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The Workboat Annual

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Our annual Workboat Annual edition is typically our largest and, I think, our most exciting edition of the year. That's because the word 'workboat' alone evokes so many different ideas of what it is that this type of vessel entails. I could argue that since all but a handful of the nation's 40,000 commercial merchant hulls are considered brown water vessels that every one of those increasingly sophisticated platforms qualify as a workboat. Collectively, this workboat fleet employs 85 percent of the nation's mariners, and without it, deep draft vessels don't get from point A to point B, most of our cargo doesn't arrive or depart from deep draft ports and a nation of commuting professionals don't get to work. That's reason enough to devote an entire edition to this diverse subset of the domestic waterfront.

In this edition, we examine the world of workboats from two different perspectives; namely, the Gulf of Mexico's current business climate and secondly, the inland infrastructure that keeps the nation's economic engine chugging along. Susan Buchanan's in-depth look at the lingering energy downturn provides a frank snapshot of a region that has taken its share of body blows over the course of the past year. It is also one that shows signs of life as a New Year approaches. That story begins on page 52.

Separately, and kicking off on page 62, Tom Ewing's submission on the state of inland infrastructure and federal plans to improve its dismal state coincides with a massive lock failure in Illinois, impacting more than 700 commercial vessels. We often talk about 'what could happen' if the infrastructure fails. Now, we know. If Ewing's piece illustrates just one thing, then the 'take-away' is that talk is cheap. The waterways need help, and they need it now. Failure is not an option.

This edition also comes as a new U.S. Maritime Administrator should be settling into his new chair in Washington. That said; Rear Adm. Mark Buzby has no intention of sitting back to relax when his new set of missions demands immediate action. This month, ***MarineNews*** readers get a real sense of the man and the course that this USMMA graduate has charted for the U.S. Merchant Marine. On paper, he is arguably the most qualified person confirmed for the position in recent memory. We look forward to finding out if his dialogue is matched by results in the coming months and years. I wouldn't bet against him.

Ultimately, and when it comes to workboats, there is plenty to talk about. Senator John McCain's opportunistic, but predictable attacks on the Jones Act come at a particularly difficult time, leveraging a humanitarian crisis in Puerto Rico (plumbing a new low, in my opinion) in the process. Most observers will say that this issue concerns only deep draft, blue water vessels. Don't be fooled – they are coming for your workboats next. Sit up, pay attention, and get involved. Remember: *if you aren't at the table, you are probably on the menu.*

Joseph Keefe, Editor, keefe@marinelink.com

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Blue Water Mariners for a Brown Water Fleet?

It wasn't too long ago (2015) when we last took a look at mariner population statistics of all kinds. Our take at that time was that a surge in license-track students at the nation's six state maritime academies (SMA) had matched the Jones Act blue water recapitalization effort then underway. Ships were being churned out, mariner demand was high, and salaries had spiked. Good times, right?

Less than 23 months later, the numbers look somewhat different, but the Jones Act employment prognosis is, at best, far cloudier. Using raw data culled from the U.S. Coast Guard and Marad, the employment picture for blue water mariners does not look good. That said; the U.S. Maritime Administration is acutely concerned about the nation's ability to support the next sealift emergency. If 22 months ago, war looked unlikely, today, the geopolitical situation abroad – witness North Korea, South China Sea and the Middle East – could arguably explode at any time.

At first glance, Marad's concerns look to be unfounded. That's because, although the total domestic mariner pool has shrunk during the past six years (-8,950 mariners; 4.1%), the number of unlimited licenses over the same period spiked by 5,582 or 22%. It grew a whopping 11,976 tickets or 65% since 2001. During that same era, the number of privately owned/operated U.S. flag blue water hulls plunged to 181 hulls with only 99 of those Jones Act eligible. Hence, a nation whose U.S. merchant fleet consists of 40,000 vessels, 99.5% of which can be considered brown water, no longer needs a robust supply licensed mariners. Or, do they?

At the Massachusetts Maritime Academy, efforts are already underway to adjust the school's focus on future mariner education. Fully one-third of all deck graduates now leave Buzzards Bay with tug endorsements, and all deck license candidates (a nod to brown water opportunities) are required to take three credit hours of diesel engine curriculum. That's no accident. It wasn't too long ago that the Military Sealift Command (MSC) offered employment to as much as 25% of MMA's graduating class. No more. Only a handful of cadets were interviewed and offered employment in 2015. The class of 2016 attracted no MSC employment offers.

MMA is preparing to remove the 'caps' placed on license track majors because they are no longer turning away candidates. Beyond this, shoreside employment for engineers is plentiful. The academy is engaged with the offshore wind sector, one that sees New England's one active farm possibly augmented by three in the bidding stages. Other SMA's – SUNY Maritime in particular – boast an increasingly robust workboat training scheme. It is the right thing to do for many reasons, but the seismic shift comes with risk – and consequences.

A Different Perspective: With 61 ships in a reserve operating status (ROS), Marad remains deeply concerned about the nation's ability to staff those vessels. Contrasting sharply to DHS numbers, Marad estimates that there are ~33,000 credentialed unlimited mariners, including unlicensed ratings. That's enough, says Marad, to float a credible sealift response to a conflict, for just three months. That estimate is arguably Marad's most compelling reason to keep the U.S. Merchant Marine Academy open, despite the recent spate of self-inflicted wounds at Kings Point.

The problem may not be whether there are enough mariners, but instead, whether enough with proper qualifications exist to competently man available tonnage. Gone are the days when deck officers could walk down the gangway of a boxship and directly onto a tanker. The advent of STCW ended all of that. From the engine side of the equation, almost one-half of ROS ships are steamships, an engineering discipline in short supply in the motorship era.

The so-called mature 'graying' mariners aren't retiring fast enough to keep (impatient) younger professionals hanging around until they do. That's not just an SMA problem. USMMA graduates need to apply for waivers when they can't meet sailing requirements. We asked Marad how many had been granted for the class of 2016, but that number was not made available.

Lurking just over the horizon is the need for new SMA training ships. This actually may be the real crisis. Most if not all of these platforms – loaned by Marad – will reach the end of their useful lifespan within a decade. There just aren't any hulls left in the reserve fleets to replace them. A fit-for-purpose, series build replacement fleet of training vessels is being designed and contemplated, but that cost could exceed $1 billion for five vessels at a time when a single desperately needed icebreaker hasn't yet been funded. Without ships, most SMA kids can't get the sea time necessary to earn a license. Separately, the SMA move to satisfy workboat demands isn't making Marad happy, either. Marad expects ROI on those vessels – in the form of blue water mariners. If they don't get it, there isn't any point in loaning ships or for that matter, building new ones.

Just 15 years ago, some SMA's teetering on the brink of extinction reinvented themselves and today, thrive bigger and more diverse than ever. But, is what they look like today going to be the right platform to produce of the mariners needed tomorrow? It all depends on who you talk to.

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SMA Graduates and Licenses: trends & data at a glance ...

		CMA	Maine	Mass.	Michigan	SUNY	Texas	USMMA	All	PCT. Lic.
2008	Graduates	131	169	214	30	268	263	211	1286	
	Licensed	97	86	112	30	137	42	211	715	56
	Non-Lic.	34	83	102	0	131	221	0	571	
2009	Graduates	159	152	257	19	306	250	196	1339	
	Licensed	102	102	122	19	172	40	196	753	56
	Non-Lic.	57	50	135	0	134	210	0	586	
2010	Graduates	157	182	252	21	266	274	201	1353	
	Licensed	101	125	122	21	144	55	201	769	57
	Non-Lic.	56	57	130	0	122	219	0	584	
2011	Graduates	169	210	267	30	300	261	205	1442	
	Licensed	119	136	108	29	165	65	205	827	57
	Non-Lic.	50	74	159	1	135	196	0	615	
2012	Graduates	171	156	292	27	390	328	219	1583	
	Licensed	113	93	126	25	229	56	219	861	54
	Non-Lic.	58	63	166	2	161	272	0	722	
2013	Graduates	161	132	325	41	396	337	201	1593	
	Licensed	113	73	125	41	243	63	201	859	54
	Non-Lic.	48	59	200	0	153	274	0	734	
2014	Graduates	195	188	338	42	384	353	217	1,717	
	Licensed	134	117	121	42	241	79	217	951	55
	Non-Lic.	61	71	217	0	143	274	0	766	
2015	Graduates	186	229	324	44	405	411	224	1,823	
	Licensed	114	148	120	43	253	87	224	989	54
	Non-Lic.	72	81	204	1	152	324	0	834	
2016	Graduates	225	251	341	37	409	439	225	1,927	
	Licensed	122	172	169	37	287	101	225	1,113	58
	Non-Lic.	103	79	172	0	122	338	0	814	
TOTALS	Graduates	1,554	1,669	2,610	291	3,124	2,916	1,885	14,063	
	Licensed	1,015	1,052	1,125	287	1,706	588	1,885	7,837	
	Non-Lic.	539	617	1,485	4	1,253	2,328	0	6,226	

Sept. 2017 Blue Water U.S. Flag Count (1000 GT)	
Total Ships	181
Jones Act Eligible	99
Non-Jones Act Eligible	82

	2001	2004	2005	2006	2011	2017
Total Population	193,000	204,835	208,003	209,800	217,875	208,925
Ratings (MMC/MMD)	73,000	66,870	67,637	65,900	123,742	138,891
Licensed Mariners	85,000	95,789	99,023	102,100	145,292	147,937
Continuity Status	***	***	***	***	7,133	15,331
Unlimited Deck License	8,721	9,178	9,171	9,200	11,524	13,271
Unlimited Eng. License	9,680	10,500	11,925	11,500	13,271	17,106

Source: U.S. Coast Guard / (***) denotes data not then available.

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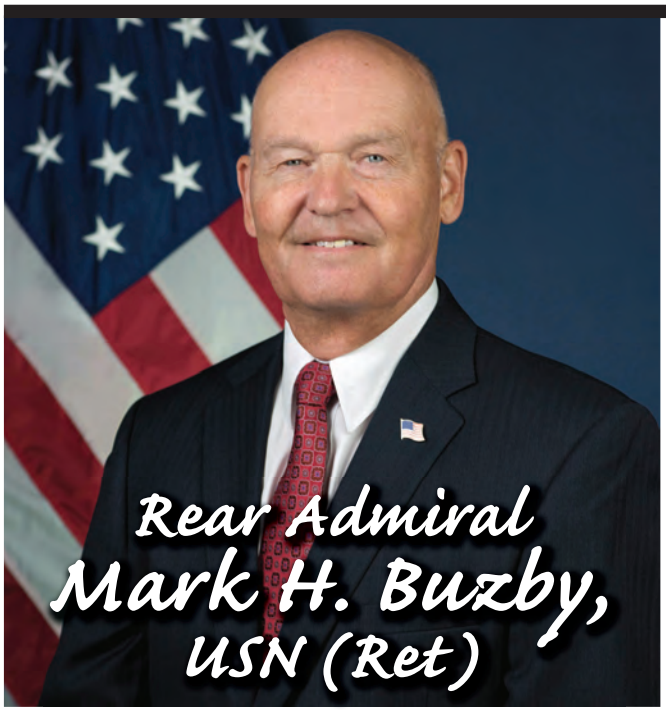

Maritime Administrator, U.S. Maritime Administration

Rear Adm. Mark H. Buzby was appointed by President Donald Trump and sworn in as Maritime Administrator on August 8, 2017. Prior to his appointment, Buzby served as president of the National Defense Transportation Association, a position he has held since retiring from the U.S. Navy in 2013 with over 34 years of service. A 1979 graduate of the U.S. Merchant Marine Academy, Buzby earned his Bachelor of Science in Nautical Science and U.S. Coast Guard Third Mate License. He was commissioned in the US Navy in June 1979, is a graduate of the Joint Forces Staff College and holds master's degrees from the U.S. Naval War College and Salve Regina University in Strategic Studies and International Relations respectively.

Buzby commanded destroyer USS CARNEY (DDG 64), Destroyer Squadron THIRTY-ONE, Surface Warfare Officers School Command, and Joint Task Force GUANTANAMO BAY. As a junior officer, Buzby served in USS CONNOLE (FF1056), USS ARIES (PHM 5), USS YORKTOWN (CG 48), USS JOHN PAUL JONES (DDG 53) and USS SHILOH (CG 67) primarily in operations and combat systems billets. In 1985, he was the Atlantic Fleet Junior Officer Shiphandler of the Year. Ashore, he served on staffs of SIXTH Fleet, US Fleet Forces Command, the Navy staff, and the Joint Staff. Buzby served as the Commander of the U.S. Navy's Military Sealift Command from October 2009 to March 2013. Buzby's personal awards include the Defense Superior Service Medal, Legion of Merit (four awards), Bronze Star, Defense Meritorious Service Medal, Meritorious Service Medal (five awards) and various other unit and campaign awards.

Arguably, Buzby brings to the Marad c-suite one of the deepest and most relevant experience skill sets of anyone who has filled that role in recent memory. For example, his leadership at National Defense Transportation Association closely parallels his mission focus at Marad, and his Military Sealift Command experience complements his efforts to ensure that the nation maintains a robust sealift capacity – in times of peace and war. Finally, the USMMA graduate has promised to right the ship at his alma mater, while also bringing a keen understanding of both naval and merchant marine operating procedures to an office that must cater to both.

Early into his tenure at Marad, Mark Buzby this month paused his frenetic schedule just long enough to weigh in with *MarineNews*. What he has to say – in a refreshingly straightforward manner – may just surprise you. No doubt, his remarks reassure the domestic waterfront that it is in good hands. Listen in as ADM Buzby provides a timely SITREP:

As you take the helm at the US Maritime Administration, there will be, to be sure, many things on your plate. If you could choose just one as a priority task to tackle, what would that be?

Were I so lucky to only have a single priority to focus on! Since I have never had that sort of luxury in any job I've had in my professional career, I'm used to keeping many balls in the air, and that's how I'm heading into this position. Throughout my confirmation process for the Administrator job, I laid out three priorities for focus, all to be equally pursued. First was to get the U.S. Merchant Marine Academy back on track and headed fair after all the issues related to surveys showing apparent sexual assault/sexual harassment issues at the Academy and during Sea Year training which resulted in the suspension of that

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training in June 2015. Second was to ensure the readiness of the 46-ship Ready Reserve Sealift Force to answer all bells when called upon in support of US Transportation Command tasking – that includes the ships and the mariners who man them. These ships are old (most are 40+ years), and challenging to maintain. Third was to ensure the strength and viability of the U.S. Flag fleet through three key programs – the Jones Act, the Maritime Security Program (MSP), and Cargo Preference. All three are critical to ensuring a sufficient number of U.S. Flag ships providing jobs for US Mariners and reliable capacity to support our economic needs in peacetime and in time of conflict or emergency. It all fits together – it's all important; and I've got to pay attention to it all.

Immediately prior to joining MARAD, you served as President and CEO of National Defense Transportation Association (NDTA). Since WWII, NDTA has provided a venue where government, military, and private sector professionals can solve pressing challenges in logistics, transportation and passenger travel. A mission set not unlike MARAD, would you agree?

There are some similarities for sure. MARAD functions as an advocate for the U.S. Merchant Marine and works to ensure its viability. So we get involved in policies and programs that impact the industry in their peacetime pursuits because we need them ready to do this nation's heavy lifting – literally – when it comes time to deploy and sustain military forces. I was working the same issues at NDTA, albeit from a slightly different angle, and was doing the same when I was at Military Sealift Command (MSC), but also from a slightly different angle there. In this sealift mission, it really is all about relationships between industry and government. All three organizations – MSC, NDTA, and MARAD are always focusing on relationships with industry. It's made for a very easy transition for me.

Secretary Elaine L. Chao swears in Rear Adm. Mark H. Buzby, USN, Ret. as the Administrator of the Maritime Administration as Buzby's wife, Gina, looks on.

The Jones Act has come under repeated fire in the past 18 months – and especially so in the wake of Hurricanes Irma and Maria – from Capitol Hill and other places as well. As the former Commander, Military Sealift Command, you know only too well the need for robust sealift capabilities. Can you assess the status of the Jones Act at present and your efforts to support it – and the domestic waterfront?

We saw two waivers of the Jones Act recently; a 7-day waiver focused on moving refined petroleum products to Florida in the wake of Irma, and a 10-day all-products waiver for Puerto Rico following Maria. Both were issued based on a determination of "in the interest of National security." In both cases, there was sufficient US Flag capacity to meet requirements, yet the determination was made nonetheless. Following the expiration of the Puerto Rico waiver, there have been bills introduced in both House and Senate that would permanently exclude the island from Jones Act requirements. While there are some very vocal supporters of these measures, there is a lack of credible data to support claims that the Jones Act substantially increases costs to consumers. While it is popular for detractors to constantly point to the economic issue, they have little to no understanding of the national security implications to the mariner pool, the shipbuilding supply chain, and the layer of internal security that would be lost if the Jones Act were to be abolished. I believe it will stand, and MARAD and the Department of Transportation stand solidly behind it.

You are a graduate of the US Merchant Marine Academy after which you served for 34 years in the US Navy as a Surface Warfare Officer rising to Flag rank. As someone who has experienced both sides of the maritime equation, give us one thing that your tenure in the U.S. Navy will bring as a benefit to the domestic, commercial waterfront.

Probably the most important thing I can bring to the commercial side of the waterfront is firsthand appreciation of the absolute criticality of the role the Merchant Marine

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plays in deploying and sustaining our forces. That goes for both our land armies and our deployed naval forces. I tell people all the time that our powerful, centerpiece Aircraft Carrier Strike Groups only operate for a limited time at full-tilt before they must be replenished, and MSC and the commercial fleet will carry those supplies forward. And in all likelihood, those commercial ships will be operating in a contested environment, meaning the bad-guys will be hunting them. It won't be a cruise in the sunshine. Some won't make it. I need to help mariners understand that it will be different if we get into a serious dustup.

You served as Commander Military Sealift Command from October 2009 to May 2013. MSC – an employer where I started my career, coincidentally – employs as many civilian mariners as any other domestic US Commercial firm. Does your time as COMSC yield any better ways that the commercial waterfront could be doing things?

Actually, MSC – the "Grey Funnel Line" I believe is still the largest employer of U.S. mariners of any U.S. shipping company. We certainly have the largest fleet. I thought we had pretty good processes in place to maintain and monitor the condition of our ships, many of which were "mature" but still doing the job. Many of our ships operated with COIs – Certificates of Inspection – which of course required an extensive USCG and ABS inspection regime. On top of that, we had the Navy-based SMART (Ship Material and Readiness Trial) inspection and underway operational demonstration which was even more intrusive. Part of that was a detailed documentation process, so we knew pretty well what the real condition of our ships was and typically avoided readiness "surprises." I think some of that process could be beneficial in the commercial world.

Advocating for the US waterfront is a difficult assignment when there are so many different messages to be conveyed. Brown water, blue water, ferries, inland, offshore energy support, small and big shipyards alike – the list is endless. How do you meld those dissimilar needs and demands into a coherent message that will resonate on the Hill?

Yes, that is a challenge, and I'm still working on polishing up that message. Just talking about the maritime industry in general is a real challenge because most of it is out of sight to most people – it's just not part of their daily lives, like airliners, cars and trucks and railroads are. Most ports are out of sight in less desirable areas hidden behind secure gates; most people equate ships with pleasure cruises – if at all. The fact that the vast majority of the products in their daily lives travelled on a vessel during some part of its journey into their hands is totally lost on most. Unfortunately, it has been that way for a long time. It will be a big challenge to transmit that coherent message; I'll have to work on it.

You've been in place as the Administrator for about two months now. What's your view of the business, the domestic waterfront? Give me a SITREP if you would from the Maritime Administrator's seat.

In general terms, I'd say the U.S. Flag fleet – Jones Act and ocean carriers – is in steady state at the moment. By that I mean that we haven't lost any more capacity lately, though some of the Jones Act tonnage is in layup. As I write this, we have 81 internationally trading ocean vessels and about 99 larger-sized Jones Act vessels – many, especially tankers and containerships, being newbuilds. This is the lowest number of vessels we have had in decades. It is barely – barely – large enough to support a pool of mariners necessary to man those ships in trade, surge aboard MARAD's 46 sealift ships and MSC's 15 ships in an emergency, and hire into MSC's CIVMAR workforce. The depressed oil market has idled a lot of vessels and put a lot of mariners on the beach. The ocean carriers have benefited from a slowly recovering container market, increased MSP stipend (now $5 million/year), and some increase movements of DoD cargoes. At the end of the day, without additional cargo, there will be no incentive to add additional tonnage to the US fleet.

MARAD, a long time ago, was split out from the US Maritime Commission, with the Federal Maritime Commission assuming a more regulatory role and MARAD taking on a more promotional role. That being said, from your office, where do you think you can have the most impact to the betterment of the U.S. Merchant Marine today?

My belief is that MARAD is the one government agency whose primary focus is to pay attention to both aspects of the Merchant Marine: its peacetime commercial role and its wartime national security mission. The first has to be there and be healthy so that the second can take place. I don't know of anyone else who is thinking about that other than Gen Darren McDew the U.S. Transportation Command Commander. He and I talk a lot. I've got to raise the caution flag whenever people start nickering around with some aspect of the merchant marine that I believe will have detrimental effects to the national security mission. It's a "gotta do," and my staff and I are focused on it.

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The US Merchant Marine Academy has experienced a bumpy stretch in recent years, but the last few months have been better ones, and the school headed on the right course on an even keel. MARAD oversees all aspects of the Academy. As KP graduate and the Maritime Administrator, you perhaps more than anyone else will have a strong interest in making sure that the true course continues. Can you sum up the current situation and then tell us about any additional plans that might be in the works?

You are correct, I am VERY interested in seeing my Academy making way on a steady course, and I will tell you that my Boss – Secretary Elaine L. Chao feels the same way. We discuss Kings Point every time I meet with her. As I said in my opening remarks – getting the Academy squared away is a top priority. In my first four weeks in the job, I visited the Academy during each one of those weeks, speaking with the Regiment, faculty and staff, then meeting with the leadership of the Parents association, with the Alumni Board of Directors, and then finally with the leadership of all of the Academy's stakeholders. I spoke with the planning team that is just starting out on a new strategic plan and shared my vision for the Academy with them. With all the groups, I laid out my command philosophy (People first, Be a Professional, Be a good Shipmate), my expectations, and my plan to move the Academy forward. I walked around a lot unescorted, turned up in a lot of unexpected places, talked to staff, faculty, parents, alumni, and most importantly – Midshipmen. I listened a lot. My sense is that everyone is ready to move forward – they want to move forward, and are expecting me to lead them forward. I am ready to do that. I predict we'll be ringing up a Full Bell soon.

U.S. Shipbuilding has had its ups and downs in the past few years, enduring some lows (a dreadful offshore climate) and notable highs (rejuvenated Jones Act blue water building programs and the domestic ferry "boom"). Beyond that, they are competing in certain sectors very well in the international stage (exports have been robust.) MARAD has been there to help with grant programs, etc. What more can be done and how do you plan to support this important sector?

This is a very sensitive area again, with national security implications. We absolutely need to cling to what little industrial capability we have in the marine construction and repair area because it has direct impact on the same supply chains that service naval shipbuilding. Both the large "tier 1" building yards and the more numerous but smaller repair and modification yards depend on a relatively limited supply chain where economies of scale are right on the ragged edge for much of the ship fittings and equipment. MARAD has been administering the Title XI loan program to the shipbuilding industry for many years and we've seen notable successes and unfortunate failures. I think the program serves an important role when applied to well-considered projects, and I hope that we can continue to be funded to support more projects. I'm also open to explore build-lease options and other creative financing processes to stimulate shipbuilding. There is a lot of new deep water Jones Act tonnage in trade, and more on the way. Lots of leading edge technology is being introduced. It's all good.

Anything Else You'd Like to Tell Our Readers?

I'm very honored to have been asked to serve my nation again as the Maritime Administrator. There is a story to be told about the U.S. Merchant Marine and our shipbuilding, ports and waterways: that all are necessary for our economy to flow in peacetime, and our armed forces to flow in times of conflict. I'm going to do my level best to help folks understand those critical roles. That's my mission.

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Providing Proper Preparation Also Propels Financial Peace of Mind

Like marine coatings, preparation is everything when it comes to sourcing and attracting marine finance support.

By John Benoit

Benoit

If you're familiar with the maritime industry at all, this won't come as a shock: *we've seen better days.* Like many industries, this is one that goes up and down and, right now – depending of course on sector your focus resides – we're pretty far down.

This severe downturn began in late 2014 and we've seen many financing sources exiting the offshore market since. It seems that lenders have zero interest in lending into the U.S. Gulf of Mexico. And, increased bank regulator scrutiny on transactions tied to the energy market only exacerbate an already difficult situation to navigate. This is in stark contrast to the surge this industry experienced about two decades ago. But, we know well: what goes up, must come down and, with softer industry conditions, we're certainly at a low.

