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Volume 30 • Number 3

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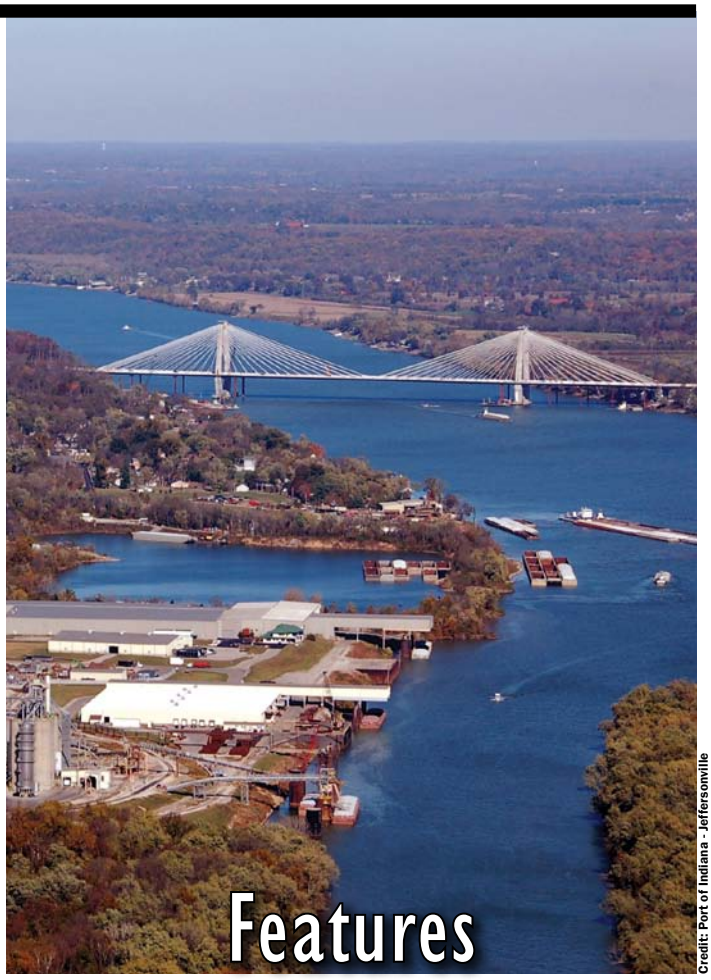

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ON THE COVER

Pushing ahead in the rapidly changing waters of U.S. inland markets, Chairman & CEO of Campbell Transportation Company, Peter Stephaich, provides a unique window into what's just around the next bend. His narrative begins on page 16.

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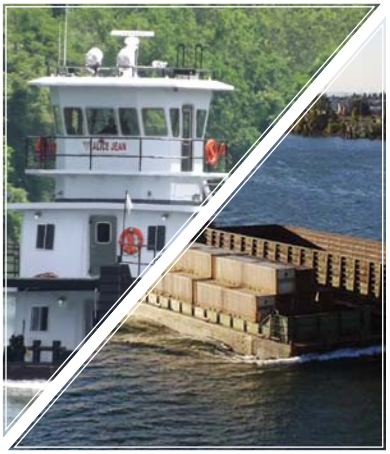

