark, N.J. Crowley's Jenny Terpenning, marine recruiter, presented the scholarships to the recipients at the event. Recipient **Michael Francis** is a first class midshipman studying marine systems engineering with a concentration in nuclear engineering at the academy. Midshipman **Thomas Kloepfer** from Amityville, N.Y., is studying marine engineering systems with a minor in electrical engineering. **Joshua Asaro**, a recipient from Florissant, Mo., is completing his final year of studies. During his time at the academy, he filled billets as team leader, squad leader and petty officer before his appointment to regimental training vessel chief mate and later, regimental protocol officer. Since 1984, Crowley has provided more than $3 million dollars in scholarship funding for more than 1,000 students studying at maritime academies and other select institutions in the U.S., Puerto Rico and Central America.

Nagle

Toohey

St. Lawrence Seaway

AAPA's Nagle Applauds FY'15 Ports Support

In reviewing the proposed $1.01 trillion Consolidated and Further Continuing Appropriations Act of 2015 hammered out in Congress last month, the American Association of Port Authorities (AAPA) noted significant increases for the U.S. Army Corps of Engineers' Harbor Maintenance Tax (HMT) operations and maintenance (O&M) activities and construction budgets, and for the Environmental Protection Agency's Diesel Emissions Reduction Act (DERA) grants program. While the Department of Transportation's TIGER (Transportation Infrastructure Generating Economic Recovery) grants program will drop to $500 million compared with fiscal 2014's $600 million mark, funding is still significantly higher than the House-proposed mark of $100 million. With regard to the Corps' HMT O&M budget, AAPA recognizes WRRDA's June 2014 enactment came in the midst of the ongoing appropriations process, "but we're pleased that Congress plans to significantly increase funding above the $915 million requested by the Administration," said AAPA President and CEO **Kurt Nagle**.

ABS Releases Guide for LNG Fuel Ready Vessels

ABS has published the ABS Guide for LNG Fuel Ready Vessels to support members and clients in preparing newbuildings for future conversion to gas propulsion. The Guide formalizes the process for clients who wish to plan for conversion to LNG fuel at a future date by providing a detailed review and approval and an associated class notation. The Guide includes a basic level of Concept Design Approval, with a design review for approval in principle (AIP), and two optional levels for general design approval and installed equipment, which constitute a complete review and survey of the system to be installed on the ship. The first optional level is a General Design Review that allows an owner to approach a shipyard with a reviewed design package for the gas-fueled system at the time of conversion.

The second optional level is Detail Design Approval and Installation which constitutes a complete design review and survey of a system that will be installed on the LNG ready ship in accordance with the ABS Guide for Propulsion and Auxiliary Systems for Gas Fueled Ships.

WCI Praises Increase to Barge Diesel Fuel User Fee

Waterways Council, Inc. (WCI) and its members and stakeholders last month applauded the Senate's passage, by a vote of 76 to16, of a 9-cent increase to the barge diesel fuel user fee. The user fee – currently 20-cents-per-gallon of fuel used while operating on the inland system –will be increased to 29-cents-per-gallon, effective April 1, 2015. Deposited into the Inland Waterways Trust Fund (IWTF), this amount is matched by General Treasury Funds and is dedicated to new construction and major rehabilitation of the inland system. The 9-cent-increase will add around $80 million annually to the IWTF. It is supported by those who pay it – just 300 commercial operators – while the entire nation benefits, from hydropower, municipal water supply, recreational boating and fishing, flood control, national security, and waterfront property development. "Waterways Council is grateful for the House and Senate passage of the increase to the barge industry's fuel user fee. Additional money flowing to priority navigation projects could result in earlier completion and delivery of more than $82 billion in related economic activity for the nation over 20 years," said **Michael J. Toohey**, President/CEO of Waterways Council, Inc.

DNV GL Prepares for Low Sulphur Operation

In the new publication, *"Sulphur Limits 2015 — Guidelines to Ensure Compliance,"* DNV GL describes

Bouchard Transportation Co., Inc.