The good news? Sure, the market for financing new tonnage has significantly declined and there are fewer good choices for finance sources, but there are still good choices for finance sources. As someone with more than 20 years providing financial solutions to the maritime industry, I know this to be true.

If we're being honest, this industry can be a scary place not just for those who work in the industry, but also for lenders to this industry. Financing sources have experienced losses on deals booked and tougher regulations make maritime lending a risky game to play. But, it's not an impossible game, especially when borrowers can do the leg work to show they are a reliable candidate.

What are we looking for?

Obviously, we're looking for a safe bet. That doesn't mean everything has to be 100 percent perfect. But we are looking at certain things right off the bat in order to make a decision. Be prepared for a lender to begin analysis of your company by looking at these five topics.

1. ***Earnings:*** *We want to see three to six months of positive earnings before interest, tax, depreciation and amortization (EBITDA). We're looking for an indication of your performance despite industry conditions.*
2. ***Leverage:*** *How much debt do you have currently? What debt trends can we see in your company history?*

"Just because the industry is experiencing a downturn, doesn't mean you have to go with just any lending source. This is a reciprocal relationship."

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3. ***Liquidity:*** *We'll look for cash, line availability and outside sources of liquidity.*
4. *Asset quality: What are you looking to finance? And, what is the quality of your existing fleet?*
5. ***Outlook:*** *How far out can we see this company's earnings with comfort?*

Help Steer the Ship

These first considerations can seem a little outside of your control. That's somewhat true. Your lending source is going to look at these company characteristics and there's not a whole lot you can do to influence whether or not you look attractive. If you don't hit the mark in these categories, it can be hard to find a source that will work with you. And, once a lender has looked at these five things and deemed you a worthy candidate, even that doesn't guarantee a loan. But, there are things you can do to help guide the lender through the process and help ensure you receive a successful outcome. It's all about being prepared.

- *The fanciest software isn't necessary, but every company should have an accounting and information system in place to provide a quality financial statement presentation that details current and trailing 12 month earnings and EBITDA. A lender wants to see detailed projections demonstrating financial flexibility.*
- *Is your house in order? Are you up-to-date on invoicing clients, accounts receivable and payables, and managing vendors? Many lines of credit use accounts receivable as security against the loan. Delinquent account receivable activity can negatively impact a company and jeopardize a deal. Basically, we want to see evidence that everything is up-to-date, how things have been handled in the past, and then detailed projections demonstrating sufficient financial flexibility to withstand minor fluctuations with no covenant issues.*
- *One thing you can do that will go a long way with a lender is to provide updated appraisals on the subject vessel or vessels, potentially, the entire fleet. Ideally, you want an appraiser or a known marine lending surveyor to complete the detailed valuation of your equipment. This allows a lender to get a sense of the actual company equity, not just the "book equity," which doesn't always give a marine operator full value of the fleet.*
- *Provide documentation on your current debt. Your lender should have a schedule of all outstanding notes and terms and have the detailed collateral for each. This gives the lending source the overall picture of what is outstanding.*
- *Have you navigated something like this in the past? Lenders will take management quality into consideration, so any evidence you can provide showing how you handled a market downturn in the past will be helpful. When a company has 'weathered the storm' in the past, that can be very appealing to a lender.*
- *Marine operators can also provide management analysis to give an operational snapshot. This allows you to guide financial parties efficiently and effectively through the company's future plans. A company-initiated analysis will give management the opportunity to remain in the control of future expectations, set the tone for debt restructuring, and, in the process, avoid lender preconceptions.*

Ultimately, the Choice is Yours

Just because we're in a tough market, doesn't mean you have to go with just any lending source. As a borrower, you should be just as thoughtful about choosing your lender as they are scrupulous about choosing you.

Look for a lender with an adequate appetite. If they're a serious source, they're hungry for the deal. And, they should be able to underwrite the whole deal. Also, look to see if the source has other, similar deals in the portfolio. You want to work with a company that is an expert in this market. If they're just jumping in to marine financing, they don't know the 'ins and outs' of this industry. And, you want to ensure they have similar deals currently in the workout or special asset group. This lets you know they are solidly in this market. You should also have a sense of how the lender has managed deals like this in the past. Just because the industry is experiencing a downturn, doesn't mean you have to go with just any lending source. This is a reciprocal relationship.

The bottom line: Whether you're a marine operator or a marine industry lender, we all know the market is tough right now. We're experiencing higher rates and tighter terms and there doesn't seem to be an end in sight. No matter what kind of lending you are looking for – vessel, shipyard, port facility or related operations – there are fewer alternatives to meet your needs. But, the proper preparation and a good understanding of the relationship with your lender will go a long way to help the process.

John Benoit *has more than 20 years providing financial solutions to the marine industry. The marine group within Wintrust Commercial Finance brings all aspects of marine finance under one umbrella with loans and leases for middle-market vessel operators, shipyards, port facilities and related operations from $3 to $50 million. It also provides construction and permanent financing and focuses on deals for new and used vessels, related equipment and real estate supporting marine operations.*

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Catching a Jones Act Seaman's "Golden Parachute"

A challenging offshore environment produces a different but equally difficult development. Will you be ready when it comes to your fleet?

By Larry DeMarcay

DeMarcay

Unfortunately, our industry continues to suffer due to the depressed oil prices that started in 2014. When the price of oil initially dropped, the industry's outlook remained positive, and I remember hearing the mantra: "Stay lean for 2015." Everyone thought that oil prices would rebound in short order and that we were only weathering a short downturn. However, the slump continues and the news is filled with a continual trickle of reports of vessel stackings, more layoffs and bankruptcies.

As managers, we are focused on vessel utilization, contractual issues and trying to keep the company afloat. We often fail to consider what our vessel-based crews are thinking as they are hearing the same news and feel that they have no control over the situation.

Familiar Downturn; Different Parachute

Human nature has prompted many corporate executives to protect themselves with a "golden parachute." Your vessel crew is no different, except that they don't have the backing of investment bankers to finance a severance package. As such, with your crew believing that a layoff, without a quick return to work, may be imminent, we have seen an increasing number of suspect Jones Act personal injury claims where an employee may be attempting to create his own "golden parachute."

It is important to have a plan for investigating and defending these suspect claims to minimize the chance of having to fund this "golden parachute" via a fabricated personal injury claim.

The Jones Act applies to your employees that are working aboard and permanently assigned to your vessels. Under the Jones Act, employees are able to sue their employer. However, negligence or the unseaworthiness of the vessel must be proven by the employee in order to make a recovery, and damages are determined on a case-by-case basis. As such, early investigations and intervention are the keys to preparing a good defense to the claim.

As a finding of negligence or an unseaworthy condition is critical to a Jones Act claim, the company's response to the incident is the key to effectively managing the suspect claim and the resulting litigation. Immediately after the accident occurs is the right time to begin an active defense of any claim, especially one that is suspect.

Prompt Action

As the downturn is causing many employee layoffs, it is important to begin working with potential witnesses directly after the accident, while they are still accessible to you. You should take statements from the crew to preserve their description of the alleged event. Statements can be written by the witness or recorded. Under either scenario, take the time to interview the witness and get a firm understanding of what he or she has knowledge about and tailor the statement accordingly. Your goal is a concise statement that clearly spells out the details of the event.

If the crew is small enough, we also recommend taking statements from the crew that was not involved with the incident stating that they do not have any knowledge about what happened. You would be surprised how many former crew members will testify negatively about the company after they are no longer employed, despite having no first-hand involvement or knowledge about the event. Taking statements proving that they do not have any knowledge avoids such a situation.

It is also important to have the crew preserve the documents and equipment that will be relevant to the case. The preservation of vessel logs, billing logs, timesheets, weather reports, communication logs, GPS logs, maintenance logs, and the manuals for any equipment involved with the accident is important. These documents are occasionally lost when a vessel is stacked for a significant amount of time. Also, if the accident damaged equipment aboard the vessel, it is a good idea, if feasible, to preserve the equipment for future inspection and analysis.

Additionally, in the event that the claimant's attorney has

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"As a finding of negligence or an unseaworthy condition is critical to a Jones Act claim, the company's response to the incident is the key to effectively managing the suspect claim and the resulting litigation. Immediately after the accident occurs is the right time to begin an active defense of any claim, especially one that is suspect."

chosen the treating physician for him, it would be good idea to gain a second opinion from another qualified physician prior to the claimant having any surgical procedures. When setting up an Independent Medical Examination (IME), it is important to select a specialist that is an expert in the appropriate specialty. For example, in the event that the claimant is seeing an orthopedic surgeon, another board-certified orthopedic surgeon would be appropriate.

Once this preliminary information is preserved and the medical situation has stabilized, you can look at the employee's injuries and decide if a background investigation is warranted. If the employee's behavior calls for an investigation, a civil and criminal background check can often turn up helpful information. This background check also provides information that can be used to conduct a deeper investigation. For example, ex-spouses often have information pertinent to the employee's current physical status. The key is to turn each stone over – you never know what you may find. It is also a good time to conduct a round of surveillance to see if the employee's physical activities dovetail with his activities as reported to his treating physicians.

The Right Way to Go: a gentle landing

Considering your employees' natural desire to grab for a "golden parachute" during a time of uncertainty, the early investigation of claims is crucial in preparing an appropriate defense and determining if the claim is legitimate. If the claim is legitimate, do what you can to help the injured employee recover and get back to work. If the claim is not legitimate, you can easily collect the evidence that you will need to defend the claim.

As with many aspects of your business, expending some time and resources early in the process can pay real dividends later. Although it is not possible to avoid employees filing suspect claims, a little work on the front end will prevent their "golden parachute" from opening at your expense.

Mr. DeMarcay *is a partner in the law firm of Baldwin Haspel Burke & Mayer. His areas of practice include Commercial Litigation, Admiralty, Personal Injury, Transportation, Real Estate, Construction and Corporate Law. Prior to attending law school, Mr. DeMarcay served on the Washington based legislative staff of Congressman Jimmy Hayes. On the WEB:* **www.bhbmlaw.com**

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Leadership and Subchapter M

By Pat Folan

Folan

Earlier this year I was part of a safety meeting with several marine towing companies and the topic turned to leadership on our towing vessels. Companies are coming to the realization that many of their captains are not masters of the vessels.

For years, the industry has taken control of the vessels from the captains and kept it in the office. I used to hear this lament from captains that I worked with in the nineties, "They don't pay us to think." And although the words have changed, the same old lament is there. Now before doing anything they must "check with the office." As someone who owned a tug, this is an attitude that made me happy and scared all at the same time. You want to know what they are doing but you pay them to make the right decisions.

As the 2000's wore on and our shortage of good captains led the industry to quickly promote people to the wheelhouse, we ended up with people running our vessels who didn't know what to do in a lot of situations and who were happy enough to cede control to the office. In some places, experienced captains had moved ashore and could offer realistic advice. In many places, though, that wasn't the case and we ended up with the blind leading the blind. There are companies that create the routes for the captains on their chart programs and they can't deviate from them. What happened to navigation and leadership skills?

CREDIT: Pat Folan

We created a problem and Sub M will require a change.

Subchapter M will turn this model upside down. If you are using a TSMS, 46 CFR 138.220 (a)(1) states:

(iii) Master Authority. Each owner or managing operator must define the scope of the master's authority. The master's authority must provide for the ability to make final determinations on safe operations of the towing vessel. Specifically, it must provide the authority for the master to cease operation if an unsafe condition exists.

46 CFR 140.210 states:

(a) The safety of the towing vessel is the responsibility of the master and includes:

1. Adherence to the provisions of the COI;
2. Compliance with the applicable provisions of this subchapter;
3. Compliance with the TSMS, if one is applicable to the vessel; and
4. Supervision of all persons onboard in carrying out their assigned duties.

(b) If the master or officer in charge of a navigational watch believes it is unsafe for the vessel to proceed, that an operation endangers the vessel or crew, or that an unsafe condition exists, he or she must ensure that adequate corrective action is taken and must not proceed until it is safe to do so.

Now our captains will have the authority and responsibility to operate their vessels safely. Not that it wasn't always the case, but now it's in writing and there are penalties for not being a leader. The days of just being the boat operator are coming to an end and many of our people don't seem to understand it.

So, what do we do? The larger companies are evaluating

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"Being a leader means building followership. Your primary responsibility is how you can inspire those around you to support a larger agenda under your direction and vision. You have to prioritize communications and the development of others. Your job is no longer about what you can accomplish, but what your entire team can achieve. Good leaders focus on 'we' and not 'me.'"

– Kristi Hedges

their wheelhouse personnel for leadership skills and if they find captains with some of these traits they are providing training to develop them into masters of their vessels. Those that cannot or will not become leaders are being let go.

What's a Leader?

One of the better definitions I have come across is from Kristi Hedges, a leadership coach and author. "Being a leader means building followership. Your primary responsibility is how you can inspire those around you to support a larger agenda under your direction and vision. You have to prioritize communications and the development of others. Your job is no longer about what you can accomplish, but what your entire team can achieve. Good leaders focus on 'we' and not 'me.'"

All of the good masters that I worked under and around understood that. The following is a list of traits that are important in a Master:

- ***Self-confidence*** *– A good leader has little or no need for approval.*
- ***Bold*** *– Good leaders are practical, logical, to-the-point, aggressive and thick-skinned. They are outgoing and responsive to others, poised and comfortable with criticism.*
- ***Conscientious*** *– Leaders have a duty to do what is best, have self-discipline, value order and have a high standard of excellence. They don't cut corners.*
- ***Enthusiastic*** *– Leaders are optimistic, active, expressive and energetic.*
- ***Stable*** *– A good leader is well-adjusted and can tolerate change, frustrations and stress without blowing his top.*
- ***Controlled*** *– The good leader is very careful in making decisions. He/she will take risks, but will assess them and adapt. But they are decisive. They are concerned about their reputation and integrity and will protect both.*
- ***Dominating*** *– Good leaders are Type A personalities. They are competitive and enjoy the challenges in their lives. They are assertive and have a lot of energy.*
- ***Intuitive*** *– They will trust their gut when making decisions. They know they don't know everything but can use reason and logic along with their experiences to make the right decisions.*
- ***Mature*** *– The good leaders have developed personal and behavioral characteristics through growth. No tantrums in the wheelhouse when things don't go as planned.*
- ***Team Orientation*** *– The leader believes in treating adults as adults. He/she fosters a cohesive team by*

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- ***Empathetic** – A good leader builds trust through empathy. He/she can put himself in his deckhand's shoes.*
- ***Charisma** – A good leader is charismatic. When I look back at the really good masters that I worked with they are all larger than life. They could captivate us. We knew they were the leader and they could motivate us.*

The lack of leadership in small companies will be hard to overcome. Refining leadership skills will have to take place at the office first and that new way of doing business will have to be introduced and constantly reinforced with the crews. Many small companies grow out of a captain's thoughts that with a tug or towboat, he can do it better than the place he is working for. But if you weren't a leader on the boat, then you aren't going to be one in the office. Go to your library or online and search for books on leadership. You'll find thousands.

I am fortunate enough to work with some great Masters and crews and one of them is Mark Pearson, who toils on Coeymans Marine Towing's Daisy Mae. He knows what he wants and knows how to do it. He is in charge and he backs it up with experience. Coeymans Marine Towing has just taken delivery of the Daisy Mae and he worked with his company and Rodriquez Shipyard to bring it all together. He isn't just the boat operator; he's the planner, decision-maker, task master and worker and that has earned the respect of his crew. He also knows how to communicate with the office to accomplish their shared goals.

Unfortunately, I see the opposite too often. Far too many of our wheelhouse personnel are in a position of leadership but do not have the requisite training and/or skills to be successful. If you have a captain that is unwilling to train the deckhands and mates to move up to master, then you have a problem. I have always felt that I should be training those under me to take my job. It's best for them and the company and if I slip that much that they do take my position, then I deserved to lose it. So many good masters helped me get to where I am today and I owe it to those coming up to help them be all that they can be.

Looking Back, and Planning Ahead

The industry has promoted too many people that were not good at their deck jobs. Rather than moving people to the wheelhouse based on merit, they were brought up out of necessity. It's almost impossible to tell the guy on deck how to do something when you aren't sure yourself. This leads to frustration. Too often, I see wheelhouse personnel yelling at their crew and it's because they can't communicate what they want done. They don't understand leadership and coaching. They are not earning respect. They slowly become hated by their crews. How will this captain be able to lead the crew through Sub M if he can't explain how to tie the boat up?

If you own the towing vessels, take a long hard look at yourself and your organization and create the environment that allows leaders to thrive. If you are the captain, hone your leadership skills to become the Master. The list above is not all-encompassing, but it should serve you as a springboard to your future.

Embrace Sub M. It's here to stay and it requires sound leadership. Are you in it for the long haul?

***Pat Folan** is a partner in Tug & Barge Solutions and has operated towing vessels from Maine to Corpus Christi, TX, including the Alabama Rivers, Lower Mississippi, Great Lakes and Erie Canal. Tug & Barge Solutions exists to help companies and mariners adapt and then grow with Sub M. Reach him at* **pat@tugandbargesolutions.com**

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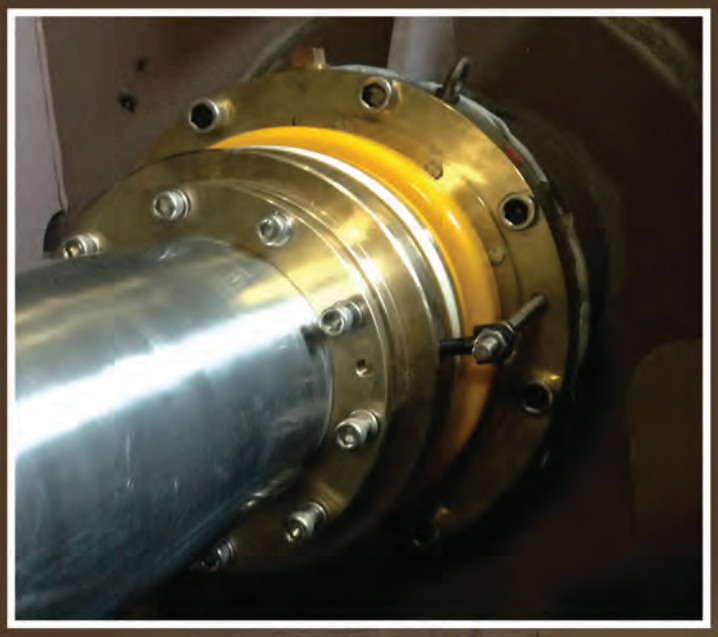

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Mississippi River Ship Channel Deepening Situation Report

A plan unfolds and support grows for a 50-foot Ship Channel to support economical and efficient grain exports. The Big River Coalition remains at the heart of that collaborative effort to make the Mississippi River Mightier.

By Sean Duffy

Duffy

In 2012, the U.S. Army Corps of Engineers' (USACE) Institute of Water Resources (IWR) released a report under the direction of Congress to document the status of U.S. Ports to accept post-panamax vessels. The report, entitled, *"U.S. Port and Inland Waterways Modernization: Preparing for Post-Panamax Vessels"* was officially released on June 20, 2012. Shortly thereafter, the Big River Coalition (BRC) met with representatives of the IWR which published an addendum to the report highlighting the benefits of deepening the Mississippi River Ship Channel to 50 feet. After the addendum was released, the Big River Coalition documented three steps necessary to see the Mississippi River Ship Channel (MRSC) deepened to 50 Feet as:

1. **COMPLETED:** *Increase the depth threshold for full Federal channel maintenance from 45 feet to 50 feet. This was done in the legislation known as the Water Resources Reform and Development Act of 2014 (WRRDA 2014).*

2. **Draft COMPLETE:** *Produce a new General Reevaluation Report and Supplemental Environmental Impact Statement to update the economics detailed in the 1981 USACE Chief of Engineers Report that led to the legislation that authorized the MRSC be deepened to 55 feet in the Water Resources and Development Act of 1986. The development of the Recommended Plan, followed by the Final Report and then culminating in the Director's Report that is expected to be completed in March 2018, would be the completion of Step number 2.*

3. **LASTLY:** *Secure approval and funding to allow the USACE (Federal Sponsor) and the non-Federal sponsor, Louisiana Department of Transportation and Development (LDOTD) to execute dredge contracts to deepen the MRSC to 50 feet.*

The second step identified the need to produce a General Reevaluation Report and Supplemental Environmental Impact Statement to update the economics detailed in the 1981 Chief of Engineers Report (Chief's Report). The original Chief's Report established the economic justification for deepening the MRSC to 55 feet, that was ratified in the Water Resources and Development Act of 1986 (WRDA 1986). The effort to deepen the MRSC was impeded by a channel depth threshold also established in WRDA 1986. Channels deeper than 45 feet required a non-federal sponsor to share the annual maintenance cost with the U.S. Army Corps of Engineers (USACE). The MRSC was deepened from 40 feet to 45 feet because of this restriction. The BRC identified this road block and assisted with changing the legislative threshold to 50 feet. Because of the length of time between the Chief's Report and the new threshold, the USACE determined that it would have to update the economic justification for the deepening project. Since the new threshold was 50 feet, the LDOTD asked the USACE to revise the economics for a depth of 50 feet.

The new economic justification is now in the Recommended Plan phase and proposes to deepen the MRSC to 50 feet through the Port of Baton Rouge. Based on the optimization, the greatest net benefits are achieved through the deepening the channel to a depth of 50 feet through the Port of Baton Rouge. The deepening from Mile 13.4 AHP to Mile 22 BHP would be to 50 feet Mean Lower Low Water and the deepening on the Crossings up to Mile 232.4 AHP of 50 feet would be based on the Low Water Reference Plane.

The remaining timeline indicates that there are just two outstanding milestones for the MRSC deepening project planning and development phase:

- ***Final Report (to transmitted from USACE New Orleans to Corps HQ): October 31, 2017***
- ***Director's Report (Final Determination by Corps HQ): March 30, 2018***

The BRC has been assisting the USACE and LDOTD throughout the process and has been promoting the cause in an effort to collect supporters of the project. Recently, the National Association of State Departments of Agri-

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"American farmers export up to seventy percent of U.S. agricultural exports to world markets via waterborne commerce on the Mississippi River and the ship channel deepening project offers significant reductions in shipping costs. The math is easy."

culture (NASDA) and the Southern Association of State Department of Agriculture (SASDA) unanimously supported the Mississippi River Ship Channel deepening to 50 feet project from Baton Rouge to the Gulf of Mexico. The BRC has often discussed the importance of the Mississippi River to the American Farmers, as the Ship Channel connects over 350 million acres of agricultural lands to international markets (global trade).

American farmers export up to seventy percent of U.S. agricultural exports to world markets via waterborne commerce on the Mississippi River and the ship channel deepening project offers significant reductions in shipping costs. The math is easy.

Significantly, the Big River Coalition is pleased to receive the support of NASDA and SASDA and has benefitted from a close working relationship with Dr. Michael G. Strain, NASDA President and Louisiana Commissioner of Agriculture & Forestry, who highlights the importance of international trade to U.S. agricultural producers.

The annual challenge to maintain federally authorized channel dimensions on the MRSC is critical to agricultural exports (and all exports, for that matter) transiting the Mississippi River and Tributaries (MRT). The MRT connects over 350 million acres of agricultural lands to international trade via waterborne commerce on barge and ship traffic departing the revolving door to global trade represented by Southwest Pass (the entrance and exit to the MRSC). Dr. Strain supports the BRC efforts to increase the allocations of the Harbor Maintenance Tax (HMT) to maintain the Ship Channel and to deepen the channel to 50 feet to maximize the reduced transportation costs to the American Farmers.

The Recommended Plan documents a total investment cost of $191,124,016 while increasing the cost of the project significantly. The Benefit Cost Ratio (BCR) of the TSP was 5.47, while the identified BCR in the Recommended Plan has been determined to be 10.75. A BCR of 10.75 does indeed make the Mississippi River Ship Channel Deepening Project a strong competitor for federal funding.

Section 1111 of the Water Infrastructure Improvements for the Nation Act (WIIN) that was signed into Public Law No: 114-322 by President Obama on December 6, 2016, revised established cost-share requirements related to federal navigation projects. The federal cost share is now seventy-five percent and the non-Federal portion is twenty-five percent. Thus, if the documented total cost is accurate, the Federal responsibility is projected to be $143,343,012 and the non-Federal (LDOTD) would be $47,781,004, although applicability of implementation guidance has not been confirmed.

The Big River Coalition will continue efforts to advise navigation, agricultural and commodity shippers of status of the efforts to deepen the Mississippi River Ship Channel to 50 feet. The Coalition continues working to develop increased support for the deepening project, hopeful that once the Director's Report is released, the groundwork will have been laid to secure federal funding based on the transportation cost-savings reductions.