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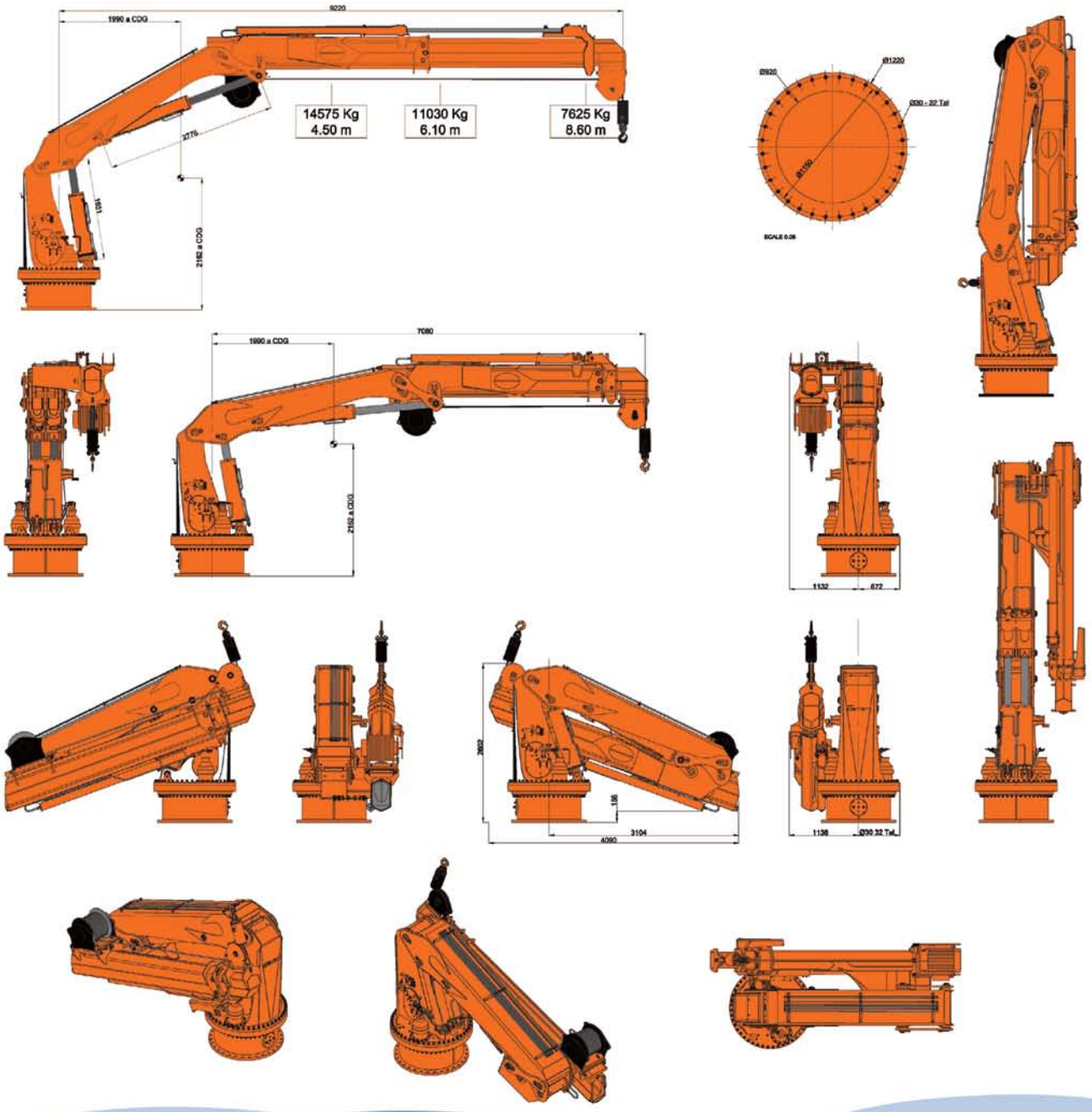

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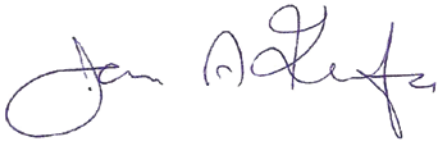
In the necessary, often frantic effort to preserve Jones Act protections for the 40,000 strong, diversified and versatile U.S. flag fleet, some domestic stakeholders mistakenly assume that this is strictly a blue water, deep draft issue. If so, they couldn't be further off the mark. That's because – forgive me for repeating myself yet again – our merchant fleet today consists largely of smaller, brown water and shallow draft workboats. Hence, while the most public of the Jones Act discussions surround island economics and bulk transportation of energy, the real threat is much closer to home.

Anyone who doesn't think that registered fleet operators and domestic bulk shippers who would like to save a nickel don't want to open up inland transportation, offshore service tasks and even dredging duties to foreign built and manned tonnage, is also sadly mistaken. Moreover, the smallest exception to the rule will bring it all tumbling down. That Jones Act waiver for a strategic petroleum reserve 'drawdown' via VLCC may seem a long way off from your far flung pushboat operation on the Ohio River. It's not.

It is in this context that the advent of the Coast Guard's subchapter M towboat rules is so important. As many as 5,300 vessels – comprising 15 percent of our domestic fleet, are impacted. Beyond that, though, this is our opportunity to demonstrate that U.S. flag standards measure up to any in the world. The dirty little secret that foreign operators and their special interest customers don't want you to know is that, by and large, we already operate in a safe and environmentally correct fashion. For those who still have work to do, subchapter M SME Pat Folan in this issue gives us the definitive primer on how to get to the Promised Land. That story begins on page 40.

Separately, this month's **INSIGHTS** c-suite discussion is led by Peter Stephaich, Chairman and CEO of Campbell Transportation Company and Chairman of the Board of the Waterways Council, Inc. (WCI). Arguably, few others in this complicated business have a better understanding of this complicated inland business model. As Stephaich looks back and projects ahead, it is clear that while we've got work to do, there are bright spots, if we look hard enough for them. That dialogue kicks off on page 16.