Bollinger Drydock

potential difficulties associated with switching from heavy fuel oil to marine gas oil and discusses which technologies can best help vessels fulfill new emissions requirements. DNV GL has also developed a ship-specific Fuel Change-Over Calculator (FCO) to help vessel owners and operators determine the ideal parameters for their vessel's fuel change-over. The software uses a numerical simulation which is more accurate than previous linear models and delivers insight into the optimized lead time for the change-over process, its costs and the maximum hourly consumption to meet constraints.

Port of Amsterdam Rewards Green Award-Certified Barges

The Port of Amsterdam will be joining the Green Award program for inland barges on 1 January 2015, making it the first port to reward vessels based on their Green Award level. The level a vessel has attained – Bronze, Silver or Gold – will determine the discount on the Inland Harbor Dues its operator pays for Amsterdam harbor waters. The Port has been an incentive provider for sea-faring vessels carrying the Green Award certificate for many years now, and starting in 2015 the Port will also be giving discounts to Green Award-certified barges. The Green Award program was created to promote safer and cleaner inland navigation and advocates an integrated approach for European inland waterways.

Remarkable Year of Grain, Steel Boosts Seaway Season

As the season quickly approaches its end, St. Lawrence Seaway cargo shipments were expected to finish ahead of 2013 after a remarkable year of grain exports and steel imports. According to the St. Lawrence Seaway, total cargo shipments reached 34.6 million metric tons for the period from March 25 to November 30 — up 5 percent over the same period last year. Seaway management expected the season will close ahead of last year by a similar margin. Grain shipments (Canadian and U.S.) tallied 10.1 million metric tons, up 44 percent over 2013. The vast majority of that uplift has come from record Canadian crops, but U.S. grain to date is also up by 30 percent. Grain shipments through the Port of Toledo have been at their highest level in four years. Renewed construction activity and automotive manufacturing lifted steel shipments by 80 percent to 2.2 million metric tons this season with ports including Detroit, Toledo, Milwaukee and Cleveland all benefitting from the increase.

Bouchard Transportation Wins Environmental Achievement Awards

Forty-three Bouchard Transportation Co., Inc. vessels have been honored by The Chamber of Shipping America (CSA) with Certificates of Environmental Achievement. The awards, given out in mid-November, recognize vessels that have operated for two full years or more without an environmental incident. In total, the 43 vessels achieved the equivalent of 601 years without incident. Twenty-four of the honored vessels have gone without environmental incident for 10 or more years.

Bollinger Adds 12,000 Tons of Dry Dock Lifting Power

Bollinger has augmented its net lifting power by another 12,000 tons with the additions of two new dry-docks. The docks will position Bollinger for its diverse markets and further enhance its capacity at two locations. Terms and conditions of the purchase were not made available. One of the docks, a 10,500 ton dry-dock will be located at the Bollinger Port Fourchon facility, and measures 320-ft. x 100-ft. between the wing walls. Bollinger now has three commercial dry-docks located in Fourchon with a combined lifting capacity of over 22,000 tons. The second dock, a 1,500 ton dry-dock will be located at the Bollinger Quick

Koichi Fujiwara, Class NK & Brian Holden, USMRC

Busch

Repair (BQR) facility in Harvey, Louisiana, and measures 160-ft x 60-ft between the wing walls. BQR is located off the Mississippi River and provides service to both the inland and offshore marine transportation sector.

USMRC, ClassNK Sign MoU on LNG, Offshore, and Cybersecurity

The United States Maritime Resource Center (USMRC) in Middletown, Rhode Island and ClassNK, a ship classification society based in Tokyo, Japan last month signed a Memorandum of Understanding (MOU) laying out a framework for future technical cooperation to carry out joint research and development activities for the maritime industry. This will mark the first time a major ship classification society has teamed with a prominent marine operations simulation center engaged in specialized training and research in North America. "Our goal is to support the safety of ships from not only from the technological point of view, but also the human factor perspective." said ClassNK Executive Vice President **Koichi Fujiwara**. USMRC President **Brian Holden** added, "ClassNK shares our goal of engaging in activities that focus on the safety of mariners; ships and their cargoes; and protection of the marine environment."