The river deepening project proposal was presented with the CG/LA Infrastructure's 2017 Job Creation of the Year Award. This prestigious award was justified based on the calculation the project would create 16,991 new and permanent jobs determined by an economic justification report entitled, *"The Economic Impact of Deepening the Mississippi River to 50 Feet,"* co-sponsored by both the BRC and LDOTD. This report by Dr. Tim P. Ryan was officially released on August 22, 2013.

As the Executive Director of the Big River Coalition, I have been tasked with creating a list of supporters to assist with Congressional support once the Director's Report has been finalized. This effort will continue and become more of a focus once the "Final Report" is delivered from the USACE Mississippi Valley New Orleans to USACE Headquarters.

***Sean Duffy** is the Executive Director of the Big River Coalition.*

Editor's Note

Too often, the deepening of blue water harbors and rivers is considered to be a " big ship" issue when, in reality, the economies afforded by properly dredged waterways are critical to the inland river export model. With increasing competition from South American countries, some blessed with thousands of miles of naturally deep draft rivers, this aspect of our infrastructure is more important now than it has ever been.

Facts do Matter: *a Defense of the Jones Act*

By Aaron Smith

Smith

I recently read a story in the *New Yorker* – but that sounds more intellectual than what really happened, let me start over. I recently clicked a link on Facebook, which sought to explain why the term "Fake News" has become so popular.

The article claimed that facts no longer matter to the average voter. As evidence (yes, the article explaining why facts don't matter included evidence), it detailed a study whereby the subjects had been given false information, then were asked to make a choice between two options. Subsequently, the subjects were given the real information and again asked to make the same choice. Time and again, the subjects' decisions were based upon the first information they were given, even after they had been told the information was false. To sum up their findings, the researchers simply said, "once formed, impressions are remarkably perseverant."

To me, the resiliency of first impressions detailed in this experiment explains a considerable amount of the opposition facing the Jones Act. Much of America woke up one morning to horrible pictures of the damage done by Hurricane *Maria* to Puerto Rico. Thereafter, they were told by CNN, "*Huff Po*," and social media that the Jones Act is exacerbating these problems. As these stories were the first time many have heard about the Jones Act, these well-meaning individuals immediately developed an impression that this Act is harming Americans in Puerto Rico.

If we are to believe the results of the psychological study mentioned above, the truth about the Jones Act doesn't matter at this point, the impression has been made and it is a waste of time to provide these people with accurate information. To me, nothing could be further from the truth. Facts do matter, and the fact is that the Jones Act benefits all Americans, including Americans living in Puerto Rico.

The domestic maritime industry has invested more in Puerto Rican commerce than any other nation or entity on this plant. As a result, dozens of state-of-the-art, U.S.-flagged vessels engage in the Puerto Rican trade on a regular basis. This number of vessels has doubled recently due to U.S.-flagged offshore supply vessels (OSVs) offering to help take relief supplies to Puerto Rico even though they do not normally run these routes.

In this combined effort, the Jones Act industry has provided its fellow Americans (as of 13 October) with at least 11,300 containers, 100 fuel distribution trucks, 18 million gallons of fuel, and convoys of electrical bucket trucks to repair power lines. This cargo has essentially choked the docks of Puerto Rico, at times overwhelming the shoreside infrastructure required to distribute this needed aid across the island.

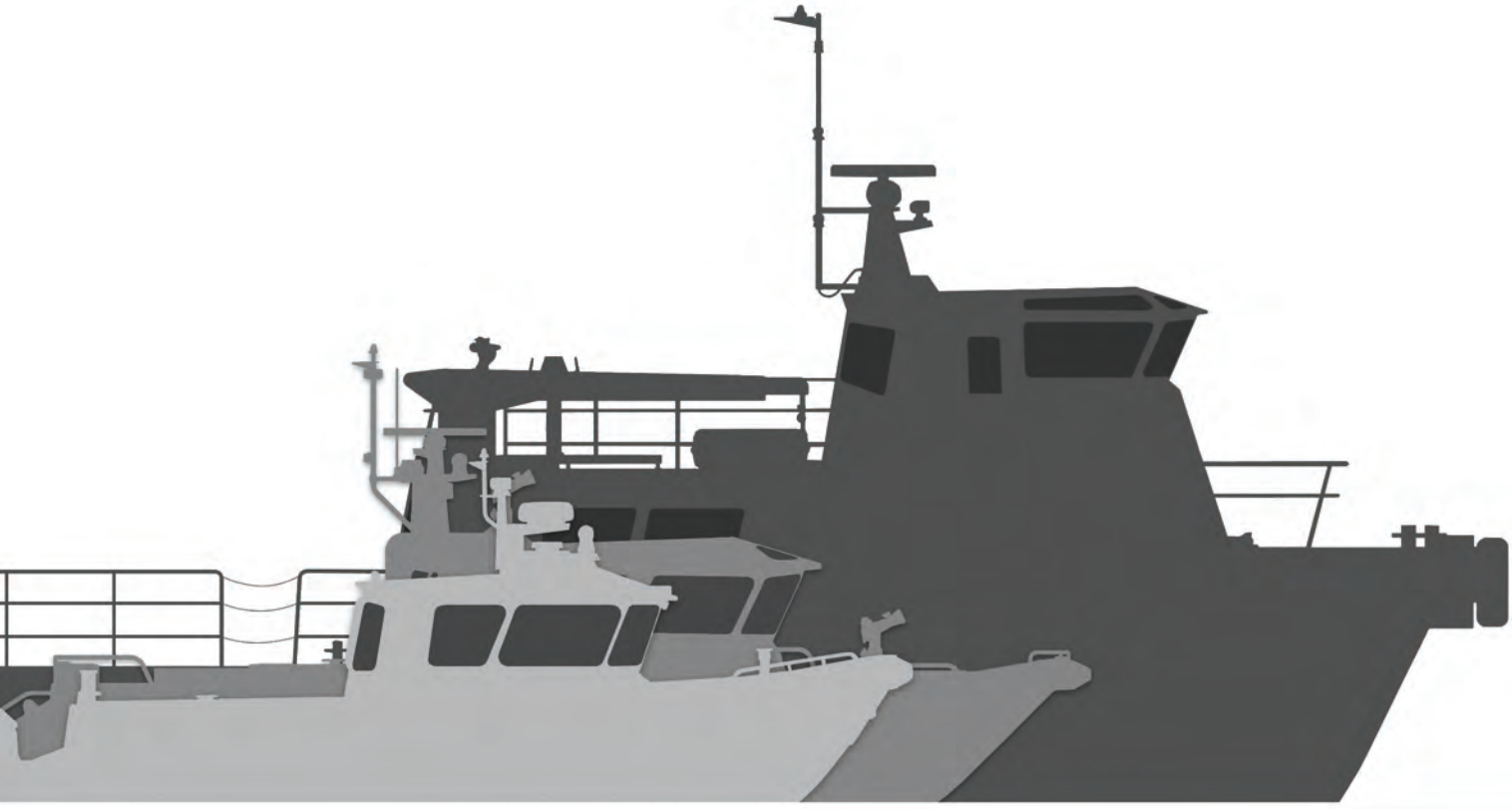
Alternatively, when political pressure caused the Administration to waive the Jones Act in the aftermath of Hurricane *Maria*, only one foreign flagged vessel participated in the relief effort. As such, it is easy to see how the public perception was not supported by facts. The facts clearly demonstrate that the Jones Act is not hampering Puerto Rican relief efforts.

Outside of this disaster response, the Jones Act does not adversely impact Puerto Rico. The U.S. companies that participate in the Puerto Rican trade compete on a daily basis with vessels that move between hundreds of international ports and the island. This competition keeps costs down and the domestic industry nimble.

We can use Puerto Rico's next-door neighbor, the U.S. Virgin Islands, to prove this fact. The U.S. Virgin Islands are not covered by the Jones Act. As a result, a recent study found that it costs up to 40 percent more to ship goods from the U.S. to the U.S. Virgin Islands on foreign vessels than it does to ship cargo to from the same location to Puerto Rico on Jones Act vessels.

Credit: OMSA

I went searching for even better proof of the Jones Act's impact on Puerto Rican prices. After looking through dozens of



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First and foremost, we have to tell our story. We have a great industry, one that contributes to the defense of our nation, our homeland security, and provides half a million Americans with more than $29 billion in paychecks. An amount which ensures these families can support a comfortable lifestyle and a better future for their children. In short, the Jones Act provides the American Dream for 500,000 hardworking Americans.

websites and price studies, I found all the proof I needed on my phone, specifically within my Amazon Prime App. On this App, I found Amazon Prime's standard shipping costs Puerto Rican customers nothing. It's free, the same cost I pay when I have Amazon ship something to me in New Orleans. I verified these costs on my Home Depot App. Home Depot also provides free shipping to its Puerto Rican customers for orders over $75. If these two companies can figure out how to ship cargo to Puerto Rico without incurring increased costs, I'm certain everyone else can do the same thing, if they so desire.

These facts aside, what is even more important to me is figuring out what we in the maritime community can do to change people's impressions of the Jones Act and/or ensure they don't develop negative impressions in the first place.

First and foremost, we have to tell our story. We have a great industry, one that contributes to the defense of our nation, our homeland security, and provides half a million Americans with more than $29 billion in paychecks. An amount which ensures these families can support a comfortable lifestyle and a better future for their children. In short, the Jones Act provides the American Dream for 500,000 hardworking Americans.

We don't tell this story enough. I think we as an industry sometimes fall into the trap of being suspicious of mainstream media outlets and are not as active as we need to be on the newer media platforms. Additionally, I think sometimes we get worried that by raising the Jones Act we are inviting attacks against this Act. This is proving to be a shortsighted strategy. The forces that are ideologically opposed to the Jones Act or that stand to gain economically from its elimination are going to continue to distort situations like Hurricane *Maria* in an attempt to get their way.

Considering that to be true, Jones Act proponents need to be equally visible and vocal, even when the audience has already formed an impression. For that reason, I'm not going to hide the great story our industry has to tell. Again, facts do matter and the fact is that the Jones Act is an important piece of American public policy, one which is integral to all of our national, homeland, and economic security interests. I hope you'll join me in telling our tale.

***Aaron Smith** is President and CEO of the Offshore Marine Service Association (OMSA).*

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Marine Fuels: UNMASKING GAS

A primer on the way forward for alternative fuels for marine propulsion.

By Joe Hudspeth

Hudspeth

By now, many of us have been passed by a garbage truck, taken a ride on an airport bus, or hailed a taxi cab that is clearly labeled by their respective marketing departments that these vehicles are powered by clean burning natural gas. Even now in our own maritime industry, some trendy operators are looking to make the case for LNG propulsion systems, others are opting for hybrid-electric solutions, and some are even aiming for full electric configurations. One of the newest alternative fuels and propulsion systems for maritime consideration is the fitting of hydrogen powered fuel cells. Arguments can be made for each, but how do you know if such a system is a good fit for your vessel and operating patterns?

The many and varied online graphics of the latest 'alternative' propulsion systems are compelling, but it remains quite challenging to get a close look at the comprehensive system in context to the required physical footprint and infrastructure necessary to make it work. If you are lucky, you might come across a more detailed rendering or find some simple 1-line diagrams that allude to the required components. YouTube has become home to a new genre of "unboxing" events where someone unpacks and walks through all the components contained in the package. These videos are all the rage for those looking for consumer electronics, but the maritime section seems to be lacking. Read on for a closer look what it takes to install a gas based fuel system.

Red and White's Vision

San Francisco's historic Red and White Fleet together with their research partner, Sandia National Laboratories, set about to conduct a feasibility study to see if a realistic vessel design could be crafted to incorporate hydrogen fuel cell technology into a modern high speed passenger vessel with zero emissions. The task was further defined to ensure that the engineered concept would garner regulatory acceptance from the U.S. Coast Guard and/or ABS. Naval Architecture Firm, Elliott Bay Design Group (EBDG), joined the team and helped to develop an initial vessel design concept dubbed – 'SF-Breeze.' The findings of their study provide a detailed overview of what must be considered for fitting a hydrogen fuel system along with some cross references to LNG. According to Dr. Joseph Pratt of Sandia's energy innovation department, "The SF-Breeze study showed that outfitting a high speed passenger ferry with a clean, quiet hydrogen fuel cell powertrain is technically possible with no regulatory showstoppers, and would provide significant benefits to operators, passengers, and the environment."

Fuel for Thought

Dealing with hydrogen (or LNG) as a fuel presents its own unique challenges and requires special handling beyond what is experienced with diesel. Before diving into the complexities of a hydrogen fuel cell system, it is important to understand the hydrogen fuel itself. Hydrogen can be safely stored in either a liquid or gaseous state. In reality, there is also such a thing as solid state hydrogen storage, but that is best left defined in a copy of your favorite molecular magazine. For most marine applications, liquid hydrogen storage will make the most sense as the volume ratio of liquid to gas is around 1:850 when the gas is stored under no pressure. Dr. Pratt states there are some applications that may make sense to use gaseous hydrogen storage, but liquid hydrogen will remain a more common choice.

In regards to vessel design, tank sizing and placement is critical. Obviously, the tank size is based upon the power

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demands of the vessel. As hydrogen carries more energy potential than diesel, you may not need an exact one-to-one ratio of comparable capacity. Hydrogen fuel cells are the most efficient in the 20% to 30% load range so if the load is low, you could burn less hydrogen compared to diesel; but if the application has a high load factor you may need more. Fortunately, hydrogen is much lighter than diesel, but it also requires specialized tanks which can easily add significant weight to the vessel's lightship draft.

Chill Out

Hydrogen has a very low boiling point, so in order to keep this gas in a liquid state, a Type-C double wall cryogenic insulated tank is needed. The chilled fuel can be bunkered directly into the thermos-like tank from either a truck or shore side bunkering facility. Like the tank, all the piping for the fuel must also keep its cool, so very expensive and specialized vacuum jacketed insulated piping is used. This piping is of course heavier and more complex than fiberglass insulated piping which is suitable for other gas systems such as LNG.

As part of Sandia's study, both ABS and the Coast Guard found enough similarities to the properties of Hydrogen compared to LNG that the agencies have recommended adoption of the IGF Code as a guideline for installation of a low-flashpoint fuel system. That said; the Coast Guard has yet to make a formal ruling on the placement of gas fuel tanks, but there have been expressions to avoid placement beneath accommodation spaces. For many vessels, this design parameter will force very heavy fuel tanks to be located up high which, of course, is not optimal for stability.

The tanks can be placed below accommodation spaces, but the system will become more complex and expensive. Some designs such as that used to build the LNG-powered Harvey Gulf have found a safe place to position the tank below the aft cargo deck or in Robert Allan's RANGLer tugboat, the tank is located below deck forward. Designers will have to run the stability calculations and find creative ways to deal with all of these gas storage complexities.

The How of Hydrogen

The basic hydrogen fuel cell propulsion system will consist of a propulsor of your choice (prop, thruster, or jet), permanent magnet AC traction motor, a fuel storage tank, and some fuel cells. At its most basic level, a hydrogen fuel cell is simply a box that produces electricity through an electro-chemical reaction of the fuel and oxygen when the elements come in contact with the cell's catalyst layers and membrane. The process literally involves splitting molecules and the net result is a product of DC power and some waste in the form of H2O.

The DC power that is produced has variable voltage depending on the load demand on the fuel cell; thus a DC to DC converter is required to condition the power. The DC power will then pass through a filter before hitting an inverter to finally create the needed alternating current for the AC motors. The number of fuel cells needed depends on the size of each cell and the calculated power demand of the propulsors.

Vaping Isn't Cool

The fuel cell can only burn hydrogen in a gaseous state, so before arrival at the fuel cell the hydrogen must first be vaporized. The vaporizer is considerable in size and weight, but also comes with a requirement for air or water to facilitate the needed heat. The EBDG team has suggested that some of the waste heat from the fuel cell's water cooling loop could be recycled to run the vaporizers. Placement of the fuel cells themselves does offer flexibility as long as size, weight, stability, and ventilation can be properly considered. The cells can even be stacked by mounting in racks. Good ventilation will be needed to supply the proper oxygen for the fuel cells to work, but there will also be considerable heat generated and adequate air conditioning must be installed.

Don't Pass Gas

Adding an LNG or hydrogen fueled propulsion system may prove to be a good fit because the environmental benefits are high. The challenge will remain for builders and naval architects to produce safe and viable designs. Eventually, regulatory bodies will need to establish guidelines. While referencing the IGF code can offer some requirements for the fuel system, all boat builders will agree that when blended regulations exist it is easy to find frustration as conflicts will undoubtedly occur.

The new gas-based fuel systems are safe, but vessel designs must consider proper hazardous zones and incorporate satisfactory structural fire protection, fire suppression systems and a defined operating procedure. The SF-Breeze and other LNG powered vessels will surely help to chart this course for our industry. More information and a copy of the full report on SF-BREEZE can be found online at ***http://energy.sandia.gov***

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

A Sea Change for Shipbuilding:

Digital Integration and Automation are Critical to Meeting Rising Demand

By Tom Hennessey

When it comes to shipbuilding, the numbers are staggering: Hundreds of millions of parts in one aircraft carrier. ***Billions of dollars proposed for Naval fleet development in the latest NDAA. Hundreds of thousands of private sector jobs in the U.S. alone.*** A 2015 MARAD report, for example, pegged the total economic impact associate with the industry at 400,000 jobs, $25 billion in labor income, and 37 billion in GDP (based on data from 2013).

When the financing, jobs, technological developments, and supply chain trade dedicated to shipbuilding around the world are added in, the global economic impact is astonishing. Epochal state-driven shipbuilding programs already underway in Australia, India, China, South Korea, Britain, and right here at home in the United States, are certain to reshape the industry and push technological advances to the very boundaries of human knowledge.

Global Dynamics Drive Historic Change

In the U.S., historically a worldwide leader in commercial and military shipbuilding, the pressure is on. Growing international threats, a recovering economy, and the ongoing rise of global trade have combined to fuel an increasing demand to build new ships – and to build them faster. Existing ships need to be upgraded to incorporate the latest defense and automation technologies and kept in an optimal state of repair to extend longevity and efficiency. Stealth, multi-mission capability, e-navigation, cleaner emissions, energy efficiency, and modular ship design enhancements are high priorities for naval forces around the world. Pending vessel obsolescence, rival fleet expansion, and unpredictable threats are converging to spur on the build-up, stimulating a global market expansion.

The drive to drastically improve both productivity and technological sophistication has intensified alongside in-

ternational competition that wasn't a significant factor, just a few decades ago. This raises formidable challenges and opportunities for the industry. The Trump Administration has ordered major increases in fleet size and promised to make defense spending more efficient. In reality, these widely praised goals belie even more astonishing numbers. The Congressional Budget Office reported in April that under current conditions, building up to a 355-ship fleet would cost $26.6 billion per year for the next 30 years (2017 dollars), which is 60 percent more than the average annual spend over the past 30 years.

In order to meet these commercial and military needs on time and on budget, shipyard processes will have to be radically streamlined. To minimize bottlenecks and reduce redundancies, they must move from sequential paper-based steps to automated parallel processes. To take operations to new levels of productivity, quality, and integration, shipyards will have to modernize the entire enterprise by leveraging digital technologies and smart manufacturing innovations.

"In order to meet these commercial and military needs on time and on budget, shipyard processes will have to be radically streamlined. To minimize bottlenecks and reduce redundancies, they must move from sequential paper-based steps to automated parallel processes. To take operations to new levels of productivity, quality, and integration, shipyards will have to modernize the entire enterprise by leveraging digital technologies and smart manufacturing innovations."

Digital Transformation and Integration

The model based enterprise (MBE) approach is transforming highly engineered, discrete manufacturing and is the core framework driving the evolution of smart manufacturing. This approach leverages 3D models from design through MRO. Several technology innovations have converged to enable the integration, automation, and analytics advances that are moving the theoretical concept of MBE into real-world practice in factories, aircraft hangars, and shipyards around the world. The IIoT of embedded sensors and diagnostic connectivity on assets and components, 3D illustrated work packages, robotics and UAVs, augmented reality for guided production and repair, integrated manufacturing management platforms (powerful combinations of PLM, ERP, MES), and advanced machine learning capabilities — all these innovations and more are vital to enabling a new era of shipbuilding.

Complexity is obviously a central challenge when building something like an aircraft carrier, submarine, or super large containership. The complexity of far-flung supply networks and hundreds of sub-assemblies adds another layer. The life-or-death criticality of accuracy, quality, and cyber security leaves no room for error and leads to exacting and burdensome regulations and inspection requirements.

To answer these challenges and more, shipbuilders need to adopt the MBE approach, and leverage the "single version of the truth" represented by the Digital Thread. The Digital Thread represents the sum of all data digitally linked to form a single, contiguous definition of all value-added decisions made during an asset's (or component's) manufacturing journey from design to obsolescence. The Digital Thread includes the 3D definition of a product, its configuration and specifications, all manufacturing and repair processes, logistics, and operational support. It ensures that design, engineering, manufacturing, suppliers, and change and quality management all work in concert.

Emerging Innovations

With the Digital Thread (and it's corollary, the Digital Twin; a comprehensive digital replica and record of a particular ship or submarine), shipbuilders gain greater control, agility and insight. Data is entered only once and available to all associated stakeholders and processes; digital handover is structured and revision controlled; and downstream processes and problem-solving are fully integrated.

As more industries (notably Aerospace and Defense) leverage IT platforms that enable the MBE by integrating PLM, ERP and MES solutions with data-driven innovations like connected sensors and diagnostics, UAV inspection drones, and advanced guidance systems for build and repair, transformative advantages emerge.

Improved asset utilization, process standardization, closed loop quality management, reduced TCO for IT components, optimized employee competency and productivity, and compressed launch times are among the benefits being realized through the continuous performance feedback and real-time intelligence made possible by smart manufacturing innovations. These improvements, and many more, are a direct answer to the daunting and complex challenges faced by a shipbuilding industry entering a new era of demand and competition.

Of course, digital transformation of this magnitude represents a challenge in itself. Implementing the MBE approach, integrating technology platforms across frag-

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mented supply chains, and automating production and inspection processes is "extra" work on top of the already daunting mandate to deliver ships on time and on budget. The military procurement system is slow, SOPs evolve slowly, and shipbuilding culture is notoriously resistant to change — "if it isn't broken, don't mess with it." Moving to "fix it, even if it doesn't seem broken, or you won't make your deadline a decade from now" is a tough sell in an entrenched industry. Strict regulations, deadly serious security concerns, and widespread technical skills shortages are major roadblocks that will have to be addressed through coordinated initiatives across government and industry organizations.

MRO Can Lead the Way

In the A&D sector, MRO operations have lead the way to digital transformation. Shipbuilders could follow the same trajectory. Efficiency, reliability, and performance intelligence improvements in MRO operations will significantly impact fleet readiness, a reality that is reflected in increased funding for ship maintenance depots by U.S. and foreign governments. The use of connected sensor data to optimize routine maintenance scheduling, prevent problems before they occur, and provide vital performance feedback to every stage of design and production has obvious merits and is being widely adopted. Inspection drones can operate more safely and flexibly than human inspectors, sending visual and measurement data directly to digital systems, and detecting microscopic material defects that can't be seen by the human eye.

For example, augmented reality and natural language systems promise a step-change in the accuracy and efficiency of repair work; 3D digital overlays work in conjunction with "chat bots", smart glasses, and mobile devices to provide advanced guidance to mechanics. These systems will also help address increased retraining needs and pervasive skills shortages. Digital thread and digital twin data repositories will replace the cumbersome and error-prone practice of performing inspections, maintenance and repair by referring to complicated (and sometimes conflicting or outdated) sets of manuals.

Setting a Course for the Future

While many of these innovations sound futuristic, digital shipyards

are already being funded and developed in many countries, including the U.S. (Newport News), Australia (the $89 billion Future Frigates initiative), South Korea (Geoje shipyard and Samsung Heavy Industries), Brazil (EAS shipyard), and India (Cochin Shipyard Ltd).

These leading edge programs underscore the enormity of investment and vision required. In addition to financial backing from governments and major industry players, an international push for interoperability standards and workforce training is essential. Shipbuilding enterprises must dedicate themselves to digital transformation by leading from the top; C-level and managerial support for innovative processes and pilot projects are vital to real-world implementation and practice. Above all, digital integration has to be prioritized by linking processes and systems and developing collaborative workflows. Disciplined change management will be a key capability at every step along the way.

The next decade will be characterized by immense challenge and opportunity for the shipbuilding industry. Ramping up new ship production and boosting MRO efficiency will only be possible through strategic and comprehensive adoption of the MBE model and the emerging automation and analytics innovations that are bringing it to fruition. Driven by the power of enterprise-wide digital transformation, shipbuilders are set to embark on the journey of a lifetime.