Finally, and pushing ahead as quietly as the workboat sector that the Jones Act discussion often excludes, the move to an environmentally correct, zero emissions future is not only coming, it is already here. In no less than three different submissions within this edition, hybrid propulsion and fuel cells are presented as viable options for today's workboats, but also as a rapidly developing side of the industry that beckons to wider and longer routes, myriad missions and vessel types and sizes. Today, operators are seeking the panacea for emerging clean air mandates and the rising cost of low sulphur fuels. Indeed, 2019, when it comes to marine propulsion – especially for workboats – looks to be the year of 'hybrid.'



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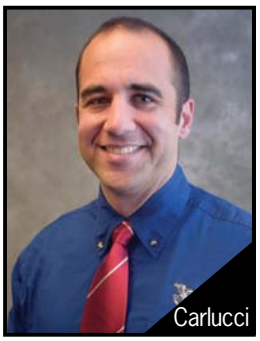
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Carpenter

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Domenic Carlucci is currently the ABS Manager for Machinery, Electrical and Controls Technology. Since joining ABS in 2008 Carlucci has held several senior roles in asset integrity management, life cycle risk and reliability, design and plan review, and product and service development. With extensive experience in the marine and offshore industries, Carlucci's expertise includes: hybrid power applications, ship systems operations and maintenance, systems designs, risk and reliability analysis (FMEA, RCM), and condition/performance monitoring. He served in the U.S. Navy as a Nuclear trained Surface Warfare Officer. Mr. Carlucci received his Bachelors of Science in Mechanical Engineering from Duke University and a Master's in Business Administration from University of Houston.

Jennifer A. Carpenter is Executive Vice President and Chief Operating Officer of The American Waterways Operators.

In 1960, **Tom Escher**, the grandson of the founder and now the current owner, started working as a sweeper and a mechanics helper on the Red and White vessels. In 1997, Escher purchased the Red and White Fleet, becoming the third generation of the family to own and operate the business. In September 2018, Red and White Fleet welcomed Enhydra, the newest and largest addition to the fleet. Enhydra is the first 600-passenger hybrid-drive vessel operating in the United States. Escher will be building more zero pollution passenger vessels.

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

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

Robert Kunkel, President of Alternative Marine Technologies, previously served as the Federal Chairman of the Short Sea Shipping Cooperative Program under the Maritime Administration and the USDOT from 2003 until 2008. A past Vice President of the Connecticut Maritime Association, he is a contributing writer for ***MarineNews***. A graduate of the Massachusetts Maritime Academy, Kunkel sailed as a licensed engineer and continued his career in ship construction at NASSCO and Hyundai Heavy Industries, among others. He is a senior member of the Special Committee on Ship Operation with ABS and an elected member of the NCB.

Lisa Overing is an award-winning marine journalist and copywriter. Lisa served on the board of directors of Boating Writers Int'l from 2007 - 2012. She is published in nine languages for some the world's leading yachting titles. Additionally, she is creative director for Megayacht Media, an advertising agency for marine businesses. Email: lisa.overing@maritimemail.com

Waterborne Freight Transportation in the United States: 2018-2023

Despite the critical role that waterborne freight transportation has played in the U.S. economy for more than 200 years, the inland and coastal maritime industry is little known outside of the transportation sector. A recent report from Amadee+Company, *"Waterborne Freight Transportation in the United States: 2018 Market Size & Share Estimates, 2018-2023 Forecast,"* addresses that situation by providing a detailed look at this industry in terms of its fleet, products moved, new market opportunities and the competitive environment.

Strategic Importance: Although very mature, and highly fragmented with hundreds of players, the industry still generates significant profits for good operators. For example, Kirby Corp. had operating profits of more than $700 million between 2016 and 2018. Waterborne transportation also is of great strategic importance and is protected from foreign competition by the Jones Act. The industry also stands to benefit significantly as the U.S. becomes the world's largest oil producer and hundreds of billions of new dollars are invested in U.S. Petrochemicals projects.

Market Size: According to the report, the U.S. market for waterborne freight was worth more than $16 billion in 2018, split about equally between Inland and Coastal/Great Lakes segments. Approximately 2.3 billion tons were shipped by water in 2018, with petroleum and refined petroleum products, food and agricultural products, and chemicals being the major commodity classes moved.

Leading Players: The report identifies Kirby Corp. (public) as the leading player followed by American Commercial Barge (private) and Ingram Barge (private). However, the industry is very fragmented with the top three players only having a combined market share of 21%. The other 79% is split among more than 500 (mainly) private companies.