Crowley Wins T-AGOS/T-AGM MSC Contract

Crowley Maritime Corp.'s global ship management group has been has been awarded the contract for the operation and maintenance of the T-AGOS/T-AGM fleet for the Military Sealift Command. This fleet of seven ships supports the Navy's Surveillance Towed Array Sensor Systems (SURTASS) operations; the U.S. Air Force's dual-band, phased array and parabolic dish radars; and other government research missions. The contract covers the operation and maintenance of five T-AGOS and up to two T-AGM ocean surveillance ships. Crowley will provide personnel; operational and technical support (ashore and afloat); equipment; tools; provisions, and supplies to operate this fleet of seven United States Naval Ships (USNS). "The issuance of this contract is well-matched with Crowley's capabilities, not only in the company's ability to manage specialized vessels, but also in providing the U.S. Government with a variety of maritime services," said **Todd Busch**, senior vice president and general manager, technical services.

Markey Machinery Winches

Founded in 1907, Markey Machinery is a designer and manufacturer of high quality custom deck machinery for workboat, scientific, and dockside applications. Built for the long haul every time, "Hell-for-Stout" is a term often heard when describing Markey equipment. Markey's experienced engineering and manufacturing staff is up to the toughest challenges and can readily assist with any custom projects and special applications.

www.markeymachinery.com

J D Neuhaus Hoists for Offshore Crane Repairs

When an offshore deck crane failed, it caused problems for an offshore platform. Using J D Neuhaus air operated hoists, the suitable lifting device was sourced – a Profi 2TI model which had a lift capacity of 2 metric tons. The J D Neuhaus range of air operated hoists is universally deployable, incorporating explosion protection and all are suitable for use in hazardous areas.

www.jdngroup.com

JK Fabrication Deck Equipment

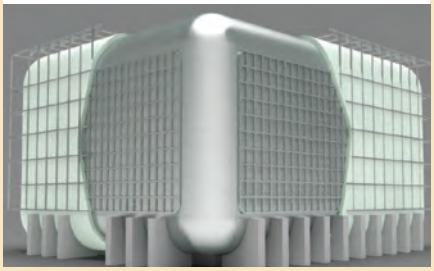
J.K. Fabrication, Inc. manufactures hydraulic marine deck equipment in Seattle WA. Products range from commercial fishing equipment, anchor and research winches for all vessels. The firm has expanded its footprint into hose storage reels for petroleum platforms as well as emergency towlines storage reels for retrieval of ocean going barges. The towline storage reel is a proven means of saving a loose ocean going barge.

www.jkfabrication.com

Braemar's FSP-LNG Containment System

Braemar LNG BV has signed an agreement with NASSCO to utilize its patents in the design and construction of FSP LNG Containment systems. The FSP system - a new flat-panel, semi-membrane, prismatic-shaped LNG tank-containment system Type B - uses new flat plate technology to overcome partial filling and sloshing issues. Approval in Principle has been obtained from Lloyds Register (LR) and ABS.

www.cohereit.com/braemar/braemarlng.avi



Ice-strengthened research vessel Gets Ecospeed Protection

The bow area of the underwater hull of Royal Research Ship James Clark Ross was coated with Ecospeed. The ship is one of two ice-strengthened research vessels operated by British Antarctic Survey (BAS). Ecospeed is not only the best solutions available for underwater hulls of icebreakers and ice-going vessels, the coating also provides excellent hull performance and is the easiest ice-going paint to apply and maintain.

www.ecospeed.be

YANMAR America's EPA Compliant Engine

YANMAR America's EPA Tier III compliant commercial marine diesel engine is rated at 755 mHP and 1900 RPM. The new 20.38-liter 6AYAM-ET uses a fully mechanical control system for easy servicing and reliable performance. The four-cycle, in-line six-cylinder 6AYAM-ET offers several key features and benefits that make it a top choice for commercial vessel operators. The new engine is approved by various Classification Societies.