Tom Hennessey is the Vice President of Marketing and Business Development for iBASEt.

GoM Stakeholders Remain Energized

Despite Lingering Oil Bust

Gulf of Mexico vessel builders – and their customers – adapt to a lean offshore market.

By Susan Buchanan

After oil prices plunged in late 2014 – pressured by shale output – demand for offshore vessels in the Gulf of Mexico shrank, day rates for boats fell and non-working units were idled. This year, several GoM boat builders filed for Chapter 11, or voluntary bankruptcy, while others consolidated. The most diversified companies kept their heads above water.

Today, the outlook's a bit brighter. Crude oil prices hit bottom early last year. Tidewater Inc. in New Orleans and GulfMark Offshore in Houston emerged from Chapter 11 recently. Edison Chouest Offshore in Cut Off, La. is building under an Alaskan contract. And Port Fourchon, south Louisiana's oil hub, signed new leases with tenants recently.

WTI crude oil hovered above $51 a barrel in mid-October, below $106 in June 2014. But that's an improvement from $27 early last year. Meanwhile, 20 oil and gas rigs operated in the Gulf of Mexico on Oct. 13, versus 22 a year earlier, according to Baker Hughes in Houston. That's down from 57 in late 2014.

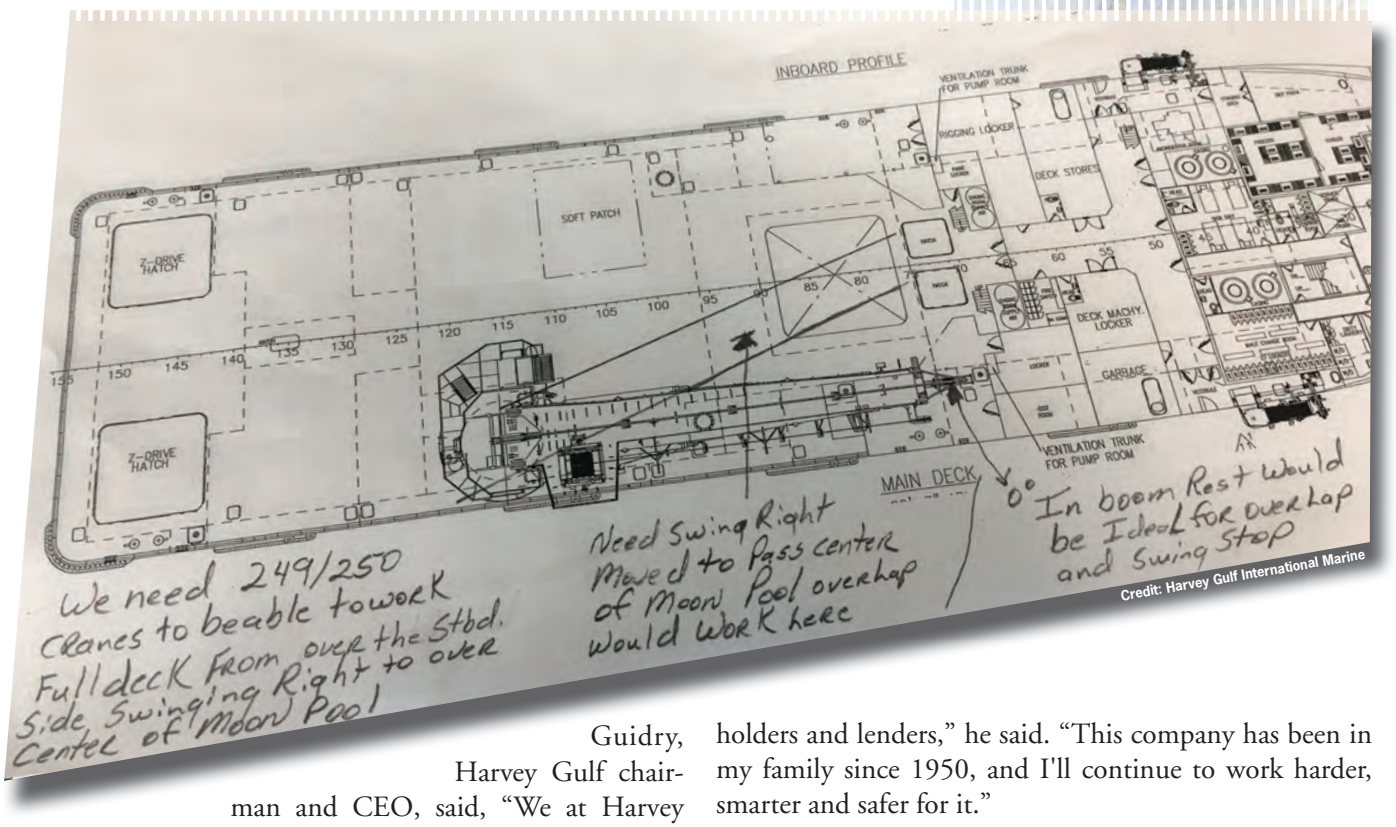
HARVEY GULF CUTS COSTS; CONSIDERS RESTRUCTURING

Privately owned Harvey Gulf International Marine, founded in 1955 and based in New Orleans, caters to offshore oil with supply and multi-purpose support vessels. Harvey is first in the Gulf to operate a fleet of LNG-powered boats. Though Moody's Investors Service cut Harvey's credit rating in March, the company has done better than most of its competitors.

When asked how his firm has stayed afloat, Shane

"We at Harvey don't put our heads in the sand, and we haven't stuck it to our customers. In a downturn, customers remember that. We went out and signed over 40 new customers that we hadn't done business with in past years because we had no availability then. And we didn't wait to cut costs."

– Shane Guidry, Harvey Gulf chairman and CEO



Guidry, Harvey Gulf chairman and CEO, said, "We at Harvey don't put our heads in the sand, and we haven't stuck it to our customers. In a downturn, customers remember that."

He continued, "We went out and signed over 40 new customers that we hadn't done business with in past years because we had no availability then. And we didn't wait to cut costs" after oil prices dropped.

"A great CEO sees a downturn coming, and he cuts early," Guidry said. "That's what I did one to two years before my public peers did. We increased EBDITA margins to over 60 percent in 2016 and through 2017 so far." EBDITA is earnings before depreciation, interest, taxes and amortization.

"But we aren't immune to some sort of restructuring that will make sense to the company, our customers, shareholders and lenders," he said. "This company has been in my family since 1950, and I'll continue to work harder, smarter and safer for it."

In early May, Harvey took delivery of its fourth LNG-powered OSV, the M/V Harvey Freedom, built at Gulf Coast Shipyard Group in Mississippi. Based out of Port Fourchon, the Harvey Freedom is chartered to Shell under a five-year contract. Harvey America, the fifth ship in the series, should be delivered to Shell soon.

TIDEWATER, GULFMARK EMERGE FROM CHAPTER 11; SEACOR MARINE SPUN OFF

Earlier this year, Tidewater Inc. warned of a restructuring, and in May it entered into a bankruptcy agreement. The company emerged from Chapter 11 in July. On August 1, Tidewater's new shares began trading on the New

York Stock Exchange. The company said then that its greatly de-leveraged balance sheet positions it for long-term success.

Separately, another bit of unexpected excitement was stirred up when it was announced on October 16th that industry icon Larry T. Rigdon will serve as interim president and chief executive officer (CEO) of Tidewater Inc. while a search committee seeks a permanent successor to Jeffrey M. Platt, who elected to retire from his role as director, president and CEO of offshore service vessels (OSV) owner and operator effective October 15, 2017.

GoM demand for OSV's has been pummeled in the industry downturn that began three years ago, Tidewater executive vice president Joe Bennett in Houston said last month. "Tidewater's exposure to Gulf of Mexico activity is, and over the last several years has been, relatively small, however," he said. "Our GoM operations amount to less than 10 percent of our consolidated revenue and, in some cases, much less than 10 percent. We're operating about five or so OSV's in the Gulf these days, whereas we had 15 to 20 there five to ten years ago. Both then and now, that's a very small percent of our consolidated operations."

Bennett added, "We, like many other local operators, have vessels in stack that can return to service as the market recovers." With more than 300 OSV's and other workboats, Tidewater supports offshore oil with towing and anchor-handling vessels for drilling rigs and boats that move supplies and staff. The company provides assistance for pipe and cable laying, pollution and fire control and seismic work.

In early October, GulfMark Offshore – with 66 platform supply, anchor-handling tug supply and other vessels in the Americas, North Sea and Southeast Asia – also exited bankruptcy. GulfMark filed for Chapter 11 on May 17, the same day that Tidewater did. Significantly, when GulfMark entered bankruptcy, nearly half of its vessels were idle.

In June, Seacor Holdings in Florida spun off Seacor Marine in Houma, leaving the latter focused on offshore services. According to Seacor Marine, on a total U.S. fleet basis--mainly in the GoM and including idle vessels – its utilization was 13 percent in the quarter ended June 30. Average day rates

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All stats from 02/14/2017

"There are more vessels that aren't being utilized than there are in service. But the limited activity that is occurring in the U.S. GoM is being serviced out of Port Fourchon. The discount on our basic land rental is 20 percent, and that's been in effect since April 2015. We're budgeting for it to continue through all of 2018."

– Chett Chiasson, Port Fourchon's executive director

fell to $9,619 in that quarter from $10,133 in the year's first quarter. Among the company's 42 owned and leased vessels in the United States, 32 were cold-stacked on June 30. That total included ten anchor-handling towing supply vessels, 16 fast support vessels, five lift boats and one specialty vessel.

HORNBECK LINES UP NEW CREDITS; CHOUEST BUILDS FOR ALASKA

In February, Moody's downgraded its credit rating for Hornbeck Offshore Services, Inc. in Covington, La. At the time, Moody's expected that low OSV usage and weak day rates would extend through mid-2018 at least. Hornbeck owns 70 vessels, mainly serving the energy industry, and has two boats under construction for 2018 delivery. The company had 41 OSV's stacked in early August when it announced second-quarter earnings, and it predicted that 45 OSV's would be idle when 2017's third quarter ends. Hornbeck last month didn't respond to inquiries about its GoM situation.

Twenty years ago, Hornbeck began building advanced, new-generation OSV's, using in-house designs. In late 2011, the company announced plans to build sixteen U.S.-flagged 300 class DP-2 new generation OSV's. That number was expanded to 24 OSV's. Hornbeck expected them to serve increased deepwater and ultra-deep drilling in its core areas – the GoM, Brazil and Mexico. Two remaining boats in this 24-vessel build plan should be ready in next year's second half.

In a development that expands its liquidity, Hornbeck on June 15 said it would use $300 million from a new credit facility to refinance an existing $200 million in credits. Hornbeck can use funds drawn under its new facility for working capital and general corporate purposes. The new credits are collateralized in part by the company's high-spec OSV's and MPSV's and a security interest in the two new-builds. Hornbeck's NASDAQ-traded stock has improved since June's credit announcement.

Meanwhile, after two decades of new builds and an expanded presence at Port Fourchon, Edison Chouest Offshore in 2015 laid off yard workers at LAShip in Houma. Chouest's world fleet exceeds 200 offshore service and support vessels chartered to customers. Early last year, Chouest said it would also build boats at a new site, TopShip, LLC, in Gulfport, Miss.

In August of last year, Alyeska Pipeline Service Co., operator of the trans-Alaska pipeline and the Valdez Marine Terminal, said Chouest had been chosen to provide its support services, starting in July 2018. For the Alaskan contract, Chouest is building tugs to escort oil tankers, along with general purpose tugs, at its Louisiana and Mississippi yards, and it is producing oil-spill response barges in Oregon. Construction on the tugs began last year. Chouest didn't respond to inquiries last month about those builds.

In other good news, Chouest in April extended its business alliance with BP, a deepwater GoM player, for 30 months. That accord includes delivery of a new-generation PSV, under construction at LaShip this year, to take supplies to BP's Gulf platforms.

PORT FOURCHON SIGNS NEW TENANTS

Vessel utilization is still down considerably in the U.S. Gulf, Chett Chiasson, Port Fourchon's executive director, said last month. "There are more vessels that aren't being utilized than there are in service," he said. "But the limited activity that is occurring in the U.S. GoM is being serviced out of Port Fourchon." The port has given leaseholders a break. "The discount on our basic land rental is 20 percent, and that's been in effect since April 2015," he said. "We're budgeting for it to continue through all of 2018."

– Larry T. Rigdon, interim president and chief executive officer (CEO) of Tidewater Inc.

"After about two years of no new waterfront leases, in the last five months, we've signed three new leases," Chiasson said. "That keeps us optimistic." The new leases are with oilfield service companies: Oceaneering, FCC Environmental and Omni – the parent company of Trussco and Gibson.

Port Fourchon services over 90 percent of the GoM's deepwater oil output, and more than 250 companies use it as a base. Fourchon is also the land base for the Louisiana Offshore Oil Port or LOOP, handling 10 to 15 percent of the nation's domestic oil and 10 to15 percent of its incoming foreign oil. The LOOP is connected to half of the nation's refining capacity, and it's the only U.S. port that offloads very large and ultra-large crude carriers. Notably, there has recently been talk about exporting crude through LOOP, consistent with the relaxation of domestic crude oil export rules, but that development has not yet come to fruition.

Last year, Harvey Gulf opened the first North American LNG-fueling marine terminal at Port Fourchon.

"Our yard in Fourchon is the best tool we have in our box," Shane Guidry said. "We work diligently at the facility seven days a week to keep our boats running for our clients, to keep them the safest and best maintained vessels."

Potentially, there is more good news on the horizon. Looking ahead, "Energy World, Inc. has officially begun the Federal Energy Regulatory Commission process for its proposed Fourchon LNG project," Chiasson said. Energy World is based in Australia. "It would build a 2 million ton per annum conversion terminal in a Phase I that could be increased to a 5 mtpa facility if a Phase II were completed," he said. "Timing of this project is at least two years from now until construction, with a two-year construction period." LNG produced at Port Fourchon would be shipped to foreign, gas-fired power plants, and also would be sold in the United States for marine applications.

THE WORLD: AWASH IN OSV'S

The market is oversupplied with OSV's, but about 600 vessels of the global total of 3,500 are older than 25 years, Jeffrey Platt, Tidewater's president and CEO, said on Sept. 26 at the Johnson Rice 2017 Energy Conference in New Orleans. His comments were included in Tidewater's Form 8-K filing with the U.S. Securities and Exchange Commission on the same day.

In September, ***MarineNews*** asked *VesselsValue.com* to break out the U.S. flag offshore fleet from the pack, to get a better look at it. And, the numbers here, as shown in table 1 below, are even worse than the global numbers.

Platt said a lot of these older OSV's have probably exited the world market already. And he said another 200 idled ships may never see the investment needed to bring them back. "Or if there is an investment, it's going to be sometime very much later into the up cycle, where you can make the business case for it," he said.

About 250 new supply vessels are on order by companies worldwide, with more than half of them to be built in China. "Not all of those are going to be delivered," Platt said. "It's a bit of a guess as to how many of those will actually see the market."

Meanwhile, said Platt, shortly before his announced exit from the firm, at Tidewater today, "we're living within our means, absolutely looking at wringing out excess cost wherever we can, and being much more efficient with everything we've done – as the whole industry has had to do," Platt said. Tidewater is protecting its balance sheet and its liquidity. "If you run out of cash, that's when the wheels fall off," he said. "But we think we're actually in pretty good shape with all of that" now.

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.*

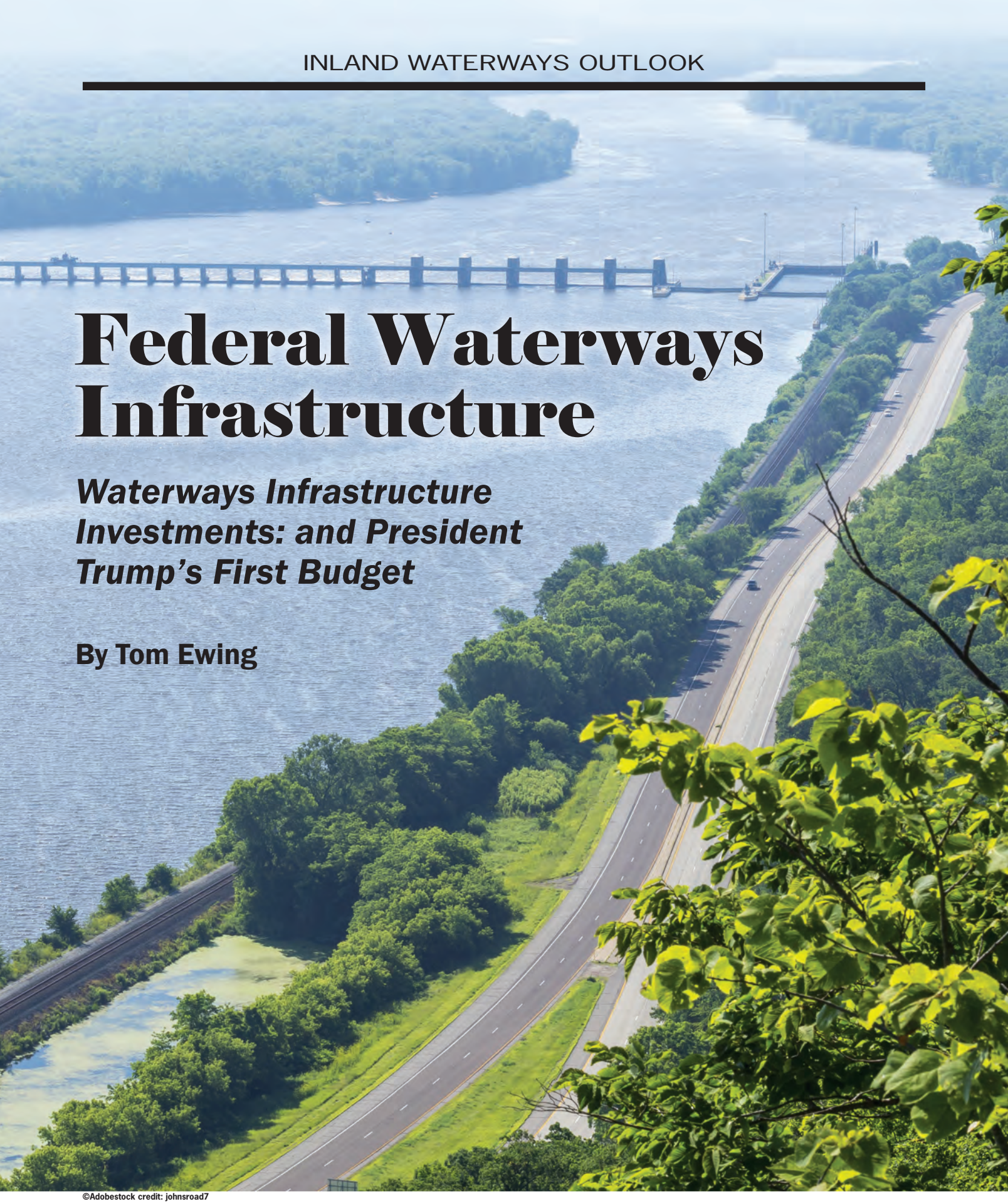
U.S. Flag Offshore Fleet Vessel Type		Recency of AIS Signal 8+ Weeks	1-8 Weeks	Total Laid Up	Total Live Fleet	PCT Fleet Laid Up
OSV	PSV	212	27	239	539	44%
	AHTS	36	5	41	74	55%
	AHT	12	2	14	52	27%
	FSV	72	9	81	162	50%
	Ocean Tug	17	5	22	104	21%
	ERRV	0	0	0	1	0%
OCV	OCV	48	5	53	179	30%
MODU	Drill Ship	0	0	0	0	n/a
	Semi- Submersible	0	0	0	0	n/a
	Jack-Up	0	0	0	11	0%
Grand Total		397	53	450	1,122	40%

TABLE 1 / Source: Vessels Value

Federal Waterways Infrastructure

Waterways Infrastructure Investments: and President Trump's First Budget

By Tom Ewing



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On Capitol Hill, October 1 was the first day of 2018, at least for the federal government's fiscal year. In theory, on 10/1, the federal budget is supposed to be finalized with appropriations – i.e., spending – established for the next year. In practice, of course, it rarely works that way. Budget deliberations frequently last through December. And even on New Year's Eve, Congress may be forced to vote on a Continuing Resolution to keep the government operating.

The 2018 budget is of particular interest and it's particularly important. It's the first budget for a new President, representing President Trump's priorities and resources, not just for 2018, but for at least the next three years. And, inland stakeholders will not soon forget the President's recent speech on the Ohio River, when he promised, "Together, we will fix it. We will create the first-class infrastructure our country and our people deserve." The President campaigned on pushing for an infrastructure package to the tune of $1 trillion. Hence, inland operators and their clients probably feel like there's no time like the present.

USACE Wish List

For the Army Corps of Engineers Civil Works programs, there are three main spending proposals. First, there is the President's budget document, introduced last May, proposing to spend $5 billion on Civil Works. Then, there are two Congressional bills – HR 3266 and S 1609 – both introduced in July, by Rep. Michael Simpson (ID 2-D), and Sen. Lamar Alexander (TN). Importantly, each legislator is on the House or Senate Appropriations Committee and, even more significantly, each is chairman of the subcommittees on energy and water development. The point is; Simpson and Alexander are leading this work.

Appropriations bills involve money and establish policy and programs. Congress would spend $6.16 billion, compared to the President's $5 billion. Of the totals, the President would spend $1 billion on construction, the House and Senate $1.7 billion. For operations and maintenance, the President would spend $3.1 billion, the House $3.5 billion, the Senate $3.4 billion. The balance of funds covers

"How can you justify withdrawing $115 million/year from the commercial operators, who then pass that on to their customers, and say that's not a justified expenditure and therefore we're just going to keep the money in the Trust Fund? That's ridiculous."

– Mike Toohey, WCI President and CEO

smaller but still important programs: Mississippi River and Tributary expenditures, for example, and flood control programs and, of course, staff and administrative functions.

Time for Action

For maritime businesses, these are critical numbers, with consequences. Mary Lamie, P.E., Executive Director of the St. Louis Regional Freightway, points out that "global buyers are paying attention to our Nation's waterway system. Any time there is inefficiency those buyers are going to look at the competition; they are going to go to countries to find a network whose logistics will deliver the capacities they need." For Midwest farmers competing with an increasing competitive South American breadbasket with similar aspirations, those words have especially dire meaning.

As always, with infrastructure, there's never enough money. Spending policies are important and this is where big differences emerge between the Administration and Congress. For example, the Administration does not propose spending all of the money in the Inland Waterways Trust Fund (IWTF), paid for by the $0.29/gallon tax on maritime diesel fuel. To be fair, President Obama similarly withheld trust fund revenue, but for FY18, President Trump's team would use just $29 million of the $105 million collected last year. The Congressional bills use all the money.

Another nettlesome issue for Congress, and others, is

Credit: WCI, Inc.

Severe deterioration of infrastructure at the Lagrange Lock and Dam in Illinois.

the President's move to raise additional revenue from the maritime community, even while withholding funds. The President's budget seeks an additional $1 billion over 10 years. The devil, of course, is in the details. At a press briefing last June, the Waterways Council Inc. (WCI) called this move the "worst example of Swamp Behavior."

WCI's President and CEO Mike Toohey, in a recent interview, was especially vocal about the issue, saying "How can you justify withdrawing $115 million/year from the commercial operators, who then pass that on to their customers, and say that's not a justified expenditure and therefore we're just going to keep the money in the Trust Fund? That's ridiculous."

On the Hill

Another concern is not just the amount of money for construction, but that funding continues for major projects, long under development, particularly the big four construction projects: Olmsted Lock and Dam (Louisville District), Chickamauga Lock near Chattanooga, Lower Monongahela Locks and Dams (Pittsburgh District) and the Kentucky Lock Addition Project (Nashville District). The President's FY18 budget would just fund Olmsted, withholding money for the other three.

In June, at an energy and water subcommittee hearing, Sen. Alexander asked Doug Lamont, temporary Assistant Secretary of the Army for Civil Works, why the Administration proposed to spend such a small fraction of Trust Fund revenue. Lamont answered that funds were withheld because the total construction project backlog – about $10 billion – is so overwhelming that it just wasn't productive to program relatively small sums of money; that, in effect, it was perpetuating a kind of money mill rather than efficient programmatic spending.