Coal Production Falling: Ten years ago, in 1999, coal was still the second-largest commodity group with a 13% share by tonnage of all the commodities shipped by water. While still important, today's coal share has fallen to about 7%. Decreasing demand for coal has contributed to lower coal production, which has fallen by more than one-third since peak production in 2008. As U.S. coal demand has declined, the number of active coal mines has decreased by more than half, from 1,435 mines in 2008 to 671 mines in 2017. As the U.S. coal market contracted, smaller, less efficient mines were the first to close, and most of the mine closures were in the Appalachian region. Much of the coal mined in the eastern U.S. is shipped by water.

In addition to the development of natural gas and renewable sources, the displacement of coal as the primary source of electricity generation has been further exacerbated by more stringent mercury and air toxins rules, coupled with tighter sulfuric dioxide (SOx) and nitrogen oxide (NOx) rules. About 70 gigawatts of coal capacity have been retired in the U.S. since 2000. However, that trend is expected to slow down as most older, less efficient coal plants have now been retired, with the remaining units being newer plants better able to cope with increasingly rigorous regulations.

New Opportunities: Despite the decline in coal shipments, the U.S. Waterborne transportation industry has many new opportunities including black oil and refined oil products, natural gas liquids and petrochemicals.

Petroleum/Petrochemicals: Petroleum and petrochemicals are now the largest commodity class shipped by water with an estimated 42% share. In 2018, the U.S. became the world's largest crude oil producer with an output of more than 11.3 million barrels per day. U.S. distillate production also reached a record level in 2018. Energy Information Administration's figures show that crude and liquid fuels production rose during 2018 to about 18 million barrels per day, up from less than 16 million during 2017. Barges have traditionally moved small amounts of crude oil from the Gulf Coast to Midwest refineries, and are also used to transport some refined products. Barge usage increased dramatically with the rapid development of the Bakken Shale (North Dakota and Montana) in the early 2010s, as crude oil could be shipped south by river to refineries in the lower Mississippi and Gulf Coast. In 2010, barges delivered 46 million barrels of domestic crude oil to U.S. refineries. This rose to 244 million barrels in 2014, before decreasing to 148 million barrels delivered in 2017.

For the first decade of this century, U.S. petrochemical producers, such as LyondellBasell and Chevron Phillips Chemical flocked to the Middle East, spending years developing partnerships and building massive facilities to tap cheap natural gas feedstocks to make plastics and other materials. But now, the U.S. Gulf Coast has become

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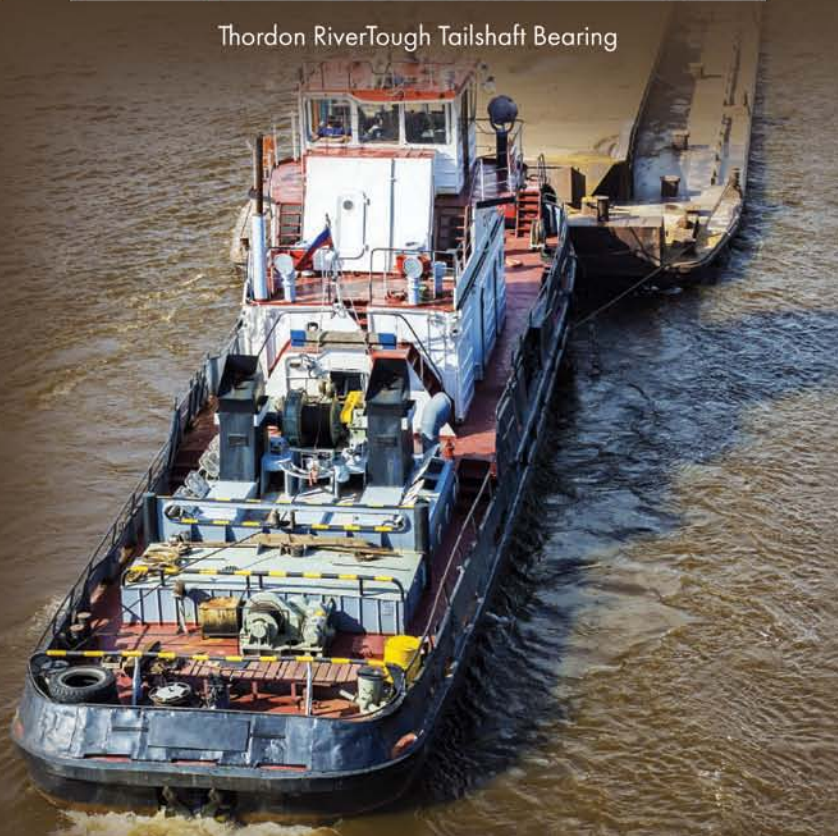