www.global.yanmar.com

PRODUCTS

Trelleborg Rubber compound Tug Fenders

Trelleborg's marine systems operation has launched a new High Performance Super Abrasion Resistant (HPSAR) tug fender, which utilizes an innovative, superior rubber compound. The application of this distinctive and improved compound not only significantly increases the service life of the fender, but also gives the fender a lower density than traditional solutions, contributing to reduced weight and increasing potential savings.

www.trelleborg.com/Marine-Systems/

Run Like the Wind with ZF Gearboxes

Transporting personnel and equipment quickly and safely by boat to offshore wind farms in all weathers requires reliable, efficient equipment. MPI Workboats can be assured of such reliability with ZF gearboxes installed in six of its latest vessels. The ZF 2050 and the ZF 2000 NR are lightweight transmissions with aluminum housings that are perfectly matched to the design and operating conditions of the MPI workboats.

www.zf.com

Wing Inflatables Wins CE Certification

Another milestone for Wing Inflatables is reached as Wing has received official CE certification for its signature line of CRRC (combat rubber raiding craft) boats. Based in Arcata, CA, Wing experienced dramatic growth in 2014. A key component of the growth has been the development and launch of a fully inflatable boat. In November, Wing received office European Union Certification and Recognition for two models.

www.wing.com

Hoover Container Solutions' Thermo Oxidizer Units

Hoover Container Solutions Pty Ltd (Hoover), a leading manufacturer, rental and maintenance provider of bulk containers, has installed Thermo Oxidizer units at its Scott, Louisiana, and Houston service facilities. Hoover's Thermo Oxidizer units are designed to eliminate more than 99.5 percent of hazardous air pollutants (HAPs) and VOCs from industrial air streams. Hydrocarbon based pollutants are chemically transformed into carbon dioxide and water.

www.hoover-solutions.com

Chicago Dry Dock Brings Access, Expanded Expertise

TPG Marine Enterprises, LLC has purchased a Chicago shipyard. Chicago Dry Dock, Inc. operates on the Calumet River and offer unencumbered access to both the Great Lakes and the Inland River System. Operating from seven secured acres less than three river miles from Lake Michigan, it has two floating dry docks that can accommodate repairs to all types of vessels.

www.tpgmarine.com

Floodlight Delivers Power in Compact Housing

Combining brilliant illumination with low-profile housing, Hella marine's Power Beam 3000 heavy-duty LED floodlight delivers bright radiance with durability. Featuring a widespread beam angle of 40° and light output of 3,100 lumens, it consumes just 43 W of power. Built to withstand harsh environments, it is constructed of die cast aluminum and its lens is impact-resistant acrylic. A 316 stainless steel bracket ensures secure mounting.

www.hellamarine.com

Miller Welders: Big Capabilities, Small Package

Designed to withstand harsh environments, the Dimension 650 multiprocess welder from Miller Electric Mfg. offers a combination of durability, output, efficiency and capability in a smaller, easier-to-handle package. The Dimension 650 provides power-intensive output for heavy welding, carbon-arc gouging, and precision arc characteristics designed for thin-metal welding. The Dimension 650 features high electrical efficiency that allows for more welding using 32 percent less power.

www.miller-welds.com

Marine Polymers Changing Industry

Vesconite and Vesconite Hilube are reshaping the commercial ship bushing market. Thermoplastics offer performance superior to nylon or bronze, with lower life cycle maintenance and operational costs. Applications include deck cranes, grabs, hatch covers, rudders, sheaves, stern rollers, stern tubes and more. It performs in the dirtiest of conditions and is ideal in settings where maintenance is difficult and a long service life is required

www.vesconite.com

Sea-Fire Systems for Metalcraft Fireboats

Metalcraft Marine's Firestorm high-speed, aluminum fireboat represents a new generation in vessel technology. When fitted with Sea-Fire H Series engineered fire suppression systems, these fireboats are prepared for almost anything. Recently, four fire departments selected this unrivalled combination. Sea-Fire H-Series Custom-Engineered Fire Suppression Systems protect spaces from 1,500 to 17,500 cubic feet, on workboats, marine vessels and offshore marine applications, accordance with IMO/SOLAS requirements.