Lamont explained further that Olmsted is the only project "that is high performing, which means that it's budgetable." Lamont said his team's analysis looked "for a benefit-to-cost ratio (BCR) of 2.5-to-1 or higher, calculated at a 7-percent discount rate." Of the four big projects, Lamont said that "Lower Mon, Kentucky Lock and Chick Lock – have benefit cost ratios, at the 7% discount rate, that are less than 2.5. The problem," Lamont told Sen. Alexander, "is that the balance to complete is over $10 billion (a reference likely to the Corps' complete project list, not just the big four). The Administration is concerned," Lamont continued, "about the opportunity there, with the age of the infrastructure on the inland waterways system, the ability to effectively target and effectively deal with the need to

"Lower Mon is the #2 priority project after Olmsted. We fully expect to see (Lower Mon) get completed, notwithstanding the budget proposals."

– Peter Stephaich, Chairman & CEO of Campbell Transportation Company

rehab these systems." Again, the main concern was about throwing 'good money after bad.'

The formal House and Senate Reports on HR 3266 and S.1609 do not reference a project benefit cost ratio analysis. Interestingly, almost anticipating this different way of looking at things, the House Report includes the comment that "Administration budget metrics shall not be a reason to disqualify a study or project from being funded."

Congress no longer sets "earmarks" for what used to be called "pork barrel" spending, i.e., committing money for specific projects. The President's budget document, though, does list specific projects, which Congress usually incorporates into final spending bills. To get around the earmark restriction, to add its own projects, Congress appropriates additional funds, say for construction, while limiting that extra money just to projects meeting certain, select criteria, without actually naming names.

The Senate requires the Corps to develop a Work Plan, due within 60 days after appropriations become law. The Work Plan has to follow the Senate's "general guidance." It must provide details on the Corps' rating system, funding allocations and "a list of all studies and projects that were considered eligible for funding but did not."

Meeting in the Middle for the Common Good

When all is said and done, maritime businesses and organizations expect to see commitments and funding for an expanded list of projects, particularly, for example, continued work on the big four construction projects – Lower Mon, Kentucky Lock and Chick Lock. That's because, the failure of critical infrastructure isn't just coming – it's already here.

For example, and on October 2nd, the Ohio River was closed after the failure of hydraulics that open and close the lower gate at Lock 53 near Brookport, Illinois. This closure was preceded in mid-September by an obstruction found in the main chamber at the lock that did not allow the gates to close properly. And an early September failure of the wooden wickets at nearby Lock & Dam (L&D) 52 also highlighted critical,

©Adobestock credit: Tak

"global buyers are paying attention to our Nation's waterway system. Any time there is inefficiency those buyers are going to look at the competition; they are going to go to countries to find a network whose logistics will deliver the capacities they need."

– Mary Lamie, Executive Director of the St. Louis Regional Freightway

but aging, lock and dam infrastructure on the inland waterways system. In service since 1928, Locks and Dams 52 and 53 on the Ohio River are to be replaced by the Olmsted Lock and Dam which was authorized in 1988, but will not open until next year. Once Olmsted is finished, Locks and Dams 52 and 53 will be removed.

But, the casualty further highlights the fact that these issues are no longer hypothetical. By October 12th, as many as 51 towboats and 564 barges were waiting to transit the lock. With a full harvest of grain and other commodities backed up like a massive truck wreck along the inland interstate corridor, foreign competitors all over the Americas – north and south – are eying new markets.

"Lower Mon is the #2 priority project after Olmsted," remarked Peter Stephaich, Chairman & CEO of Campbell Transportation Company, Inc., based in Houston, PA, near Pittsburgh, and a member of WCI's Executive Committee. "We fully expect to see (Lower Mon) get completed, notwithstanding the budget proposals."

Mike Monahan, Campbell's president, and a member of the Inland Waterways User Board, likened the current funding system to a homebuilder asking for a bank loan to build a foundation, but telling the loan officer that construction may or may not continue with flooring and framing, and that the homeowner may apply for more money again next year to proceed with electric and plumbing. "That's exactly what we're doing with funding locks and dams," Monahan said.

On the other hand, this is a new President, with different approaches to governing and spending. It remains unknown how much the new Administration might seek to upend predictable legislative momentum, especially in this first budget year. This President was elected with expectations about swamps and swamp behaviors.

The Report on HR 3266 comments that "the (Appropriations) Committee welcomes a dialogue with the new Administration to reach a mutually agreeable way to comprehensively plan for all initiated proj-

ects." Surely, a common goal among all waterways participants.

Looking for Leadership

To reach that goal, people are eagerly awaiting President Trump's infrastructure plan, focusing on the "four Rs:" *roads, rails, runways and rivers.* And, it is nice that rivers are actually part of the discussion. At the June Senate hearing, Doug Lamont said the plan would be available within the next few months. WCI's Mike Toohey noted that the Administration has suggested a $200 billion plan. Toohey said "we're always looking for a better way to build it."

He commented that it now takes 35 years to build a lock and dam and failures are increasing because operations and maintenance are not adequately funded. Continuing, he said that infusing $8.8 billion into waterways projects and programs would completely modernize the system and complete the backlog of construction in 10 years. WCI suggests that repatriated income tax revenue (estimated to total $128 billion) could help fund the President's initiative.

Still others are looking for bolder moves with public private partnerships, or so-called P3's. Mary Lamie, with the St. Louis Freightway, said that the top project among barge owners in her region is rebuilding the Merchants Rail Bridge, which carries six Class I railroads over the Mississippi. On the theory that competitive rail rates are linked to competitive barge rates, Lamie called the project "a model for public-private partnerships." The bridge owner, Terminal Railroad Association of St. Louis, is prepared to fund two-thirds of the $200 million cost.

Separately, though, the Waterways Council and its stakeholders aren't necessarily thrilled about P3 talk, if it could lead to tolling on the locks. With good reason, especially since WCI's members are (a.) already funding waterways improvements through the diesel fuel tax, (b.) realizing only a fraction of that contribution in actual expenditures and finally (c.) are the only ones funding the improvements despite the many other beneficiaries – flood control, hydropower, municipal water supply and recreational stakeholders among them – who don't. Indeed, while many entities gain from these projects, barge operators are the only direct contributors to the Inland Waterways Trust Fund through their payment of a 29-cent-per-gallon diesel fuel tax. Typically, the trust fund provides 50% of construction and major rehabilitation funding, while the remaining 50% comes from general treasury funds.

With infrastructure there are plenty of good ideas. There's broad agreement that infrastructure is a priority. Now, hopefully, the politics can avoid the swamps. Keep in mind, FY19 budget development starts in February, about 3 months. It would be nice to build on FY18 progress, not keep wrestling with stalemate.

Tom Ewing is a freelance writer specializing in energy and environmental issues.

RAMPING UP:

Quality for the Long Haul

As Brunswick Commercial & Government Products expands its capabilities and product line, the Florida-based boatbuilder is positioned to safely provide increased efficiencies, and an expanded, multi-mission product line.

By Joseph Keefe

When Brunswick Commercial & Government Products (BCGP) broke ground on a facility expansion at the company's Florida Headquarters in early May, it served notice that this well-known boatbuilder had ramped up both its delivery capabilities, and an expanded array of new hulls. With a new large-boat building that includes added manufacturing space and other facility improvements, the 10,500-square-foot facility increases the company's manufacturing capacity by 50 percent. But, according to Boston Whaler Group President Nick Stickler, that's only the beginning of what's coming next.

Headquartered in Edgewater, Fla., and owned by the Brunswick Corporation, BCGP represents the commercial interests of the Brunswick Boat Group. Offering both quality and customizable crafts to commercial and government agencies around the world, BCGP specializes in patrol, rescue, military, research and workboat applications.

Building on the Past with Increased Capabilities

Celebrating its 60th anniversary this year, BCGP will leverage its past, as it also looks to the future. The first Boston Whaler boat was built in 1958 in Braintree, Massachusetts, and gained critical acclaim after its launch at the New York Boat Show. Shortly thereafter, Boston Whaler began producing government and military workboats. In fact, and with deep roots in the military and government sectors, some of the very first commercialized Boston Whaler boats were used in the Vietnam War.

The demand for commercialized Boston Whaler boats continued to grow and in 1983, a dedicated business was established with the sole focus of producing boats for the commercial

BCGP's line of multi-purpose workboats is broad and deep.

and government sector. By 2001, the demand for Boston Whaler Commercial & Government Products boats became overwhelming and the business was incorporated and moved into its own manufacturing facility. Shortly after the move, the company became Brunswick Commercial & Government Products (BCGP).

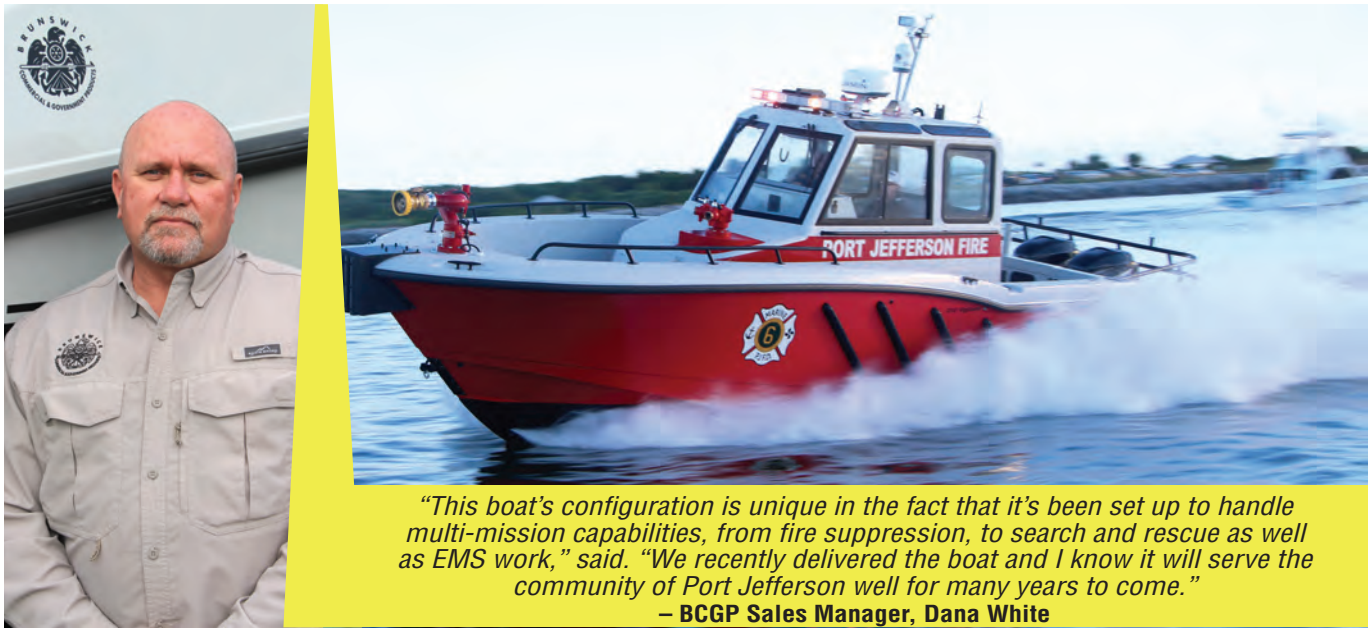
Over time, the company has many times expanded the product line to offer more choices for commercial and government buyers. In 2009, for example, the company launched a line of Rigid Hull Inflatable Boats (RHIBs) known today as the Impact family, offered in 6.5, 7.5, 8.5 10, 11 and 12-meter variants. In 2013, the company began offering custom build aluminum cabin boats, the Sentry line.

More recently, the firm's 31' Vigilant model has been introduced and is in production. But, BCGP's leading-edge innovation isn't limited to just the hulls. For example, BCGP's version of 'DP' and "joy stick" navigation promises to revolutionize boathandling for recreational and commercial marine operators alike. With a simple and instantaneous system of technology that allows even the most novice of boat handlers to easily berth or position a mid-sized workboat, the device opens up new possibilities for the recreational market, while providing important tools for the municipal and military markets.

Currently, BCGP has built one boat using their Mercury Joystick Piloting Option (JPO) with Skyhook. That vessel is being used as a demo unit to introduce the concept to customers, as well as to receive feedback from the marketplace. At the same, it is also true that all the manufacturing capability and innovation in the world simply isn't enough for the Edgewater,Florida-based BCGP. That's because, along with 60 years of continuous quality operations, the firm recently also marked a major safety milestone. Boasting 10 years without a lost time incident, the firm announced in April that BCGP's employees have worked 1,817,000 hours without a lost time incident and maintained a recordable incident rate of zero in 2016. BCGP was also recently presented the Sustained Safety Performance Award from their parent company. This special designation is an acknowledgement of manufacturing facilities with outstanding safety records, where the highest levels of safety performance are consistently achieved over extended periods of time.

The 31' Vigilant at a glance …

LOA: 31' 3" / 9.5 m	Weight capacity: 4300 lbs / 1951 kg	Boat weight: 8800 lbs / 3392 kg
Beam: 10' 7" / 3.2 m	Max horsepower: 700 hp / 522 kW	Transom height: 25" / 64 cm
Draft: 20" / 51 cm	Min horsepower: 500 hp / 373 kW	Person capacity: 14
Deadrise: 20°	Max engine weight: 1400 lbs / 635 kg	Fuel capacity: 291 gal / 1102 L



"This boat's configuration is unique in the fact that it's been set up to handle multi-mission capabilities, from fire suppression, to search and rescue as well as EMS work," said. "We recently delivered the boat and I know it will serve the community of Port Jefferson well for many years to come."
– BCGP Sales Manager, Dana White

Customized, Multi-Mission Quality

Referencing the firm's new infrastructure, Nick Stickler said, "The new building will house state-of-the-art equipment and allow for the capacity to produce larger and more complex vessels." Indeed, many of the company's large, multi-unit contracts as well as all boats over 27-feet will now be assembled in the new large-boat building. Beyond this, the addition will also include improvements to the company's existing 23,000-square-foot main assembly building, which will be streamlined for smaller-boat production and better accommodate the company's considerable refurbishment and warranty departments.

As ***MarineNews*** went to press, the project was nearly complete and ready for manufacturing operations. That's a good thing, as the firm has recently introduced a new line of hulls and completed several high profile projects. The expanded manufacturing space gives BCGP – one of the most recognized names in boatbuilding – room to comfortably bid for more, and that's exactly what they intend to do. But, whereas some other firms have been touting a "stock boat" plan that features generic hulls that can shorten delivery time for time-pressed customers, BCGP prefers to follow its own time-tested manufacturing model.

Due to the fiberglass construction process and the highly-customized nature of BCGP's boats, the firm doesn't see much value in pre-building generic hulls. A BCGP spokesperson told ***MarineNews***, "We take pride in offering a one-of-a-kind customer experience, where the customer is involved in the build from the design phase throughout construction to delivery. During the design phase, the customer can chose from thousands of options for customization, those options are taken into consideration during the lamination processes, making BCGP boats truly fortified for the rigors of commercial use."

Customized Quality Delivered

Whatever the requirement, BCGP takes pride in delivering exactly what the customer wants. Like many workboat builders, the firm is seeing a marked trend toward multi-mission demands, and less to the demand of 'mission specific' vessels. Much of this trend is a function of tighter municipal and government CapEx budgets. To that end, BCGP recently delivered a 10-meter Impact to Florida Fish and Wildlife Commission (FWC) that embodies the ease at which BCGP vessels can be customized to handle a multitude of missions. The recently delivered boat has been equipped to handle routine patrol, recreational boat safety, port patrol as well as dive-ops.

Separately, the firm also introduced a new model, the 31' Vigilant. The newest offering in the Boston Whaler Commercial line-up, the first boat from the new tooling was delivered to the Port Jefferson New York Fire Department. This top-of-the-line fireboat features a 135 HP marinized fire pump capable of pumping 1150 GPM @130 PSI. The boat is equipped to handle fire suppression, search and rescue as well as EMS missions.

Moreover, the new 31' Vigilant is not a RHIB, nor does it have an aluminum cabin. Different from the process BCGP uses to build the Impact RHIB line of boats, the boat is a Boston Whaler, so it is 100% fiberglass built using the firm's proprietary Unibond construction process, which gives the Whaler its unsinkability.

Unobstructed visibility – day and night – from the weatherproof pilot house and 360-degree walk-around platform allows the Vigilant to easily live up to its name. Its many standard features and mission- and application-specific options make each custom-built Vigilant an ideal go-to craft for military, law enforcement, homeland security, surveillance, harbor patrol and rescue teams.

"This boat's configuration is unique in the fact that it's been set up to handle multi-mission capabilities, from fire suppression, to search and rescue as well as EMS work," said BCGP Sales Manager, Dana White. "We recently delivered the boat and I know it will serve the community of Port Jefferson well for many years to come."

There's more to that story, however. It's always nice to sell a boat, but in this case, the 31' Vigilant will replace another Whaler hull. That's because the Port Jefferson Fire Department (PJFD) has owned, operated, and maintained a 1989 Boston Whaler 27 Guardian fire boat since it was new. The boat was built at Boston Whaler's Hanover, MA location before Whaler relocated to Edgewater, Florida.

One could argue that BCGP is its own worst enemy, building boats that last for many decades. But, this story is also a testament to the quality and ruggedness that Whaler builds into every commercial boat and a testament to the outstanding maintenance program at PJFD. It's no accident, then, that PJFD came back to BCGP when it was time to renew their asset. In fact, the 1989 27 Guardian has been so well maintained that PJFD is selling the boat to a neighboring fire department. Could there be another 28 years in that workhorse?

Leveraging Brunswick's Staying Power – for the long haul

BCGP's parent Brunswick Corporation boasts many familiar marine brands, including but not limited to Mercury and Mariner outboard engines; Mercury MerCruiser sterndrives and inboard engines; MotorGuide trolling motors; Attwood, Garelick and Whale marine parts and accessories; Land 'N' Sea, Kellogg Marine, Payne's Marine and BLA parts and accessories distributors; Bayliner, Boston Whaler, and a raft of others. That's the kind of experience and longetivity that BCGP leverages, as it positions itself today for an exciting future.

Innovation, impressive (and growing) manufacturing capacity, an unmatched safety record and the willingness to customize virtually any hull for myriad purposes are all exciting hallmarks of this 60-years old (and counting) firm. No doubt what comes next will be equally impressive. *www.brunswickcgp.com*

Marine Piping:

it's not rocket science

Anything but unconventional, Viega piping products and systems provide uncommon time savings and safer repairs, leading to a better bottom line.

By Joseph Keefe

The maritime industry, over time, has been unusually resistant to change in many aspects of how it operates. Arguably, the 'biggest' advances on the water spanning a five decade period leading up to the beginning of the new millennium could be measured in terms of deadweight tonnage and/or the length of a particular class of hulls. Nowhere is that reality more evident than in the shipyard, and looking at what equipment and hardware is used to build and repair marine vessels – now and in the past.

Marine piping systems are a perfect example. Until recently, boat builders and designers remained reluctant to change the way they specified, installed and ordered all manners of marine piping. Bolted flanges connecting heavy piping that required significant prep time and countless hours of labor have only recently started to become the norm; rather than the exception. Viega's innovative piping and connection systems are at the heart of that movement.

FAST FORWARD TO 2017

If the previous 50 years held little in the way of change on the waterfront, then the next few years that follow will be equally significant in terms of what shipping looks like in the future. Already bringing innovation to the marine market, Viega has no intention of resting on its laurels. The concept of quick connections for piping moving from what was once perceived to be a 'temporary' solution for a limited number of applications into one of universally recognized permanency is now a foregone conclusion. Not all stakeholders are sold on the idea. Those who are not, especially times of razor thin operating margins, risk being left behind by those who are.

When it comes to piping, shipyards are asked to buy new tools for different systems and applications. Today, Viega's customers will be able to use one set of Viega MegaPress jaws on the vessel to install fittings in stainless steel, carbon steel and copper-nickel. Leveraging one tool kit allows for faster tool selection and helps minimize the tooling inven-

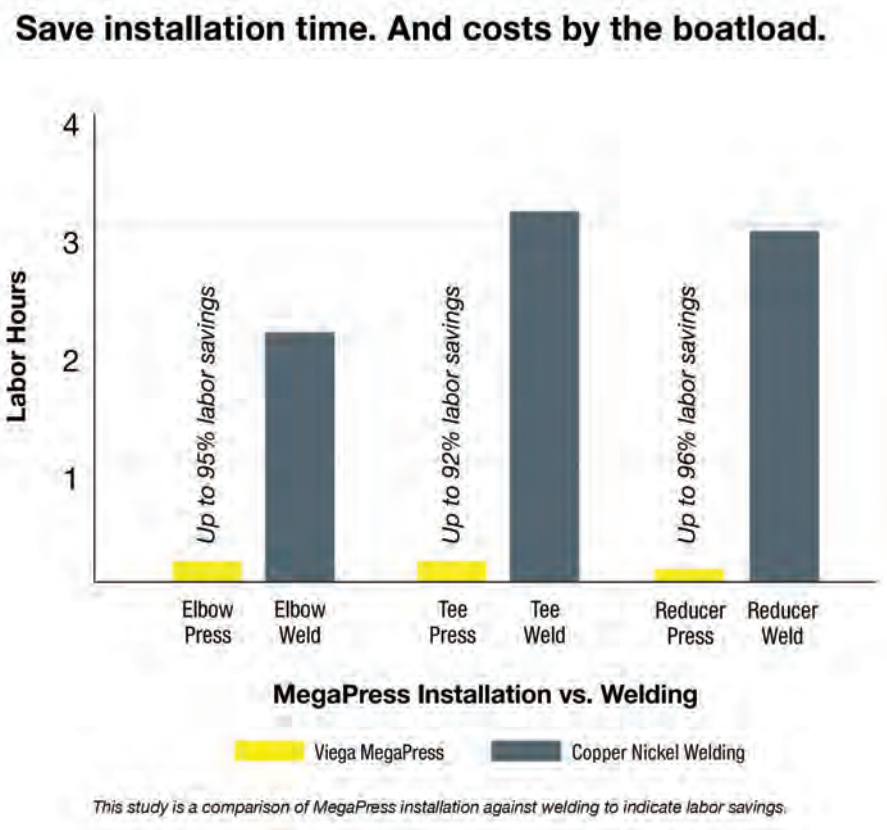
tory and overhead. Many shipyards already own a RIDGID pressing tool, so they will be able to leverage their existing assets to start using Viega MegaPress jaws for multiple materials.

For example, a handheld battery-powered tool allows installers to freely move around the piping project. Now installers can quickly move from deck to deck to install piping, something not possible if employing welding or threading. A complete line of fittings in different alloys for the marine industry are designed for use with "off the shelf" pipe. Viega ProPress products are available in copper and Viega MegaPress systems are available in copper-nickel, stainless steel and carbon steel.

And for those yards and engineers still not familiar with the product, the reassurance that Viega continually invests in the testing necessary to meet and exceed IACS requirements will bring them one step closer to the change. Viega has obtained type approvals from ABS and are accepted by the U.S. Coast Guard for marine and offshore use, in all of the major services and applications listed in the IACS Rules by both U.S. and European maritime governing agencies.

And, it is important to understand that these are not temporary repairs. In fact, Viega is approved for shipboard low-pressure applications, including but not limited to potable water, compressed air, fire main, fuel, lube oil, hydraulic oil and seawater cooling systems. Beyond this, Viega ProPress and MegaPress products are an approved fire-resistant type fitting that can be specified in applications throughout an ABS-classed vessel including engine rooms and machinery spaces.

At the same time, it is important to define what Veiga is, and what it is not. There are myriad types of mechanically attached fittings in the market today. Viega fittings are a press



type compression coupling, and not subjected to 'slip on' joint restrictions, which can limit the areas of use on a ship. Viega systems can be specified for dockside refits, shipyard work or new vessel construction.

NEW DEVELOPMENTS

As Viega looks ahead to a broader reach into the marine markets, the launch of its MegaPress copper-nickel line is the first press type fitting system made for imperial-sized copper-nickel pipe, with sizes ranging from 1/2" to 2". Prior to this, customers could purchase metric Seapress copper-nickel fittings that could be adapted to inch sized systems. This is important because the majority of U.S. ships are built with inch-sized piping. Now, customers can leverage Viega MegaPress systems to press fittings onto stainless, carbon steel and copper-nickel pipe that they have in inventory without special adapters or transitions.

According to Viega, 93% of current Viega customers who preferred this brand in the past, like it even more now that it is standardized. The firm expects that its introduction of inch-sized stainless and copper-nickel fittings to lead to increased usage and specifications on marine projects. And, it claims, when metric fittings are needed, Viega is the only press fitting manufacturer that offers a full line of both metric and standard fittings in various materials.

TIME, MONEY, WEIGHT & SAVINGS

As the domestic shipbuilding industry strives to remain competitive by streamlining production and reducing costs, it leverages many avenues. Imitating the time-tested South Korean series-build model is one way. Automating certain tasks is also taking hold. Specifying Viega fittings

"Viega has been tried and tested in numerous vessel applications to our complete satisfaction. We are thoroughly pleased with the Viega products line to date and they are first choice when piping components have to be replaced."