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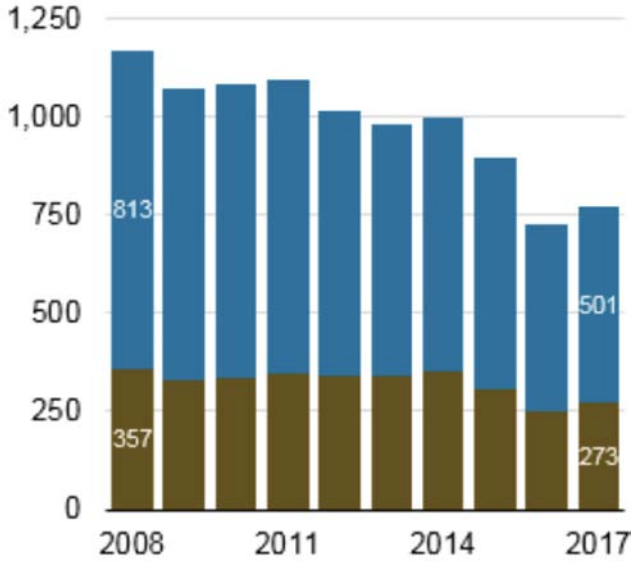
the locus of global petrochemical growth, outpacing the Middle East in a shift that's only expected to accelerate as North American shale producers siphon more natural gas from vast reserves in West Texas and elsewhere.

The U.S. is now expected to add 27.9 million ton of new natural-gas derived petrochemical production capacity between 2011 to 2020 to meet new global demand. Since 2010, 333 chemical industry projects cumulatively valued at more than $200 billion have been announced, with 53% of the investment completed or under construction and 41% in the planning phase. Fully 68% of the total is foreign direct investment or includes a foreign partner. Project types include new facilities and capacity expansions. Many of the natural resources used as inputs for these plants, as well as the petrochemicals and refinery products produced, will be shipped by water for domestic consumption and exports. Source: *American Chemistry Council*

U.S. Coal Production (Short Tons): 2008-2017



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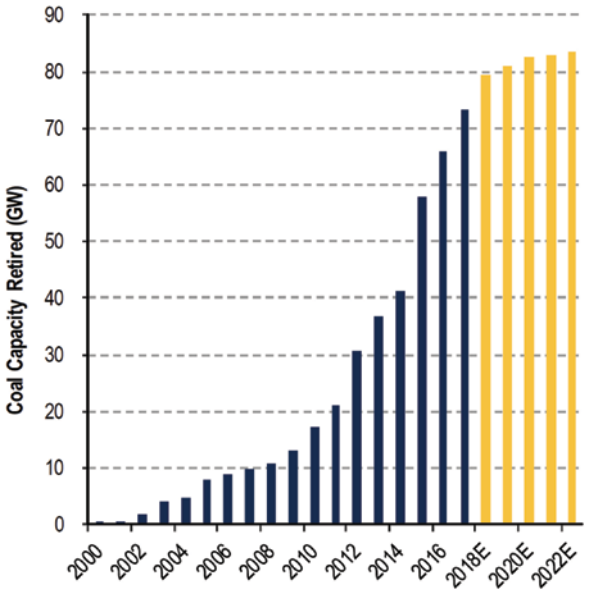
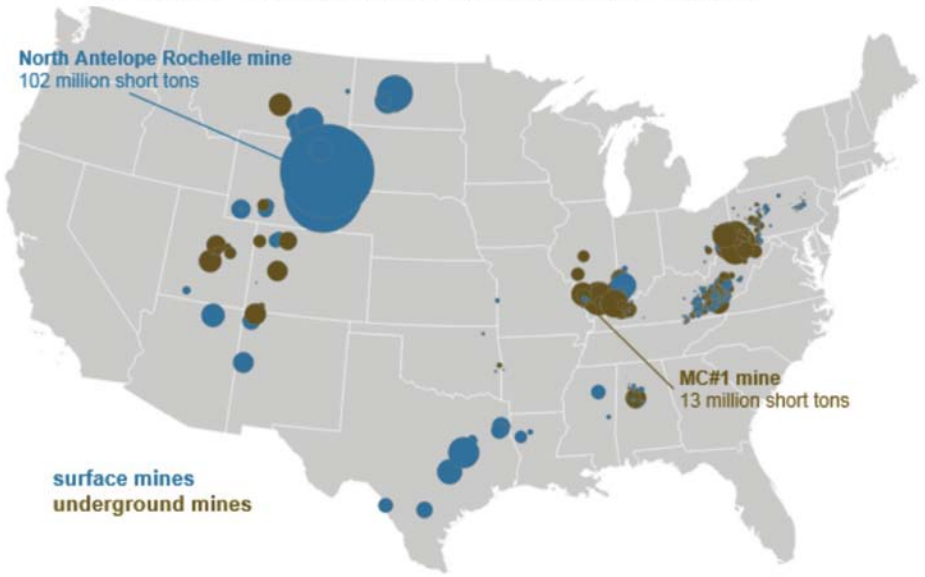
U.S. Cumulative Coal Capacity Retired (GW): 2000-2022