www.sea-fire.com

Electric Dustmaster from MARCO

Dust control on a work site is a challenge, no matter what size the job is. The Marco manufactured Dustmaster 8,000 CFM Electric Dust Collector moves more air when compared to other units its size. The first Electric Dust Collector in the Dustmaster line, the 8,000 CFM Electric Dust Collector is powered with a 24 HP 460 volt motor. All units are available for purchase, lease or rent.

www.marco.us

MTU Series 4000 Engines from Rolls-Royce for Ice-Capable Vessel

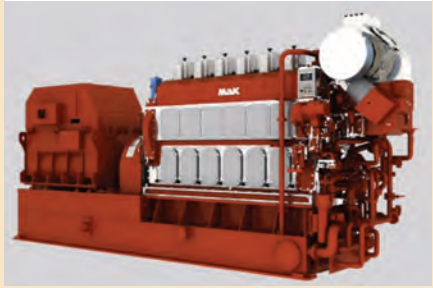
MTU, a Rolls-Royce brand, was chosen to power the Sikuliaq, a U.S. academic oceanographic research vessel. Sikuliaq is powered by four MTU Series 4000 Ironmen engines; two MTU 16V 4000 M23S marine generator engines and two MTU 12V 4000 M23S marine generator engines. Sikuliaq is capable of breaking ice up to 2.5 feet thick during polar and sub-polar research.

www.mtu-online.com

Caterpillar to Power Maersk Subsea Service Vessels

Caterpillar Marine's MaK diesel electric propulsion (DEP) solutions will power four Maersk Supply Services (MSS) newbuilds. Each will be equipped with 4x MaK M 32 E generator sets and 2x MaK 8 M 20 C at 1440 kW each. Featuring higher engine power density, the length and weight of the package has been reduced by more than 15%, without compromising reliability, durability, vibrations and structural borne noise.

www.caterpillar.com



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MaritimeJobs.com
where employers and job seekers connect
The Maritime Industry's Leading Employment Website. For more information contact: Jean Vertucci at vertucci@marinelink.com

Assistant Manager, Crane & Vehicle Maintenance

Job Location: USA, Portsmouth

The Port of Virginia - Virginia International Terminals is seeking an Assistant Manager, Crane and Vehicle Maintenance to supervise the shift work of up to 20 crane and vehicle technicians and be responsible for ensuring that all work is completed in a safe manner.

Responsibilities

-Coordinate the equipment assignments and prioritize readiness and repair of equipment with the operations team.
-Provide written shift reports to peers on job status
-Be adept at troubleshooting mechanical and electrical equipment
-Be able to work under high stress and fast paced conditions.
-Maintain and track inventory status, ensuring cost savings and efficiency practices are followed

Minimum Qualifications:

-AA/AS in related field, Technical Certification or equivalent work experience
-5+ years direct industry experience working on ship to shore cranes and straddle carriers
-2+ years demonstrated leadership and supervisory experience (informal and/or informal) in industrial plant or similar environment
-Experience in programming and troubleshooting using PLCs
-Excellent communication skills
-Must be available to work rotating 12-hour shifts
-Must be able to pass a pre-employment physical
-Possess a valid State Driver's License
-Ability to work a physically demanding job safely in all types of environments (heights, confined spaces, and various types of weather)

Shaune Thomas
The Port of Virginia
600 World Trade Center
Norfolk VA 23510 USA
Phone: 7576832132
Email: SThoma@portofvirginia.com
Web: http://www.portofvirginia.com/about/careers/

3rd Assistant Engineer Unlimited

Job Location: USA, Nofolk

Sailing on a US flagged container ship as 3rd AE unlimited with runs between Norfolk. VA and the Azores in the Atlantic. All travel plus a days pay for travel. 90 day hitches.