- Jonathan Stanley,
Foss Maritime Port Engineer

that reduce the man hours it takes to build or repair a workboat is another. Press technology minimizes the costs associated with hot work and welding. Hot work permits, fire watches, marine chemists or area isolations can now be eliminated. Viega – and its customers – calculate the savings in manpower alone to be as much as 90 percent when compared to welding and 80 percent when compared to threading.

The savings extend to other trades that can safely work around piping installs in the absence of hotwork, thus expediting more of the project than just the piping. Quantifying safety 'gains' by eliminating the need for hotwork isn't an exact science, but removing that variable from any job can provide up front piece of mind. With welding, there are several different levels of difficulty to consider, and the use of Viega can reduce the reliance on qualified welders. Moreover, workers can much more quickly become certified to install Viega copper-nickel pipe with Viega methods. In fact factory support and training is provided free of charge.

IN USE TODAY

Viega systems have a proven track record of safety, reliability and quality. Press fittings reduce reliance on challenges and costs associated with hot work and welding. These include finding qualified welders, pulling hot work permits, gas freeing and requiring a fire watch. Viega provides innovative tooling that allows users to make pipe connections in tight and confined areas. And, Viega's patented Smart Connect technology allows water or air to flow past an unpressed fitting, providing installers with added confidence in their connections – an important part of the QA process for marine piping installations.

Jonathan Stanley, a southern California-based Foss Maritime Port Engineer weighed in on viega in October, telling ***MarineNews***, "Viega has been tried and tested in numerous vessel applications to our complete satisfaction." He added, "We are thoroughly pleased with Viega products and they are first choice when piping components have to be replaced."

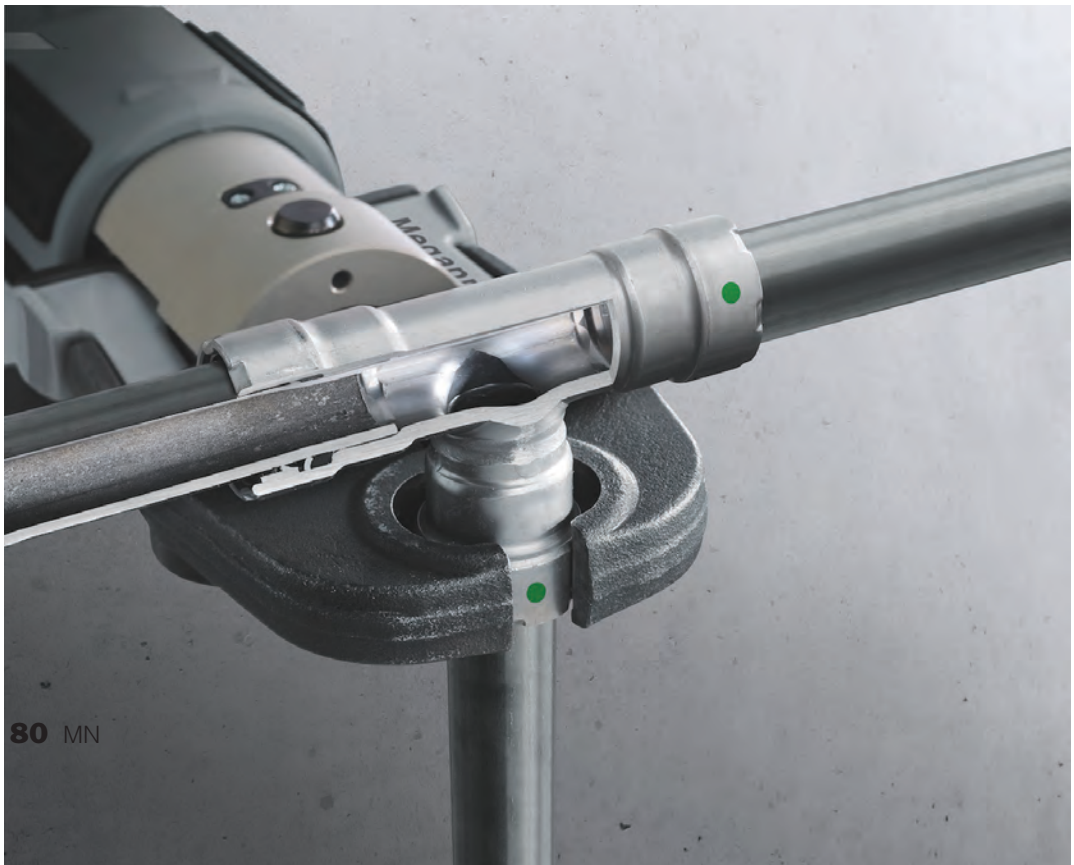
Stanley and Foss have been using Viega products for more than two years, most recently on a project that involved repairs to a raw cooling water system on board a working offshore service vessel (OSV). In this case, time and cost were both big issues to consider, and Stanley made sure that everything that was installed had ABS and USCG approvals. In the end, the use of Viega's alternative piping connections reduced the cost of the job by more than half, and it was accomplished in just three days (versus the 10-day estimate for welding). Putting the vessel back to work a week earlier was a 'win-win' for everyone concerned.

Another Foss project overseen by Stanley involved 60 feet of copper-nickel pipe run on a tugboat that was accomplished in just one day, versus what would have ordinarily been a four-day welding job. "The ability to reduce costs and installation times by 50% or greater was a great bonus for us," he explained, continuing, "The ease of installation offers so many advantages to increase vessel utilization."

All the way across the country in Chesapeake, VA, Tony Bower is a Marine Production Manager for Hiller Systems, a firm that provides, among other things, all-important fire protection, detection, and suppression systems. Bower also has significant experience with Viega and is a self-proclaimed 'advocate' of the piping connection system. According to Bower, some jobs do need traditional piping connections. But, for those that don't, Viega is his choice.

He prefers the Viega "double bite" compression system on both sides of the o-ring. This, he says, makes for fewer leaks due to hogging and sagging on pipe runs, something that every vessel of any significant length will eventually deal with. And, he says, the Viega piping connections are far easier to align, as well. Bower has used Viega for fuel oil system repairs (copper nickel), sprinklers (stainless) and potable waterline repairs, as well.

Like Stanley, Bower reports that Viega installations typically involve one-half the labor of a welded solution. And, he points to safety as a selling point, saying, "Hot work is twice the hassle today as it was twenty years ago because of



increased regulatory scrutiny and safety concerns." With regard to any type of alternative piping connection system, Bower insists, "Industry is going through a cultural mindset change." And, while some military / government applications – like U.S. Navy, MSC and Coast Guard – are lagging the commercial marine industry in adoption, those changes are also coming.

INNOVATING TODAY & HERE TO STAY

Denver, Colorado-based Viega has manufacturing facilities in McPherson, as well as four other strategically located U.S. distribution centers that operate with a state-of-the-art quality management system that guarantees quick delivery of products to buyers. With a nod to what comes next, Viega continues to grow its technical marine team by adding technical marine managers in key locations to support the U.S. shipbuilding market. And although the marine market is less than 10 percent of its business today, the firm has its sights firmly on an emerging market that is quickly becoming aware of the potential of alternative piping connections.

Using the same Mega Press jaws for all jobs, Mega Press copper nickel piping is now being produced in specific sizes for ships. With seven main service areas spanning 33 applications, Viega bills its offerings as "the right fittings for the right application on vessels." Looking ahead, the firm says that they' will launch a new product for the market, going forward, at about six month intervals. But, says, Viega, that's not rocket science. It's just good solid business.

'Connecting' Boatbuilders to *the New* Gold Standard

Victaulic's forward-thinking vertical integration remains, at the same time, solidly connected to a rich and varied past.

By Joseph Keefe

It is still common to hear waterfront stakeholders refer to alternative pipe connection systems as temporary or simply as 'a new development.' While none of that could be further from the truth, the education of the marine community as to the merits of these products as an alternative to traditional flanges continues. These products – like Victaulic's market offerings – are indeed mainstream parts of the marine sector, their use limited only by the imagination of designers, builders and operators who constantly find new applications to improve their bottom line.

Historical Primer: always functional, anything but 'new'

Since the 1920's, Victaulic couplings have demonstrated their value in countless maritime applications. As early as the late 1920's, Victaulic had the sanction of Lloyds' Register and Bureau Veritas. Back then, boatbuilders first used the product for water supply and sanitation because of their flexibility, reliability, tolerance for vibration, safety, ease of access and ability to accommodate expansion and contraction. That hasn't changed. Later, during WWII, Victaulic couplings were installed in thousands of piping systems of merchant and navy ships in expanded roles that included solutions for bilge, ballast, freshwater, saltwater, sanitary and deck drains, fuel oil fittings and transfer, fire mains, cargo systems and more.

It was during the war that the ease and quickness of installation became just as valuable as the versatility of the product itself. The need to quickly mass produce a fleet of ships to counter overseas threats required efficient assembly and manufacturing in all phases of shipbuilding. Victaulic's pipe coupling systems became an integral part of that successful effort.

In 1975, Victaulic continued its expansion as it purchased NJ-based Apex Galvanizing Corporation. The move enabled the firm to provide galvanized pipe, couplings and fittings used in many applications to withstand the corrosive, rust-causing effects of condensation. For example, Apex galvanized brackets and support stands were used in the USS Michigan Trident series of ballistic missile submarine for the US Navy. Beyond that, Victaulic's method of pipe joining has today penetrated many aspects of commercial vessel newbuilding and repair alike.

The Rule, Not the Exception

Long thought to be a 'temporary' solution to permanent piping tasks, the alternative to traditional flanged piping is fast becoming, instead, the marine standard. That's because there is no aspect of piping that can't benefit from the use of Victaulic hardware.

Myriad piping materials are used on the waterfront. In addition to Carbon Steel Pipe, Galvanized piping, Stainless Steel Pipe, Aluminum Pipe, and CPVC are growing in popularity. These materials require special skill sets and preparation if 'traditional' piping methods are followed. With Victaulic grooved products, the skill sets are modest and nearly identical for any of these piping materials. 'Traditional' piping methods (such as welding) can take years of experience to become efficient and productive. With Victaulic grooved products, the learning curve is shortened to a matter of days.

Piping repairs or alterations in confined spaces – like the coming ballast water treatment tsunami – often involve work in confined, hazardous areas. In these instances, welding can include risk of fire, poor ventilation, poor access to all sides of the piping to insure complete weld passes are completed, and difficulty in "fitting" pipe and fittings around existing piping or electrical lines. And, for those engineers who still insist on using traditional flanges, the much smaller physical footprint of an easily rotated Victaulic joint can (and should) change their minds as they try to thread that BWTS system through an already crowded pump-room. Victaulic piping products address all of these issues, and more.

It is important to define what Victaulic is, and what it is not. No solution is the 'be all-end all' for all projects. For example, Victaulic is not – as yet – approved for use in hydraulic lines, starter air, and a few other ap-

plications. Separately, Victaulic's in-house robust pressure testing and QA schemes are impressive. That said, and with respect to allowable working pressure, Victaulic ABS type approvals limit systems to 16 bar or 232 psi. It's also important to note that Victaulic Style 77 couplings are rated up to 1,000 psi for everyday applications. That's a big safety factor for any vessel.

When one considers that the standard charter party language for a tanker voyage agreement specifies 100 psi or about 7 bar at the discharge manifold, it's obvious that there isn't too much the average vessel can't depend on Victaulic couplings to address. The list of Victaulic's approved services and applications is, conversely, simply voluminous. And, Victaulic manufactures solutions ranging from ¾" and up past 12' (feet) in diameter. It isn't uncommon to see Victaulic applications used for 20" ballast lines – much larger ranges than most of its 'alternative' piping connection competitors.

Applications & Approvals Abound

With approvals from ABS, DNV-GL, LR, KR, RINA, CCS, the U.S. Coast Guard, BV, and more, there aren't too many things that Victaulic can't address. No one solution stands out as the most common application; Victaulic reports that its sales are evenly distributed across a wide spectrum of marine projects. The table depicted below is not all inclusive, but is nonetheless eye-opening.

Grooved Pipe Joining Technology 101

Victaulic's approach to pipe joining is quite simple and equally robust. The groove is made by cold forming or machining a groove into the end of a pipe. A gasket encompassed by the coupling housing is wrapped around the two grooved pipe ends, and the key sections of the coupling housing engage the grooves. The bolts and nuts are tightened with a socket wrench or impact wrench. The advantages of using such a system are many.

Unlike a rigid coupling, a flexible coupling allows for controlled linear and angular movement, which accommodates pipeline deflection as well as thermal expansion and contraction. Through a design that allows for full rotation of the pipe and system components before tightening, Victaulic's ease of alignment is a primary hallmark of its value. Noise and vibration attenuation is achieved by isolating the transference of vibration at each joint.

Once installed, couplings engage the pipe grooves to hold the pipes against full pressure thrust loads without the need of supplemental restraints. And, Victaulic gaskets – unlike flanged systems which are manufactured with asbestos material – have a much longer life cycle than the standard flanged gasket.

Ballast	Cargo Oil	Heating and A/C	Condensate Returns	Sounding and Venting
Bilge	Crude Oil	Hydraulic Oil	Cooling Water	Vents and Overflows
Cooling	Crude Oil Washing	Lubricating Oil	Fire Systems	Domestic Fresh Water
Fire Main	Fuel Oil Transfer	Thermal Oil Lines	Potable Water	Domestic Sanitary Drains
Foam/ Sprinklers	Tank cleaning	Inert Gas	Sanitary	Fire, Deck Wash Lines
Fresh Water	Scrubber Effluent	CO2	Scuppers and Discharge	Service Air (non-essential)

Source: Victaulic

Monetizing Your Victaulic Advantage

A long time ago, someone told me: if something needs to be sold to a potential customer, then that service or product needs to be distilled down to its lowest common denominator; in other words, money. The Victaulic route, in terms of hardware alone might actually be slightly more expensive on the front end. Amortizing that nut on the backend is easy to monetize, and surprisingly, it more than pays for itself in a hurry, sometimes before the installation is even complete. Those savings come in the form of lower life-cycle costs, the elimination of hot work, reduced labor and a proven shortening of even the simplest of jobs.

Need more reason to switch? The markedly shortened training time (as compared to welding) to bring labor up to speed – especially shipboard personnel – can be a huge advantage. And, any vessel that spends less time alongside for repairs is therefore available to spend more time earning money. Finally, any vessel – your workboat, for example – that leverages the use of Victaulic across the full range of applications, from bilge to bow, boasts a lighter tonnage profile with increased physical footprint for other equipment, cargo and/or much-needed elbow room.

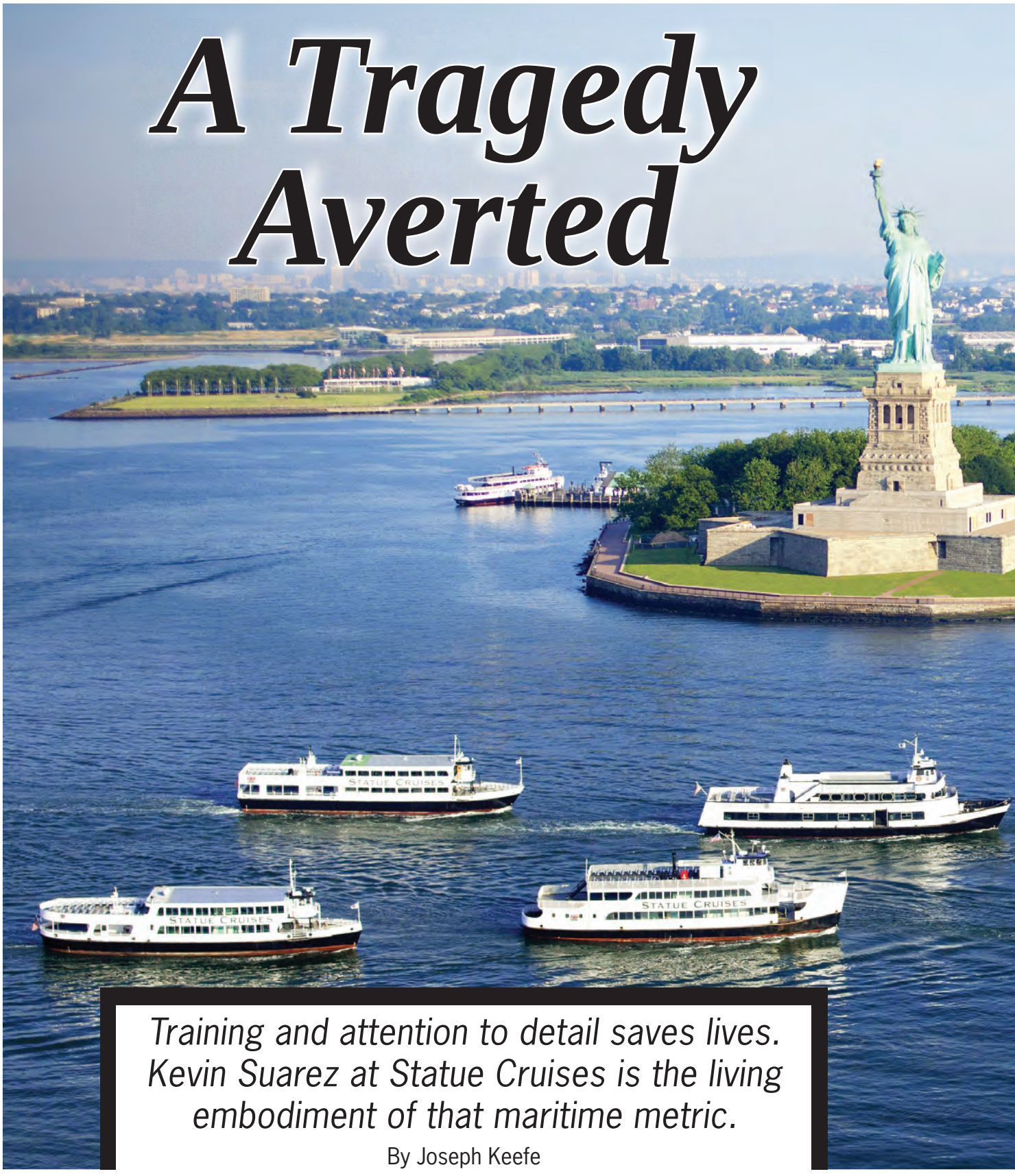
Vertical Integration: the Victaulic way

Any student of boatbuilding history and operational processes knows that vertical integration – *the connection of the shipyard to the steel manufacturing capability* – is one primary key of shipyard economy and success. At Victaulic, their take on vertical integration involves delivering innovative pipe joining solutions that leverage a one-stop-shop approach of in-house control of all tools, material production, training, service, sales, and everything in between. Augmenting all of that is Victaulic's Cost and Labor Analysis, Weight Analysis, Jobsite Training, and Installation Inspection that accompanies each sale.

The one-stop-shop: Is Victaulic's unique and turnkey approach to pipe joining right for you? That depends on a lot of things, but if better design options and a measurable benchmark of Total Installed Cost Savings would benefit your bottom line, then you've got nothing to lose and everything to gain by trying. Since before 1920, that's been the rule, and not the exception at Victaulic.

	Problem:	The Solution:	Importance:
Weight	Heavy Components	Lighter weight mechanical pipe-joining technique.	Flanged systems are more than double the weight of grooved solutions.
Space	Confined Spaces	Grooved couplings' smaller product profile can be rotated 360o	Larger traditional flanges make installation, maintenance harder in tight spaces.
Time	Installation Time	Two bolts/nuts, compared to 4 bolts/nuts (flanging) cuts installation time in half.	Reducing retrofit time saves on labor, resources, and limits off-hire time.
Hotwork	Costly welding expenses	Grooved pipe-joining solutions eliminate the need for fire watches, marine chemists & gas-free certifications.	Save thousands of dollars where hotwork can be replaced w/grooved mechanical-joining solutions that don't require fire watch & rescue procedures.
Safety	Personnel Risk	Welding fumes, fire & tripping hazards are concerns with the welding process.	Eliminate fire watches, weld and toxic fumes with a flame free installation.
Work at Sea	Challenges w/welded systems	Victaulic provides a union at every joint allowing easy access for maintenance and retrofits w/o need to cut out & re-weld pipe sections.	Once two abutted pipe ends have been joined by welding the pipe/joint cannot be re-adjusted. Victaulic eliminates this backend hassle.

A Tragedy Averted



Training and attention to detail saves lives. Kevin Suarez at Statue Cruises is the living embodiment of that maritime metric.

By Joseph Keefe

Credit: David Handschuh

Credit: Statue Cruises

For any first time visitor to the Big Apple, the trip probably wouldn't be complete without seeing the Statue of Liberty and Ellis Island. To that end, Statue Cruises' main focus is to create a smooth passenger experience and serve as the gateway to the Statue of Liberty and Ellis Island for the over 4.4 million tourists who visit both islands annually. Collectively, they run eight vessels that service the Statue of Liberty/Ellis Island routes and two smaller vessels with the Liberty Landing Ferry, which Statue Cruises operates, that runs between Liberty State Park in Jersey City, NJ and the World Financial Center, in lower Manhattan.

For all but a few passengers, the experience is an exciting but nevertheless routine outing. But, when Statue Cruises employee Kevin Suarez not too long ago put his own life on the line to save a family from the freezing waters of the Hudson when their boat capsized, the selfless act rightfully caught the attention of the Passenger Vessel Association (PVA), the Jersey City, NJ City Council and U.S. Park Police in Washington, D.C.

Trained to Act

Suarez started with Statue Cruises in 2011 when he was just a freshman in high school. As a guest service agent, he assisted tourists from all over the world with their ticketing needs to visit the Statue of Liberty. But, in the summer of 2016, he joined the marine department as a Dock Attendant.

His duties include line handling during ferry arrivals and departures and when the vessels are alongside, he ensures that the vessel gangway is secure and then assists passengers' safe transit back and forth from boat and dock.

Suarez told ***MarineNews***, "Customer service and 'Creating Amazing Experiences' is our voyage at Statue Cruises. I arrived at the waterfront, in part, because my two older brothers worked at Statue Cruises, and once I was old enough to work, they brought me in." During his tenure at Statue Cruises,

Suarez has always participated in vessel drills with the Captains and First Officers. With those drills came the knowledge of what to do in the event of an emergency. Eventually, that emergency arrived, and it did, Suarez literally dove in to help. Today, a five-year old girl is alive because of it.

No Time to Think

The emergency came about as Suarez heard the Captain on the PA system ask another vessel to leave the restricted area around the island. And, when that boat did not, Suarez realized that they were in distress as the current and wind was overpowering them and causing the vessel to take on water as it got closer to Ellis Island. As he notified his dock supervisor that the vessel was in trouble, the

Kevin Suarez, a Dock Attendant for Statue Cruises, reunites with the family he helped rescue when their small boat capsized just off Ellis Island a little over a year ago.

vessel soon thereafter had capsized. Three children could be seen in the water, along with two adults, but one child still was missing. The father of the children was screaming for help to find his missing young daughter and Suarez immediately jumped in to help. "I swam over and I tried to flip the capsized boat and in doing that, I was able to feel her shoulder," explained Suarez, continuing, "So, once I felt this – I was able to dive down and grab under her and pulled her up to the surface. She was tangled in the vessel's tackle and I had to unwrap her before we could swim to the sea wall."

At this point, the Harbor units came quickly and swept Suarez and the child into their vessels and took them to the other side of the island where the ambulances were waiting. Suarez adds, "Once we were out of the police boats, I helped translate Spanish to English for the EMT personnel. From there, we went to the hospital to get checked out."

The event underscores the importance of drills and training. In this case, Kevin's training ensured that he was well versed in knowing the importance of personal flotation devices (PFD), and where the ring buoy was located in case it was needed. Ultimately, it was this training that helped him to advance to the position of Deckhand.

The Right Place at the Right Time

The PVA award – given this past January at the annual PVA convention - rounds out the honors Suarez has received in just this year alone. The PVA award, however, is the namesake of one of PVA's all time most beloved members, Captain Elizabeth Gedney. During her time of service at PVA, Gedney embodied 'safety' every day at PVA. As for Kevin Suarez, he shrugs off his heroism by saying, "It happened so fast I didn't have time to think. I just heard the cries for help, and I reacted. Once I got in the water I was sort of stunned – but something took over and I am just thankful I was able to help find the little girl and get her out safely."

The crisis could very easily have gone the other way. According to Suarez, the little girl's PFD was too big, and it didn't help her. And, he said, "The waterfront is a beautiful place to be – but if not prepared, it could end terribly. I am grateful to have been in the right place at the right time. In truth, I was covering for a different employee who asked me to switch shifts with him as a favor. I think everything happens for a reason – I can't explain it better than that."