Surface and Underground Coal Mines in the U.S.: 2018



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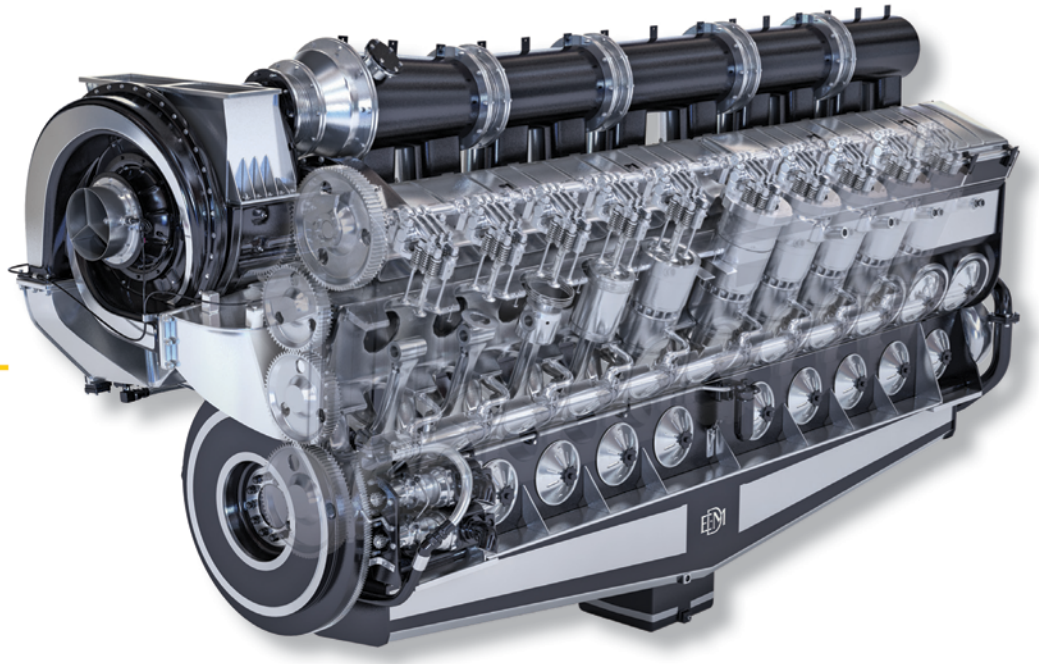

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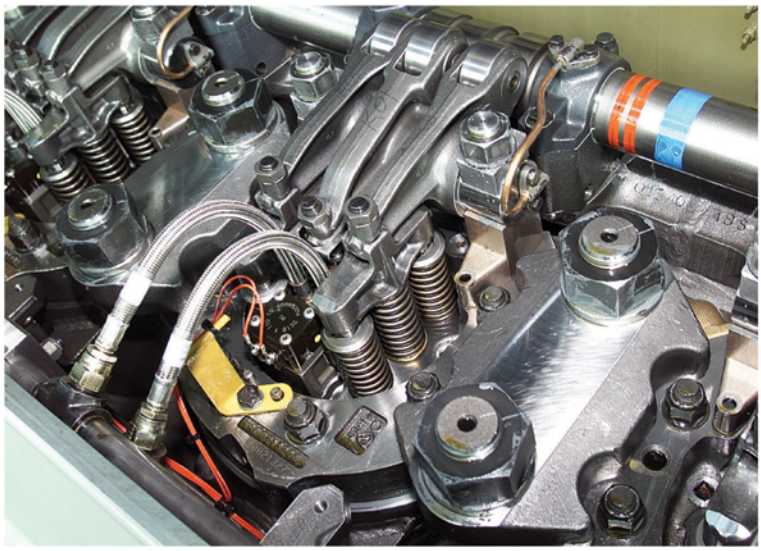