Tony Hanley
Transatlantic Lines LLC
P.O. Box 661
Marrero LA 70073 USA
Phone: (504)909-4770
Fax: (504)328-0470
Email: tony@transatlanticlines.com

Naval Architect/Marine Engineer

Job Location: USA, Salisbury, MD

The design office provides engineering and technical support for the company's new build program and fleet operations. The naval architect or marine engineer will join our design team and undertake challenging design projects from conceptual design to detailed practical design and commissioning. Utilizing sound engineering practices, the architect will be required to develop technical analysis and design of hull structure scantlings, structural support systems and arrangements of all classes of commercial vessels. The position requires strong analytical skills, knowledge of regulatory bodies and the ability to work in a team environment.

martin@cheship.com
Chesapeake Shipbuilding
710 Fitzwater Street
Salisbury MD 21801 USA
Email: martin@cheship.com
Web: http://www.chesapeakeshipbuilding.com/employment.html

MARINE SURVEYOR

Job Location: USA, New Orleans

Reputed marine surveying, auditing and consulting firm seeking surveyors for the New Orleans/Gulf Coast office. Position 1: Master/Ch Eng license and Tanker experience preferred. Position 2: Experience with draft surveys, tanker gauging, cargo surveys sought. Competitive salary and benefits.

Send resume to fmc@fmcneworleans.com

Jason Fernandes
Fernandes Maritime Consultants, LLC
3525 N Causeway Blvd
Ste. 804
Metairie LA 70002 USA
Email: fmc@fmcneworleans.com

Assistant Chief Engineer

Job Location: USA, Lewes, DE

Under limited direction of the Chief Engineer, performs skilled work relating to the power plant and auxiliary machinery aboard the University's coastal research vessel. Sails as Chief Engineer up to 75% of scheduled cruises.

The HUGH R SHARP is an advanced oceanographic research ship with diesel electric propulsion including twin Z-drive prime movers and a tunnel bow thruster. Engineers monitor the engineering plant, operate and maintain deck equipment, and repair problems at sea and ashore.

The ship primarily sails out of our home port in Lewes, Delaware. Crew are full time employees of the University of Delaware which provides outstanding benefits. Interested applicants can apply on line at: http://www.udel.edu/udjobs/ (search under "Staff", location "Lewes")

Jon Swallow
University of Delaware - R/V HUGH R SHARP
DE USA
Email: jswallow@udel.edu
Web: http://www.ceoe.udel.edu/about/marine-operations

Assistant Engineer / Marine Mechanic

Job Location: USA, Los Angeles

Looking for an assistant marine engineer / marine mechanic with diesel experience and electrical / plumbing background. 10 years previous experience required. Pay commensurate with experience. Please send resume to **sarah@nielsenbeaumont.com**

Sarah Stewart
San Diego CA 92106 USA
Phone: 6192224255
Email: sarah@nielsenbeaumont.com

Marine Operations Assistant

Job Location: USA, NJ, Westfield

Atlantic Container Line, a leader in international transportation, has an immediate opening for a highly motivated experienced individual for its Terminal Operations department. This position is located in our Westfield, NJ office. Candidate will be responsible for attending and successfully supervising all aspects of our stevedoring and terminal operations for Lolo and RoRo cargo. Other responsibilities include generating cost accruals, reviewing and approving invoices, assisting management in cost control, and coordinating stowage with our central planning department.

Linda Fernandez
Atlantic Container Line
50 Cardinal Drive
Westfield NJ 07090 USA
Fax: 908-518-7321
Email: human.resources@aclcargo.com

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31	Aurand Mfg.	www.aurand.com	(513) 541-7200
1	Citgo Petroleum-Clarion	www.clarionlubricants.com	1-855-MY-CLARION
7	Cobham Seatel	www.cobham.com	Please visit our website
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53	Mariner's House	www.marinershouse.org	(617) 227-3979
13	Patterson Company	www.PattersonMfg.com	(800) 322-2018
25	Patterson Company	www.PattersonMfg.com	(800) 322-2018
C4	R.W. Fernstrum	www.fernstrum.com	(906) 863-5553
C2	Scott Safety	www.scottsafety.com	(704) 291-8300
27	Smith Berger Marine	www.smithberger.com	(206) 764-4650
31	Suny Maritime College	www.sunymaritime.edu	(718) 409-7341
23	Tampa Yacht Manufacturing, LLC	www.tampa-yacht.com	(727) 954-3435
15	Tidewater Marine	www.tdw.com	(504) 568-1010
25	VapCor Inc.	www.vapcor.com	(905) 346-2638
3	Volvo Penta Americas	www.volvopenta.com	Please visit our website