Looking ahead, Suarez says his ultimate goal is to become a Police Officer or Fireman. And, anyone who has worked on the waterfront and/or at sea knows that there are few things that prepare you better for a first responder's position than time spent in a marine-related billet. "I like to help people, and I feel that I can fulfill my potential to help as many people as possible in that field. But in the meantime, I plan on doing all I can to advance in the marine industry and would love to become a First Officer or Captain one day if the opportunity arises. I enjoy working by the water very much."

Ultimately, Statue Cruises hopes that they don't lose Kevin Suarez to the police or fire department(s). But, if so, those first responders will get a good man – exactly the kind of professional that the waterfront develops.

Connectivity for Brown Water Operations

Growing Options Emerge for Ever-Increasing Data and Comms Demand.

By Dan Rooney

In the United States alone, 625 million tons of cargo is transported along the more than 12,000 miles of commercially navigable waterways each year, moving vital commodities to and from 38 of the nation's 50 states. The advent of subchapter M has raised the bar significantly for as many as 5,000 inland vessels, both in terms of safety and the need to document and more closely control this tonnage. At the same time, domestic coastal transport and offshore energy support vessels also face growing communications requirements. These include new regulatory reporting schemes, commercial vessel 'operating software' and, of course, the requirement for better and cheaper voice comms.

Rising Traffic, Regulatory Pressures also Increase Comms Requirements

With the rising amount of activity along inland waterways and the move to digital systems, barge, ferry and tugboat operators' need for on board connectivity is increasing. Ensuring vessel connectivity along inland waterways is different from connectivity on vessels moving across the open ocean. While in the ocean, a vessel may only need to worry about a crane or other piece of onboard machinery obstructing the signal from their antenna, but with inland waterways, you must add in the topographic elements of each area the vessel may travel.

The types of solutions for connectivity also differ in this arena. While near-shore solutions are the most reliable for inland waterways, a reliable network is essential, no matter how the connection is successfully obtained. And, while some ports – take the Port of Pittsburgh's innovative 'wireless waterway' initiative, for example – are ramping up to improve the user experience for those desiring connectivity on the rivers, that sort of effort is still the exception, rather than the rule.

On the inland waterways, a fair amount of vessels are classed as owner/operators' vessels, where an individual runs a single vessel, living their lives and running their business on board. The increase in operating expenses due to higher bunker costs, combined with low charter rates make it difficult for the owner and operators to stay in business. This concern is echoed around the globe, yet the amount of cargo transferred increases year over year. As implementation of cargo management systems, environmental reporting systems and engine and power management systems rapidly increase, the importance of reliable and cost-effective communications has multiplied, over time.

Challenges to Connectivity

An owner or operator can face challenges when organizing business communications for their vessel, starting with the lack of buying power or available budget. Most owner/

operators rely on a marine very high frequency (VHF) radio and a domestic cellular contract for their business data and calls. Some inland vessels are also equipped with either Iridium or Inmarsat terminals, but the high cost of purchase remains a barrier to entry. However, the costs of satellite terminal purchase and usage are falling slowly.

A domestic cellular plan is an attractive option, and represents a significant cost advantage when the inland vessel is operating within a set territory. Travelling outside the domestic zone can represent higher and sometimes uncontrolled roaming costs. For example, regional (data only) 4G LTE plans are being released by operators in the European Union to help mitigate these issues, offering fixed monthly pricing. Additionally, coverage in remote areas can be enhanced by adding an external cellular antenna mounted as high as possible on a vessel. Therefore, a relatively small investment of a router and external antenna can yield excellent results, allowing business to continue even in a remote inland area.

However, for some inland waterways, even an external cellular antenna is insufficient to keep in touch. Satellite connectivity remains the only available option in these areas, but choosing a service that won't bankrupt an operator remains a challenge.

Choosing the Right Solution

There are numerous mobile satellite service (MSS) operators available with new services being launched on a regular basis that can help resolve these issues. However, even within these major players' product portfolios, the myriad options available can prove expensive, if not chosen carefully. Additionally, there is a difference in the user experience between land- and satellite-based communications. For example, the time lag for the round trip of a satellite radio signal can range from 600 to 2,000 milliseconds (ms), compared with less than 50 ms for terrestrial communications. The download and upload speeds are also significantly slower than that of land, making video streaming difficult.

Within the MSS world, there are a few well-known stalwarts that Speedcast partners with to provide efficient and cost-effective solutions; namely, Inmarsat, Iridium and Globalstar. With its fifth generation of geo-stationary satellites providing global coverage, Inmarsat can be an attractive option for adding satellite capabilities to an inland vessel. The most appropriate satellite terminal for inland shipping is the Inmarsat Fleet One. Providing coastal coverage with voice and data services up to 100 Kbps, Fleet One is an attractive entry level satellite terminal, with low purchase costs and low monthly running costs.

Separately, Iridium provides Low Earth Orbit (LEO) satellites that are constantly circling the globe since the mid-1990s. Offering affordable voice and low-speed data plans, Iridium and other third party manufacturers offer a wide range of satellite terminals that suit almost any requirement. Iridium has launched its next generation of satellite services, named Certus. This latest service offers a vast range of connection speeds, starting with a 350Kbps commercial maritime service in Q3 2017. By 2020, Certus will offer global speeds from 22 Kbps to 1.4 Mbps, making it a very attractive future alternative to Inmarsat.

Finally, industries such as government, emergency management, marine and energy use Globalstar to conduct business smarter and faster, maintain peace of mind and access emergency personnel. Globalstar data solutions are ideal for various asset and personal tracking, data monitoring, supervisory control and data acquisition (SCADA) and internet of things (IoT) applications.

Satellite communications plans are provided in several different methods. Entry-level plans are typically for voice calling only, either pre- or post-paid. Data is normally charged on a per-megabyte basis, with bundles for an amount of data per month included. On most entry-level plans, stepping out of a monthly data bundle can be expensive. Therefore, careful planning of current and future communications requirements is imperative to avoid 'sticker shock.' It is also recommended to block specific data services on cell phones and laptops via satellite. The app or update blocking can be handled through a communications management device, providing both the automated switching between the LTE and satellite equipment.

A communications provider offering a full suite of connectivity solutions and products might be the ticket for those operators looking to upgrade or increase their communications capabilities. Impartial advice on the most appropriate package for your requirements, preventing bill shock and helping you decide on a communications package that best fits your needs, is the first step to also improving your bottom line.

As the Commercial Maritime Product Director of Speedcast, Dan Rooney is responsible for the innovation and delivery of products to the commercial maritime sector.

New Grease Extends Life, Lowers Temp of Tugboat Shaft Bearings

By Ben Bryant

How does a tugboat operator with over 26 vessels used in docking, escort, ocean towing and articulated barge service get control of maintenance issues? In this case, by switching to Klüberplex BEM 41-132 grease to lower operating temperatures between 2 and 10 degrees Fahrenheit (3.6 and 18 Celsius), which significantly extends grease and bearing life.

The tugboat business' success depends on the reliability of their assets and the ability to provide superior customer service. In addition, this operator has a strong safety culture and promotes preventive maintenance as a method of achieving their business objectives. The right lubricant is often a key component in that particular equation.

QUESTIONS REVEAL SHAFT-BEARING LUBRICATION ISSUES

Four tractor tugboats in the operator's fleet are 91 feet in length and are propelled by two stern- mounted Z-drives. The diesel engines, however, are located close to mid-ship, requiring a long drive shaft connecting the power output to the upper gearbox of the z-drives. Supporting the drive shaft are spherical double row bearings, in pillow block housings.

The operator experienced bearing failure and high operating temperatures in the shaft support bearings. In September of 2016, they approached Klüber Lubrication to recommend a bearing grease that would improve the performance of these bearings.

Before making a recommendation, however, key questions were asked, such as:

- *How often were the tugboats out of service due to failure in the drive shaft support bearings?*
- *Because of the enclosed space where the bearings are located, how were maintenance routines in the confined area contributing to bearing damage?*
- *What would be the safety risk if a bearing failed during operation?*

The previous product was a lithium-thickened, PAO grease with AW and EP additives. Upon review of the bearing operating speed and conditions, and the characteristics of the previous grease, Klüber Lubrication proposed that the bearing damage was possibly due to a combination of:

- *The additive package not protecting the outer raceway during start up and idling speeds.*
- *At full operational speed (1600 RPM), the 220 cSt base oil generates internal friction causing a rise in temperature and grease degradation.*
- *Due to the remoteness of the application, the vessel crew may not always maintain the re-lube schedule.*

HIGH-PERFORMANCE SPECIALTY LUBRICANT PROVIDES SOLUTION

The recommended solution was Klüberplex BEM 41-132 grease. With a base oil viscosity of 130 cSt, which lowers the bearing operating temperature, the product therefore extends grease and bearing life. The product has excellent EP and AW additives that protect the bearing at start up and when shaft RPMs are slower.

Notably, this recommendation was based on experience with Klüberplex BEM 41-132 in other industries where similar performance requirements were demanded. To validate the recommendation, an analysis of the bearings and operating conditions was performed using the Klüber Lubrication Bearing Workbook.

First, an analysis was completed using a Klüberplex product with a similar base oil viscosity as the previous grease. A second analysis was completed using Klüberplex BEM 41-132. Because the shaft rotation ranges from 0 to 1600 RPMs, a value of 800 was used in the calculation to estimate how the greases performed at the mid-point of the speed range. The key indicator was the V/V1 factor. This is an indication of

internal friction and thus heat generation. A number below 4.0 is recommended and is achieved with the recommended grease while the existing grease exceeded this number at the midrange of the RPM. At full rotation, Klüberplex BEM 41-132 slightly exceeds the recommended target, while the previous product was estimated to be over 9.1.

In addition, a Klübermatic Pro lubricant dispenser with electronic tie-in to the control board of the engine was proposed to ensure the bearings are greased at the appropriate frequency and amount. The lubricant dispenser can be mounted up to 5 meters away from a lubrication point and additionally can serve up to six lubrication points.

LONGER LIFE, LOWER TEMPERATURES BENEFIT TUGBOAT SHAFT BEARINGS

In January 2017, the tugboat operator reported that Klüberplex BEM 41-132 had been filled into the test vessel's bearings and had experienced two months of operational time without any bearing failure. Grease relubrication was being conducted manually per the recommended re-lube schedule provided by Klüber Lubrication. Bearing temperatures were reported to be between 2 and 10 degrees Fahrenheit (3.6 and 18 Celsius) lower than previous readings.

As a result of the successful trial, Klüberplex BEM 41-132 was filled in the pillow block bearings on the other three vessels of similar design. Furthermore, while this project focused on the four vessels that had long drive shafts, the tugboat operator has indicated they will convert all pillow block bearings on their other tugboats to Klüberplex BEM 41-132. Installation of Klübermatic Pro lubricant dispensers was also considered.

At Klüber, solving problems and improving performance with specialty lubricants is what we strive for. This application for shaft bearings is a good example of how we approach lubrication opportunities and the types of results that can be expected by marine operators. That's because today's operator looks forward to – and demands – more savings due to less maintenance and less risk of operational downtime resulting from lower shaft-bearing temperatures. With Klüberplex BEM 41-132 grease, all of that is possible – and more.

Ben Bryant is the marine market manager, Klüber Lubrication North America NA LP. Bryant is a graduate of the Massachusetts Maritime Academy.

The Digital Voyage – 'Onboarding' Shipping to the Digital Age

At Nor-Shipping this year, Akzonobel announced the official launch of its 'Digital Voyage' strategy. This program builds on the foundations laid two years ago when the firm launched Intertrac Vision, the industry's first Big Data tool for predicting coating performance. The Digital Voyage outlines the goal of putting a wealth of knowledge in the hands of ship owners and operators, and helping them make smarter, more economical and environmentally friendly decisions.

As we embark on this journey, it's clear that, while the industry recognises the value that digital technology has to offer, the idea of a digital transformation can be daunting – particularly in an industry with challenging marketing conditions, where each operational decision can have potentially serious ramifications. So, what does the Digital Voyage mean in practice? And how can it help the industry in the here and now?

The Digital Revolution Defined

A useful place to start is to quantify what exactly the 'digital revolution' is. There are plenty of ways to do this, but one of the most telling metrics is the increase in the amount of data being transferred to and from vessels.

According to COMSYS, the number of active maritime VSAT installations quadrupled from 2008 (6,001) to 2014 (21,922), and it is predicted to exceed 40,000 by 2018. What this means is that the amount of data being transferred is going to increase rapidly. DNV GL now estimates that, in two years, the data capacity of the VSAT network has increased from 8.7 Gbps (Gigabits per second) to 16.5 Gbps – nearly doubling. If this trend continues – *and there's no reason to think it won't* – this capacity will reach 217 Gbps by 2025. The proliferation of digital tools in shipping is the result of an increased ability and need to turn this burgeoning mass of data that is being

transferred and generated each time anything happens on board a ship into actionable insights.

One immediate use of this is better monitoring. The increased satellite coverage allows us to track data throughout a vessel's voyage with no need for onboard hardware. Software providers such as NAPA and BMT are using this data to provide efficiency analysis of power consumption and route, benchmarking it against the global fleet. This can also shine a light on, and hopefully suggest solutions to, phenomena such as 'Rush to Wait', which currently costs the industry $18bn in fuel costs.

In addition to generating insights, digital technology is also being used to increase transparency and speed up processes throughout the industry.

Blockchains – distributed, incredibly secure, ledgers of transactions, can allow nearly instant, secure transfer of assets – reducing the need for an intermediary to verify reams of documentation. Maersk, for example, sees this as a chance to track and time stamp changes in the custody of a shipment. The time and money saved here has the potential to be immense – in this instance, by-passing the thirty pieces of documentation that are needed to process an export consignment across multiple supply chain steps.

Digital & Marine Coatings?

Where does AkzoNobel's Digital Voyage fit in? The aim is to bring together technologies that will both increase efficiencies and economies of scale, and enhance transparency and accountability, allowing users to make smarter and more ecologically friendly decisions.

One recent development that encapsulates this is Intertrac OBM (On Board Maintenance). This online tool records, visualizes and analyses OBM coating purchasing patterns by vessel and fleet, using AIS data (taking advantage of the increasing satellite coverage) to record when and where transactions occur. It then recommends how operators can streamline purchasing by, for example, avoiding small quantity orders, identifying alternative ports with greater savings potential, or product choices that can provide cost savings. Overall, the efficiencies generated could save OBM coatings costs by up to 20%. Since launch, many major shipping companies have shown strong interest in the application, indicating that the insights it offers, driven by big data and tangible actions to optimise efficiencies speak strongly to the operators, especially in a challenging market.

The priority for Intertrac OBM is to give users actionable tips and hints that will help them out in the here and now. Imagine if, when you went to the shops, someone had analyzed where you usually went, what you bought, and compared it to what others were doing. Then, they could recommend that you could save a little if you went to the store next door – or that by switching from brand a to b, or getting a two-for-one offer here or there, you could save a little more. It would be maddening to try to figure this out for yourself – but together, these savings would add up.

That's exactly what Intertrac OBM does for OBM coatings and products. If you're using a paint that could be replaced with an almost-identical, cheaper alternative, it will nudge you towards that. If you're frequently buying at a port where you're not getting the best rates, it will show you where you could buy more economically, how you could eliminate small-quantity ordering and save by buying in larger batches. The data that support these decisions has existed for a while – what's new is our ability to process it and turn it into valuable information.

Another part of the Digital Voyage emphasizes transparency and accountability. Trust is vital if owners and operators are to invest in sustainable coatings and this requires performance to be accurately predicted and verified. This is where another tool, Intertrac Perform, comes in. Currently being trialled, this software measures and monitors hull performance data and validates it against predictions made by Intertrac Vision, AkzoNobel's big data tool for coating performance prediction. Both developments are supported by the International Marine Coatings app, , which allows seamless access to a wealth of coatings knowledge.

Embarking on this digital journey is a long-term project that requires changes how we work as. These tools are not designed to be used in isolation. Rather than treating digital as a bolt-on, digital tools are used throughout the wider industry, demonstrating that using technology to enhance decision-making can be straightforward, effective and, most crucially, beneficial to their bottom line.

Feeling the pressure from depressed rates and continued oversupply, every decision that vessel owners and operators take is a major one. The value of digital disruption, such as the 'Digital Voyage', lies in giving stakeholders the right information and the confidence they need to make the right call.

***Oscar Wezenbeek** is Managing Director for AkzoNobel's Marine Coatings business.*

MetalCraft's Interceptor Line of Patrol Craft

MetalCraft has introduced a completely new design in patrol craft. The name of the new line, *The Interceptor,* was based on the original boat's nomenclature and how the design came to be, The Long Range Interceptor II. MetalCraft has a long history designing RIBs for patrol and SAR missions, dating back to 1984, where they developed the first SOLAS self righting RIB with a foam collar. The design of the Kingston hull shape dated 1987 became the basic hull shape of the MetalCraft RIB program. It was chosen by the U.S. Navy as Force Protection Medium after the Cole incident and MetalCraft sent 24 C-130 certified KPR-28's and 32's over to the Middle East for Force Protection. As RIB development changed from the former design philosophy of the collar sitting in saltwater degrading but required for vessel stability to the new age of collar design being used for fendering and flotation but not vessel stability, MetalCraft was already there. The hull design is a blend of variable deadrise (warped hull) and monohedron. MetalCraft consulted with the famous Donald Blount & Associates on the radical features of the design. The boat has been tested to 60+ knots. The aft deadrise of 22 degrees is surprising as she handles large seas at speed better than a normal 24 or 25 degree deadrise hull. But the shallower deadrise makes the boat a very competent Riverine/Offshore blended design.

Master Marine's M/V Miss Deborah

Master Marine has delivered the first of four 67' x 28' fleet boats to Waterfront Services Co. Each boat will be powered by a pair of Laborde Products S6R2-Y3MPTAW Mitsubishi 803 HP tier III diesel marine engines coupled to Twin Disc MG 5321, 5:1 gears, E300 electronic controls with RW Fernstrum keel coolers. Electrical power was also provided by Laborde Products, Inc. with (2) Two Northern Lights M65C13.2S 65KW Tier III electronic controlled generators with RW Fernstrum, Inc. keel coolers. A pair of Sound Propeller Services, Inc. 70" X 48" X 7" 4-blade stainless steel propellers provided thrust through (2) Two J & S Machine Works 7" ABS Grade 2 propeller shafts with all Thordon Marine bearings, Thorplas bushings and shaft seals. Gulf Coast Air & Hydraulics Inc. provided the steering system and a pair of Quincy F325 reciprocating air compressors. Schuyler Maritime LLC provided rubber fendering around the entire perimeter of the vessel along with the push knees, fleet deck with MMI installed weld caps between all fenders. R.S. Price &

Son, Inc. provided Mitsubishi mini-split heat pump HVAC system on all interior spaces with Blakeney Marine providing all custom woodwork and interior finishes. Donavon Marine provided the large aluminum Diamond SeaGlaze windows and Dales Welding and Fabricators, LLC supplied the aluminum exterior doors. Dickson Marine Supply provided a pair of Wintech 40-ton deck winches and New World, Inc. provided all of the electronics and communications for the vessel. All of the boats will be set up with 10,400 gallons of fuel, 4,359 gallons of potable water and 9,500 gallons of ballast water along with providing a maximum 7' 9" working draft.

Conrad Shipyard Awarded 9-Barge Contract

Conrad Shipyard of Morgan City, Louisiana announced that it has been awarded a contract to build four (4) Anchor Barges, two (2) Deck Barges, and three (3) Crane Barges for Great Lakes Dredge & Dock Company LLC (GLDD), headquartered in Oak Brook, Illinois. The four anchor barges will be built at Conrad's Morgan City Shipyard, and the deck and crane barges will be built at its shipyard in Orange, Texas. The four Anchor Barges and two Deck Barges are scheduled for delivery during the first and second quarters of 2018; the three Crane Barges are scheduled for delivery in quarters two and three of 2018.

Metal Shark Building Four Passenger Vessels and Additional NYC Ferry

Louisiana-based shipbuilder Metal Shark is once again building multiple high-speed aluminum catamaran passenger vessels for the NYC Ferry Service Operated by Hornblower. In early August, Metal Shark received orders from Hornblower for four 350-passenger USCG Subchapter K vessels, which are a new and larger platform than the fleet of 150-passenger vessels NYC Ferry currently operates. An additional 85', 150-passenger USCG Subchapter T vessel has also been ordered. All of the vessels are currently in production at Metal Shark's Franklin, Louisiana waterfront shipyard, with accelerated delivery timelines calling for all five vessels to complete and deliver in 2018. NYC Ferry's new USCG Subchapter K vessels are designed by Incat Crowther and powered by twin twelve-cylinder, 1,400-horsepower Baudouin 12M26.3 diesel engines, coupled to ZF Marine ZF3050 gearboxes and turning custom five-blade Michigan Wheel propellers. These larger "Rockaway Class" vessels boast an operating speed of 24 knots.

BRAvo 2500 Pollution Response Vessel

Western Canada Marine Response Corporation (WCMRC) has awarded a construction contract for three of Robert Allan Ltd.'s BRAvo 2500 Pollution Response Vessels designed to protect Canada's West Coast. With WCMRC's aim to increase their offshore spill response capability for the Trans Mountain pipeline expansion project Robert Allan Ltd. was awarded a design contract by WCMRC in late 2016 for the BRAvo 2500 vessels. These modern pollution response platforms are custom designed to meet the formidable environmental conditions and demanding requirements of Canada's exposed west coast. They will act as a mothership to other smaller vessels during training exercises and in the response to a spill, should it occur. They will be capable of deploying leading containment technologies, transferring equipment between vessels, and provide the flexibility of utilizing the vessel's internal tankage or offloading any oil into WCMRC's barges.

BRAvo 2500 Pollution Response Vessel at a glance …

Designer: Robert Allan	Depth: 3.80 m	Fresh water: 12 m³	Speed: 10 knots
Length: 25.0 m	Draft, Maximum: 2.8 m	Recovered oil: 26 m³	Accommodations: 8
Beam: 10.25 m	Fuel oil: 53 m³	Propulsion: Tier 3 Cat C9.3	Class: Lloyds Register

Lake Assault River Barges for San Antonio River Walk

Lake Assault Boats recently delivered 24 of the 43 custom river barges to the City of San Antonio, Texas. The custom boats are a vital component of the vibrant San Antonio River Walk that hugs the San Antonio River and major tourist attractions. The boats will serve as touring and dining vessels and also as water taxis. The fleet consists of five distinct barge rail patterns and can be configured in a range of floor plans to support touring, dining, commuting, entertaining, special events and other applications. The modular deck design allows for different layouts of tables, chairs and booths. The flat deck enables easy entrance and exit. Programmable LED lighting creates a stunning visual display. The boats are designed with care for the environment and sustainability as a top priority. Each includes a Torqeedo brand 10kW outboard electric motor, with power supplied by 16 lithium batteries. Recharging the batteries is an automatic process that only requires the operator to plug the boat in to shore power.