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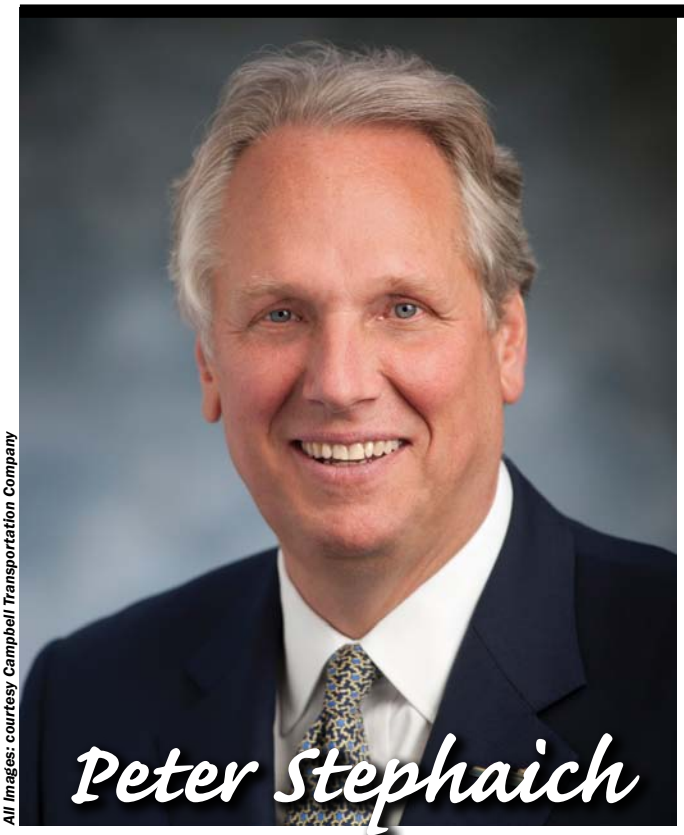

All Images: courtesy Campbell Transportation Company

Chairman & CEO, Campbell Transportation Company

Peter H. Stephaich is Chairman and CEO of Blue Danube Incorporated and Campbell Transportation Company. Currently, he is also Chairman of the Board of the Waterways Council, Inc. (WCI). Peter also serves on the Board of Directors of Blue Danube, a position that he has held since 1982. Serving the barge industry for over 30 years in a number of key roles, he also counts among his many qualifications his tenure(s) as Past Chairman and Past Treasurer of the American Waterways Operators (AWO), Past Chairman and Trustee of the National Waterways Foundation, Vice Chairman and Executive Committee of Waterways Council (WCI) and as Commissioner and Vice Chairman of the Port of Pittsburgh Commission.

Stephaich and his firm, Campbell Transportation Company, own and operate boats, hopper barges, and jumbo barges on the Upper Ohio River. The company specializes in servicing industrial customers on multi-year barge transportation agreements. It moves primarily coal to utility and steel industries. Campbell Transportation Company has approximately 500 employees, owns and operates 50 boats, 1,100 barges and four shipyards. Peter brings a unique perspective to the inland river business. Prior to arriving on the domestic waterfront, Stephaich lived in Europe and New York City where he worked for various financial institutions, including Lazard Frères, and Bankers Trust Company. At Bankers Trust, Mr. Stephaich concentrated on international financial advisory work, mostly in the transportation and aerospace industries. A native of New York City, he earned his bachelor's degree from Middlebury College and his MBA, with a major in finance, from New York University. While he speaks five languages, he is particularly fluent in 'river' talk. This month, he weighs in on all things 'inland.'

You are currently the chairman of the board of the WCI. Give us your assessment of today's market conditions on U.S. inland waters, especially in the areas that Campbell operates. Talk about fleet numbers, supply and demand, etc.

In calendar year 2017, 578 million tons valued at $220 billion were shipped on the fuel-taxed portion of our inland waterways system. That is up from 569 million tons in calendar year 2016. On the Ohio River, we have seen a spike in demand for coal, metallurgical and steam, both export and domestic. The domestic utility coal markets are experiencing low inventory levels, due in part to the extremely difficulty operating conditions that we experienced in 2018.

What is the most important issue that inland operators face today? Is that issue the same for industry as it is for Campbell's position?

The Ohio River, were Campbell mostly operates, is heavily dependent on Locks and Dams, without these structures, we can't operate. Period. Operators in the South are not as dependent on these structures.

What will it take for freight rates to improve on the inland rivers?

The supply and demand must come into equilibrium. Economics 101. Export coal markets have temporarily given barge/day demand a boost. We are not sure how long this will last. On the positive side, if we can work things out with China, the demand for US soybeans will return as soon as the artificial barriers (tariffs) are lifted.

You completed a significant acquisition and resultant increase in your fleet numbers way back in 2017. Do you see more consolidation ahead?

We absolutely see more consolidation ahead. Why? Because our markets (revenues) and weather (costs) are becoming more and more volatile. This volatility requires stronger balance sheets, with less, not more leverage. Our business calls for patient capital, which fits the family owned business model.