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2015 Editorial Calendar

Marine News

ISSUE	EDITORIAL	BONUS DISTRIBUTION
JANUARY **Ad Close:** Dec 12	**Passenger Vessels & Ferries** Market: Training & Education Technical: Arctic / Cold Weather Operations Product: Winches, Ropes & Cranes	**PVA/Maritrends** Jan. 31 - Feb 3, Long Beach, CA REGIONAL FOCUS: West Coast
FEBRUARY **Ad Close:** Jan 15	**Dredging & Marine Construction** Market: U.S. Coast Guard Technical: Naval Architecture Product: Fire & Safety Equipment	**ASNE Day** March 4 - 5, Crystal City, VA
MARCH **Ad Close:** Feb 14	**Fleet Optimization** Market: Management Software Technical: SATCOM for Workboats Product: Water Treatment & Technology	**CMA Shipping 2015** March 23 - 25, Stamford, CT REGIONAL FOCUS: US East Coast
APRIL **Ad Close:** March 14	**Shipyard Report: Construction & Repair** Market: Push Boats & Barges Technical: Marine Coatings/Corrosion Control Product: Interior Outfitting / Design / HVAC	**Sea-Air-Space** April 13 - 15, National Harbor, MD
MAY **Ad Close:** April 14	**Offshore Annual** Market: OSV and Offshore Vessel Trends Technical: Safety & Prevention Product: Oil Pollution: Prevention & Response	**OTC Houston** May 4 - 7, Houston, TX
JUNE **Ad Close:** May 14	**Combat & Patrol Craft Annual** Technical: Shortsea Shipping / Bulk Transport Technical: Lubricants, Fuels & Additives Product: Inland Boat Builders	**Inland Marine Expo** June 15 - 17, St. Louis, MO **MACC** June, Virgina Beach, VA **Seawork** June 16- - 18, Southampton, UK REGIONAL FOCUS: Inland Rivers
JULY **Ad Close:** June 15	**Propulsion Technology** Market: ATBs – Expanding Roles & Types Technical: Deck Machinery Product: Safety & Prevention	
AUGUST **Ad Close:** July 15	**MN 100 Market Leaders** Market: Workboat Boatbuilding & Repair Technical: Marine Operators Product: E-Solutions & Technology	***Marine News*** **25th Anniversary Edition**
SEPTEMBER **Ad Close:** Aug 15	**Inland Waterways** Market: Navigation, E-Solutions & Software Technical: Training/Regulatory Compliance Product: Cordage, Wire Ropes & Rigging	**ShippingInsight** Stamford, CT REGIONAL FOCUS: Great Lakes
OCTOBER **Ad Close:** Sept 15	**Salvage & Spill Response** Market: Maritime Security Workboats Technical: Emissions Control/Management Product: Deck Machinery/Cargo Equipment	**SNAME** Nov. 4 - 6, Providence, RI **CleanGulf** Nov. 10 - 12, New Orleans, LA
NOVEMBER **Ad Close:** Oct 16	**Workboat Annual** Market: Outfitting the Modern Workboat Technical: Pumps, Pipes & Valves Product: Marine Propulsion	**International Workboat Show** Dec. 2 - 4, New Orleans, LA REGIONAL FOCUS: Gulf Coast
DECEMBER **Ad Close:** Nov 15	**Innovative Products & Boats of 2015** Market: Fire, Patrol & Escort Craft Technical: Onboard / Wireless Comms Product: CAD/CAM Software	

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Photo courtesy of Eastern Shipbuilding Group

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