Marine News

EDITORIAL CALENDAR

JANUARY

Ad Close: Dec 15

Passenger Vessels & Ferries

MARKET: Training & Education
TECHNICAL: Hybrid Propulsion
PRODUCT: HVAC & Ventilation
SPECIAL REPORT: Ballast Water Treatment
REGIONAL FOCUS: U.S. East Coast

PVA Maritrends:
Jan 28 - 31, Savannah, GA

FEBRUARY

Ad Close: Jan 16

Dredging & Marine Construction

MARKET: U.S. Coast Guard
TECHNICAL: Marine Lubricants
PRODUCT: Pumps, Pipes & Valves
SPECIAL REPORT: Inland Port Development

Inland Waterways Conference:
Mar 20 - 21, New Orleans, LA

MARCH

Ad Close: Feb 15

Pushboats, Tugboats & Assist Vessels

MARKET: Winches & Capstans
TECHNICAL: Naval Architects
PRODUCT: Workboat Engines
SPECIAL REPORT: Thrusters & Inland Propulsion

CMA Shipping:
Mar 12-14, Stamford, CT
Clean Waterways:
April 4-5, St. Louis, MO

APRIL

Ad Close: Mar 15

Boatbuilding, Construction & Repair

MARKET: Marine Cranes
TECHNICAL: Coatings/Corrosion Control
PRODUCT: CAD/CAM Software
SPECIAL REPORT: VGP Compliance
REGIONAL FOCUS: North American West Coast

NACE Corrosion:
April 15-19, Phoenix, AZ

MAY

Ad Close: Apr 16

Inland Waterways

MARKET: Barge Building & Outfitting
TECHNICAL: Workboat Comms
PRODUCT: Cordage, Wire Rope & Rig
SPECIAL REPORT: Subchapter M Towboat Rules

OTC: Apr 30 – May 3, Houston, TX
IMX: May 21-23, St. Louis, MO
Electric & Hybrid Marine World Expo:
Jun 27-29, Amsterdam, NL

JUNE

Ad Close: May 15

Combat & Patrol Craft Annual

MARKET: Salvage & Spill Response
TECHNICAL: ATB's
PRODUCT: Pollution Prevention & Response equipment
SPECIAL REPORT: Shipyard Exports

Clean Pacific: Jun 19-21, Portland, OR
SeaWork: Jul 3-5, Southampton, UK

JULY

Ad Close: Jun 15

Propulsion Technology

MARKET: Lubricants, Fuels & Additives
TECHNICAL: Safety & Fire Prevention
PRODUCT: Shafts, Seals & Bearings
SPECIAL REPORT: Workboat Repair
REGIONAL FOCUS: Great Lakes

AUGUST

Ad Close: Jul 16

MN100 Market Leaders

MARKET: Boatbuilders
TECHNICAL: Marine Operators: Crew Training and Retention
PRODUCT: Hull and Deck Coatings

SEPTEMBER

Ad Close: Aug 15

Offshore Annual

MARKET: OSV & Offshore Trends
TECHNICAL: Dynamic Positioning Equipment & Training
PRODUCT: Pumps, Pipes & Valves
SPECIAL REPORT: Regulatory Outlook

OCTOBER

Ad Close: Sep 17

Autonomous Workboats

MARKET: Multi-Mission Workboats
TECHNICAL: Management & Operations Software
PRODUCT: Electronics & Navigation Equipment
SPECIAL REPORT: Simulation Tech & Trends

SHIPPINGInsight: Oct 9-11, Stamford, CT
Commercial Marine Expo:
Oct 17-18, Providence, RI
SNAME: Oct 23-27, Providence, RI

NOVEMBER

Ad Close: Oct 15

Workboat Annual

MARKET: Outfitting Today's Workboat
TECHNICAL: Marine Gears
PRODUCT: Deck Machinery-Winches and Cranes
SPECIAL REPORT: The Marine Fuel Debate
REGIONAL FOCUS: Gulf Coast

Clean Gulf:
Nov 13-15, Houston, TX
Workboat Show:
Nov 28-30, New Orleans, LA

DECEMBER

Ad Close: Nov 15

Innovative Products & Boats

MARKET: Fire, Patrol & Escort Craft
TECHNICAL: Emissions Compliance and Monitoring
PRODUCT: Fire & Safety Equipment
SPECIAL REPORT: Top 10 Stories for 2018


Rigdon


Bates


Daly


Hasuly


Hunter


Inman

Tidewater Announces Executive Leadership Changes

Tidewater Inc. announced that **Jeffrey M. Platt** has elected to retire effective October 15, 2017 from his roles as CEO, President, and a director of Tidewater. The Board of Directors has appointed Larry T. Rigdon as its interim Chief Executive Officer and President, effective immediately. The Board has formed a search committee to identify a permanent successor CEO and President. Rigdon, who was appointed to serve on the Board following the financial restructuring, is a seasoned executive in the industry. He has prior experience as an executive at Tidewater, retiring as Executive Vice President in 2002 after joining the Company in 1992 with the merger with Zapata Gulf Marine Corporation. Following his retirement from Tidewater in 2002, he founded and grew Rigdon Marine Corporation to twenty-eight state of the art offshore service vessels and sold the Company in June 2008.

CT Port Authority Re-elects Bates as Chairman

The Connecticut Port Authority has re-elected Stonington resident **Scott Bates** as Chairman of its Board of Directors in a unanimous vote. Among the CPA's initiatives, the Small Harbor Improvement Projects Program (SHIPP) will provide grants for the preparation of plans and studies, as well as construction projects that improve state, municipal, or other properties in or next to Connecticut waters.

Sea Machines Navigates Ahead with COO Hire

Sea Machines Robotics announced that **Jim Daly** has joined the company as Chief Operating Officer. Daly was previously Chief Operating Officer and a member of the leadership team at Rethink Robotics, where he scaled operations from technology concept through first and second-generation products. He held senior leadership roles at startups Zeemote, Tea Forte and Handspring, and as a Division Manager at Solectron Corporation. Daly earned a BS from Worcester Polytechnic Institute and an MBA from Santa Clara University. He serves on the Advisory Board for Robotics Engineering at WPI.

TSGI Welcomes Hasuly to Team

The Shearer Group, Inc. (TSGI) announced a new addition to its naval architecture, marine engineering & marine surveying firm, **Anne Hasuly.** She is a licensed Professional Engineer in the state of Texas and holds a B.S. in Naval Architecture & Marine Engineering from the University of New Orleans. Anne is also a member of SNAME and the Louisiana Engineering Society. Prior to joining TSGI, Anne worked for Aqualis Offshore as a senior naval architect. Before joining Aqualis Offshore, she worked at MiNO Marine, LLC where she consulted on various types of vessels.

BHGI Welcomes John Hunter, P.E.

Bristol Harbor Group, Inc. (BHGI) recently introduced **John Hunter**, P.E. as an addition to its naval architecture and marine engineering practice as a Senior Naval Architect. He holds a B.S. in Naval Architecture & Marine Engineering from the University of Michigan. He is a licensed Professional Engineer in the State of Washington and a member and a past chairman of the New England section of SNAME. He has forty years of experience in the design and construction of small (under 295') steel and aluminum vessels including tugboats, research ships, car ferries, passenger vessels, fishing boats and barges.

Windstar Cruises Names Inman as Risk Management Director

Windstar Cruises announced that **Michael Inman** has joined the cruise line's leadership team. Inman's career with the U.S. Coast Guard involved service as Captain of the Port for Southeast Alaska. Most recently, Inman worked for Holland America Group, focusing on safety, occupational safety and environmental issues for a fleet of 30 vessels. Educated at the U.S. Coast Guard Academy with a Bachelor of Science in Marine Science and a Master of Science in Telecommunications Systems Management from the U.S. Naval Postgraduate School, Inman is a board member for the Alaska Maritime Prevention and Response Network.

WSP Appoints van den Berk as VP, Ports & Marine

WSP has announced the appointment of **Martijn van den Berk** as Vice President of Ports & Marine. Mr. van den Berk brings to WSP 18+ years of

NOIA Appoints Four to Board of Directors


Medcalf


De Roode


Stauble

National Ocean Industries Association (NOIA) Chairman David Welch has appointed four new members to the association's Board of Directors. Appointed to first term on the Board of Directors were **Jennifer Medcalf**, Vice President Business Development, The REACH Group, **David De Roode**, Partner, Lockton Partners, LLC/Senior Vice President, Lockton Global Energy & Marine, **L. Allen Sanders**, Vice President Gulf of Mexico Operations, Anadarko Petroleum Corporation and **Martin Stauble**, Vice President Exploration North American & Brazil, Shell Energy Resources Company.


van den Berk


Allen


Hubert


Wiernicki

project management experience in the ports and marine infrastructure environment. He specialized in container terminals, liquid bulk and gas terminals, waterfront development and shipyards and naval bases. He holds a Master's degree in Civil Engineering from the Delft University of Technology. van den Berk will be based out of the firm's Thornhill, Ontario office.

Allen to Lead NAVTOR's U.S. Office

NAVTOR has opened a new office opening in Seattle, WA. The new office opened this month and **Todd Allen**, who has worked as US Area Sales Manager for NAVTOR since 2016, will drive the growth. Aside from establishing operations he will push proprietary products including NavStation, the world's first digital chart table, and NavBox, which automatically downloads, distributes and updates all vessel navigational charts and publications.

BCGP Appoints New Director of Sales

Brunswick Commercial & Government Products (BCGP) announced that **Jeff Hubert** has been promoted to director of sales. Jeff joined the organization in 2016, and has served as regional sales manager for the Eastern United States. Recently retired as Lt. Colonel of the Florida Fish and Wildlife Conservation Commission (FWC), Jeff is a graduate of the FBI National Academy and has over 30 years of law enforcement experience.

Wiernicki is MMA's Person of the Year

Christopher J. Wiernicki, Chairman, President and CEO of ABS, was recognized for his distinguished career of excellence, innovation and service to the maritime industries by the Massachusetts Maritime Academy (MMA) as this year's recipient of the Maritime Person of the Year Award. The honoree is presented with the Captain Emery Rice Medal and awarded annually to a civilian or military leader from around the globe. Named for the 1895 MMA graduate and World War I hero, Captain Rice was recognized twice by Theodore Roosevelt for his maritime skill and bravery. Wiernicki holds a Bachelor of Engineering in Civil Engineering from Vanderbilt, a Master of Science in Structural Engineering from George Washington University and a Master of Science in Ocean Engineering from Massachusetts Institute of Technology (MIT).

Clyne Receives Outstanding Professional Achievement Award

Robert (Bob) Clyne, ABS Senior Vice President, General Counsel and Corporate Secretary, was recognized with the Outstanding Professional Achievement Award for his distinguished accomplishments as a graduate who best exemplifies the finest tradition of Kings Point – Acta Non Verba – and lending honor and prestige to the U.S. Merchant Marine Academy. Clyne began his career at


Clyne


Newhouse-Rodriguez


Browning


Trevisan

ABS and upon earning his law degree, he joined the firm of Hill Rivkins LLP where he practiced maritime law for 24 years. He returned to ABS in 2012 and currently oversees the Legal department activities that service ABS globally. Clyne holds a bachelor's degree in marine transportation from the U.S. Merchant Marine Academy, and he earned his JD degree from New York Law School.

Browning, Newhouse-Rodriguez Appointed to IA Port Commission

Indiana Governor Eric J. Holcomb has appointed **Monica Newhouse-Rodriguez** and **Michael Browning** to the Ports of Indiana Commission. Newhouse-Rodriguez is managing principal of Newhouse and Associates. Browning is the former president and CEO, and now chairman of the board, for Browning Investments. Newhouse-Rodriguez received her bachelor's degree in aerospace from Middle Tennessee University and her MBA in information decision sciences from the University of Illinois at Chicago. Michael holds a Bachelor of Science degree from Notre Dame, and has honorary doctorate degrees from Marian University and Martin University.

Damen Names Cruise Building Sales Director

Damen Shipyards Group has appointed **Andrea Trevisan** as its new Sales Director Cruise New Building. The announcement coincides with Damen's


Hong


Babic


Ogrydziak


Clark


Rizzi

plans to expand its standing in the Expedition and small size Cruise Vessels market. Trevisan, a licensed Master Mariner, will oversee Damen's global commercial and marketing activities with regard to new build cruise vessels.

Hong Transitions to Parent Company Saltchuk

Young Brothers announced **Glenn Hong** will retire at the end of the year as company president to undertake a new leadership role with parent company Saltchuk, focusing on Hawaii business initiatives effective January 1, 2018. Hong began at Young Brothers in 1991 as vice president of Finance and Government Affairs, coming from Hawaiian Electric Industries. In 1992, he assumed the presidency. Under Hong's leadership, Young Brothers has undergone a fleet modernization initiative to meet neighbor island cargo needs into the next generation.

WAGO Canada Adds Regional Sales Manager

WAGO Canada has added **Boris Babic** to their sales force for Quebec City and Atlantic Canada. Babic attended Cegep Limoilou College in Quebec City and earned his Diploma in Industrial Electronics with a focus in Instrumentation and Control. He worked for four years as an electro-hydraulic project manager, three as an automation specialist and one as a system inspector.

Ogrydziak to Lead Security, Facilities, & Compliance at Beaumont

The Port of Beaumont welcomed retired U.S. Coast Guard Captain **Randal Ogrydziak** to the team as the director of security, facilities, and regulatory compliance. Ogrydziak recently retired as a senior Coast Guard officer with 38 years of experience leading large, operationally complex, integrated military, law enforcement, and emergency management organizations in today's dynamic global response environment. Ogrydziak previously served as Commanding Officer of Coast Guard Marine Safety Unit Port Arthur.

XL Catlin Adds Ocean Marine Insurance Expertise

XL Catlin has expands its marine insurance team with the addition of **Stephen Clark** as Vice President, National Hull & Liabilities Practice Leader in Chicago and **Alison J. Rizzi** as Senior Ocean Marine Underwriter in New York. In his new role, Clark will address marine businesses' hull and liability insurance needs. Most recently, he served as vice president of Ocean Marine business at CNA. He joins XL Catlin with more than 25 years of ocean marine underwriting experience. Rizzi returns to XL Catlin from Allianz where she managed a book of complex marine risks. She first joined XL in 2005 as an underwriter in its marine and offshore energy business.

Harley Marine Services Welcomes New CFO

Harley Marine Services has welcomed **Sterling Adlakha** to its executive team where he will assume the role of Chief Financial Officer. A graduate of the United States Coast Guard Academy, Sterling served 10 years in the United States Coast Guard. He began his career as an engineer on a 210' cutter before moving to the West Coast and becoming a double-ended marine inspector and plank owner of the country's Sea Marshal program following the 9/11 terrorist attacks. He later earned a Masters of Business Administration and International Business Diplomacy Certificate from Georgetown University. Sterling also held positions in investment banking and equity research before returning to his maritime roots at the Kirby Corporation where he advanced to Vice President and Chief Financial Officer of United Holdings LLC.

RAL's 2017 Memorial Scholarship Award Announced

The trustees of the Robert Allan Memorial Scholarship Trust have announced the award of their scholarship for 2017 to Ms. **Taryn Loutit**. Loutit, a 4th year mechanical engineering student at the University of Victoria, has an outstanding academic record and has completed five co-op work terms with marine-related businesses. The Robert Allan Memorial Scholarship Trust was initiated in 1982 from a bequest by the late Robert F. Allan, and with support from his


Loutit


Uotinen


CMA Cadets

many industry friends and colleagues. The scholarship is awarded annually to the student or students considered most deserving by the applications committee.

Uotinen to Join Robert Allan LTD

Sam Uotinen has joined Robert Allan as a business development specialist. Sami is an experienced marine industry professional who has worked at Aquamaster, Kamewa and Kvaerner Masa Yards. He has worked at Rolls Royce since 2000 and served as their contracts manager in Coquitlam. Most recently Sami has been the North American Sales Manager for Z-Drive propulsion. In his role at Robert Allan Ltd. Sami will be responsible for our European Business Development initiatives.

Crowley Scholarships for CMA Cadets

Crowley Maritime Corp. has awarded four California Maritime Academy (CMA) students with Thomas B. Crowley Sr. Memorial Scholarships during this year's Containerization and Intermodal Institute's Connie Awards dinner in Long Beach, CA. Award recipients were **Samuel Comerford**, **Alex Yonkman**, **Kent Treptow** and **Tyler Sayvetz**. The scholarships help to further educational opportunities for these students, who were each chosen based on their academic performance, financial need and interest in pursuing a career at sea after graduation. Since 1984, Crowley has provided more than $3 million dollars in scholarship funding for more than 1,000 students.

Sherwin-Williams Organic Zinc-Rich Epoxy Coatings

Sherwin-Williams Protective & Marine Coatings has launched Zinc Clad 4100, a high-solids coating featuring recoat times as short as 30 minutes, allowing for accelerated shop throughput, enhanced project schedules, and fast field project turnarounds. The three-component, organic zinc-rich epoxy coating eliminates the need for sweat-in time. Its user-friendly packaging allows applicators to mix components directly in the Part A container for faster, more accurate mixing.

http://protective.sherwin-williams.com

FCI Watermakers Ideal for Workboats, Platforms

Workboat crews don't have time to micromanage onboard systems. That's why FCI Watermakers' U.S. made commercial grade Neptune+ is the ideal solution for the daily water needs of these professionals. It reliably makes 1,275–9,500 gallons of fresh, pure water every day, without the commitment needed for constant monitoring and adjustments. It has type approval certifications from ABS, Lloyd's Register EMEA, and DNV GL.

www.fciwatermakers.com

MM1018 Repair Product for Workboat Deck Applications

Stronghold Coatings' MM1018 is a polymeric metal material that provides 100% force fit gap compensation for the repair of all types of deck machinery for workboats. When applied to the baseplates of deck machinery like winches, cranes, capstans, and cable laying equipment, MM1018 allows the equipment to be repaired and repositioned without having to realign, saving time and money.

www.StrongholdOne.com

Yanmar's DTorque 111 Turbo Diesel Outboard

The Dtorque 111 is designed for the small workboat market where its expected lifespan of well over 10,000 hours doubles that of comparable outboard gasoline engines. The Dtorque 111 offers a smooth and quiet diesel engine, delivering 50 hp at the propeller with a torque output of 111 Nm at just 2,500 rpm. It is the world's smallest diesel engine with common-rail fuel injection.

www.yanmarmarine.com

Rolls-Royce EPA Tier 4-Compliant Propulsion from MTU

MTU will supply six 16V 4000 engines complete with SCR, ZF transmission and automation to the San Francisco Bay Area Water Emergency Transportation Authority (WETA). The 20-year MTU-San Francisco Bay Area ferry partnership yields over 30 engines for vessels serving the region. These MTU engines meet EPA Tier 4 requirements with 5% lower fuel consumption, 75% lower nitrous oxide, and 65% lower particulates.

www.rolls-royce.com

Miller's Powered Air Purifying Respirator with T94-R Series Welding Helmet

Miller Electric's Powered Air Purifying Respirator (PAPR) paired with new T94-R Series Welding Helmets is engineered for comfort to keep the system on, driving productivity, safety and compliance. The new patent-pending Dualtec manifold system features six interior vents and dual air speeds for high-performance airflow output and maximized perceived cooling. An overall balanced design reduces neck torque, and shoulder straps alleviate lower back pain.

www.MillerWelds.com

Biral's Marine BTD-350 Thunderstorm Detector

The BTD-350 Thunderstorm Detector is a standalone sensor that detects lightning at a range of 83 km. Designed for marine applications, where severe weather, salt water corrosion and platform vibration produce a challenging environment for environmental sensors, it can be mounted on marine vessels to give warning of approaching storm activity, and more importantly, about the threat of imminent overhead lightning activity.

www.biral.com

SUNRUI BalClor BWMS wins USCG Type Approval

BalClor BWMS technology has received USCG type approval. The technology applies a combination of filtration, disinfection and neutralization process. BalClor BWMS treat ballast water on board through filtration followed by disinfection with oxidant produced by an electrolytic process during ballasting, and neutralization at de-ballasting. During de-ballasting, ballast water will be discharged directly without repeating disinfection.

www.allmarinespares.com

Marine Propulsion Turning, Locking & Braking System from Twiflex

Twiflex' innovative turning, locking, and braking system (TLB) for marine propulsion shaft applications is a reliable, multi-function TLB solution reduces costs, dimensional space, and installation and maintenance time. The Twiflex TLB consolidates three usually separate interfaces into one package. The modular TLB system is configured to allow customers to select and install one of the TLB functions individually or choose paired or complete TLB functionality.

www.AltraMotion.com

DESMI OptiPower Solution Reduces Costs and Energy Loss

DESMI Pumping Technology A/S is introducing a new solution that enables operators to avoid overheated and damaged electric installations and reduce costs and energy loss. The solution is suitable for newbuildings and retrofits. The new OptiPower from DESMI Pumping Technology A/S includes power quality analysis from measuring to design and installation of equipment making it possible to optimize power quality management and avoid electrical disturbance.

www.desmi.com

Honda Marines Line of Outboard Motors

Newly redesigned Honda Marine BF75, BF90 and BF100 outboards sport Honda's new "Crouching Form" design aesthetic first released on the Honda Marine BF4, BF5 and BF6 models in 2016. All three Honda Marine mid-range models feature new rigging components including a new digital multi-function display and a new tiller handle with a large shift lever, power tilt and trim, and trolling control.

http://hondanews.com

Rolls-Royce, Inmarsat Ink Energy Management Pact

Rolls-Royce and Inmarsat have signed a Letter of Intent (LOI) to have the option to make the company's Energy Management system available via Inmarsat Maritime's Fleet Xpress high-speed broadband service. With data collected from a multitude of vessel control systems and sensors, Energy Management 2.0 reduces energy consumption and supports environmental compliance as well as allowing for the benchmarking of efficiency against historical performance.

www.rolls-royce.com/products-and-services/marine.aspx

Furuno Solid-State Doppler Radar Technology

In 2016, Furuno introduced the DRS4D-NXT, a compact, Solid-State Doppler Radar that delivered a whole new set of features to NavNet TZtouch and NavNet TZtouch2. Today, Furuno has expanded upon their initial radome offering to combine Solid-State features in an open array configuration with the DRS6A-NXT, featuring "Target Analyzer", which automatically changes the color of targets to clearly show any hazards.

www.FurunoUSA.com

Force Control Marine Duty Brakes

Marine Duty Force Control Brakes are ideal for winches, capstans, anchor chains, dredges, cranes, conveyors and other onboard and portside equipment. Oil shear technology provides precise stopping with no maintenance or adjustment. And because the oil in shear provides the stopping power, there is very little wear on the disc stack. These brakes last far longer than dry braking systems.

www.ForceControl.com

Corvus ESS Selected by Rolls-Royce for Hybrid Application

Corvus Energy has been selected to provide a 3 MWh Orca ESS for a new Norwegian Coastal Authority hybrid vessel. The Orca Energy ESS from Corvus will supply electrical power for all-electric propulsion and for electrical needs while docked. The Orca ESS will have an available capacity of 2938 kWh, allowing the vessel to run on battery power for several hours, without diesel engines.

www.corvusenergy.com

Hornblower NYC Ferries Employ Sea-Fire Protection

As Hornblower continues to add to its fleet of 19 NYC catamaran ferries, each will employ Sea-Fire Marine's state-of-the-art engineered fire detection and suppression systems. Tested and approved in accordance with IMO, SOLAS, Lloyds MCA and USCG requirements, Sea-Fire's H-Series fire suppression system is the ideal solution to protect each powerful 803 bhp @ 2,100 rpm Baudouin 6 M26.3 Class P3 engines.

www.sea-fire.com

Globaltec Solutions Adds ProTec to Equipment Lineup

GlobalTec Solutions is now the exclusive US distributor for ProTec, an extensive line of inflatable fenders and buoys, and foam dock edging used widely by commercial vessels and marinas. Although its exposure within the US has been limited, the company began in Norway in 1955 and is still headquartered there. GlobalTec Solutions has offices in Baltimore, Maryland and Portsmouth, UK.

www.globaltec-solutions.com

Roxtec Sealing Solution Simplifies Ship Digitalization

On Board Digitalization requires smart solutions. Cable transit specialist company Roxtec's new Roxtec SLA sealing solution, which includes Roxtec R transits or RS seals with newly developed adaption sleeves, simplifies the addition of cables late in a project, enabling welding-free repairs. The solution is certified for use in A-Class fire rated divisions, ensuring water-tightness up to 2.5 bar. It reduces the need for hole-cutting and fixation.

www.roxtec.com

Zodiac Nautic Group, Torqeedo introduce Avon eJET Concept

Zodiac Nautic Group, together with Torqeedo, have developed the Avon eJET Concept, a 100% electric tender that offers a single fuel type on board, no oil changes, increased reliability and reduced maintenance. The eJET Concept performed strongly in testing, leading Avon and Torqeedo to collaborate on a commercial range of eJETs, available in 2019. The eJET will deliver 90 minutes endurance at 26 knots.

www.avonmarine.com / www.torqeedo.com

JA Moody's Composeal Valves Keep You at Sea

JA Moody provides the perfect solution to damaged, corroded valves requiring repeated replacement. Composeal valves provide a lightweight, cost effective alternative, boasting enhanced performance, corrosion resistance, and a longer product lifecycle. Composeal valves can replace stainless steel and other high priced exotic metals in corrosive service. Made of advanced composite material, they are 100% recyclable, making them the ideal fit for companies committed to sustainable production.

www.jamoody.com

RSC Bio Solutions Gets Nod for Kawasaki Heavy Industries

RSC Bio Solutions has received OEM approvals for use in Kawasaki Heavy Industries' Controllable Pitch Propellers (CPP) and side thrusters. Both the RSC EnviroLogic HF 68 HP and the RSC EnviroLogic GO 100 products are designed for use in many marine applications. Both products can directly replace petroleum oil-based products of the same viscosity, resulting in a reduced environmental impact in the event of a spill.

www.rscbio.com

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I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).

PS Form **3526-R**, September 2007 (Page 2 of 3)

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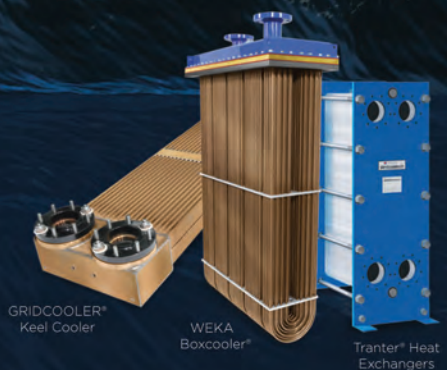

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