Your acquisition of ACBL tonnage and assets came at an interesting time. With 20/20 vision and knowing now what you might not have known then, how is this transaction working out for you? What went well, what might you have done better and what might you do differently when you contemplate a similar deal in future?

All these acquisitions are somewhat unique. Our acquisition has worked out very well for Campbell. All the assets and operations were on the Ohio River and were integrated seamlessly into our Campbell business. We look at all opportunities to improve our service offerings on the inland waterways. We believe Campbell is well positioned to take advantage of the consolidation that we have seen in the industry over the past few years.

In your current position at the Waterways Council, Inc., give us a sense of JOB 1 looking ahead for this industry advocacy group.

WCI's key goal in 2019 is to be included in any infrastructure legislation that could be developed, and, second to assure that the proposal does no harm to the inland waterways transportation industry. WCI's constant drumbeat is achievement of the national goal of initiating construction of the $8.8 billion portfolio of inland modernization projects in the next 10 years with full and efficient funding for on-time and on-budget delivery and performance. WCI just completed 95 congressional meetings in mid-February. We have very strong bi-partisan support for our inland waterway's infrastructure initiative in Washington.

If there are just three things you can help WCI accomplish, on behalf of its stakeholders, in your current role, then what would they be – and why?

As WCI Chairman, I intend to lend as much support to the effort to ensure that inland waterways' lock and dam infrastructure is included in any infrastructure initiative ahead. I will also strongly support WCI's work to educate new members of the 116th Congress about the importance

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of the inland waterways transportation system to the U.S. economy, competitiveness, national security, flood control, municipal water supply, and recreation, and the age of the infrastructure on the system that facilitates those benefits to the Nation. Finally, I will continue to broaden our very broad coalition that supports our WCI initiatives.

Subchapter M is here and it is impacting the inland waterfront. Campbell is likely ahead of the curve when it comes to future Sub M compliance through its past RCP efforts. Recently, we reported that the actual numbers of COI's obtained to date isn't exactly robust – less than 200 (at year end 2018) in a fleet of more than 5,300 sub M regulated boats. Where does your firm stand in the march toward a Sub M compliant COI for each vessel?

Campbell does a lot of third-party towing of liquid barges on the Ohio River. As a result of this, we are held to a higher standard than Sub M requires in a lot of cases. Many of the liquid operators and oil majors have audited Campbell through the TMSA and SIRE process and we are an approved provider. Campbell is pursuing an aggressive Sub M compliance program. We are investing heavily in our fleet through investments in our existing equipment and purchase of new equipment. We are experiencing the same issues as other operators with delays in getting COI's expediently. This is a new process for the industry, but Campbell is focused on ensuring we remain ahead of the curve.

Did you choose the Coast Guard option or the TPO option? Why? How is that process going for you?

We have chosen TVIB as our TPO option. We have worked with TVIB since its inception and we think that having a brown water/inland option is beneficial to our industry.

Trade sanctions (and the trade war in general) are said to be impacting Midwest agriculture markets. Naturally, anything that impacts the farmers who ship bulk cargoes on the river, also affect inland operators. Give us a sense of what this has done to your markets, if anything?

Boats and barges move around the country in search of the best commercial opportunities. When the grain markets are strong, equipment is moved off the Ohio. This benefits the dry-cargo markets on the Upper Ohio.

Soybean farmers lost some key market access as the trade war has played out. But, then, reportedly, found new outlets for their output. Has the change been 'a wash' or, in other words, what's changed?

I am not an expert on the soybean markets. An article in December ("Impact of Tariffs on U.S. Soybeans" by the American Soybean Association), noted that "ASA remains highly concerned about this ongoing, escalating feud, as it will continue to exacerbate both short-term and long-term damage to our China market. From June to August, the price of U.S. soybeans at export position in New Orleans has dropped 20 percent, from $10.89 to $8.68 per bushel. Farm prices have fallen even further. During the same three-month period, the premium being paid for Brazilian soybeans increased from virtually zero to $2.16 per bushel, or $80 per ton. Agricultural exports have for years been the strongest positive contributor to our nation's balance of trade. Mending trade relations with China while also creating new markets and expanding current markets is vital to soy growers in the U.S." Read the full article in WCI's Capitol Currents newsletter (page 6): http://waterwayscouncil.org/wp-content/uploads/2018/12/Final-December-10-2018-CC-1.pdf

Inland operators depend heavily on the maintenance of inland waterways. The completion of Olmsted was, in many ways, a watershed moment for this industry. Still – there is much to be done. Has the USACE done better in the last few years and do they have the tools and funding to get done what they need to do, in a timely fashion?

The Olmsted project was, in the end, a success story. Through the 2014 cost-share change from 50% funding from

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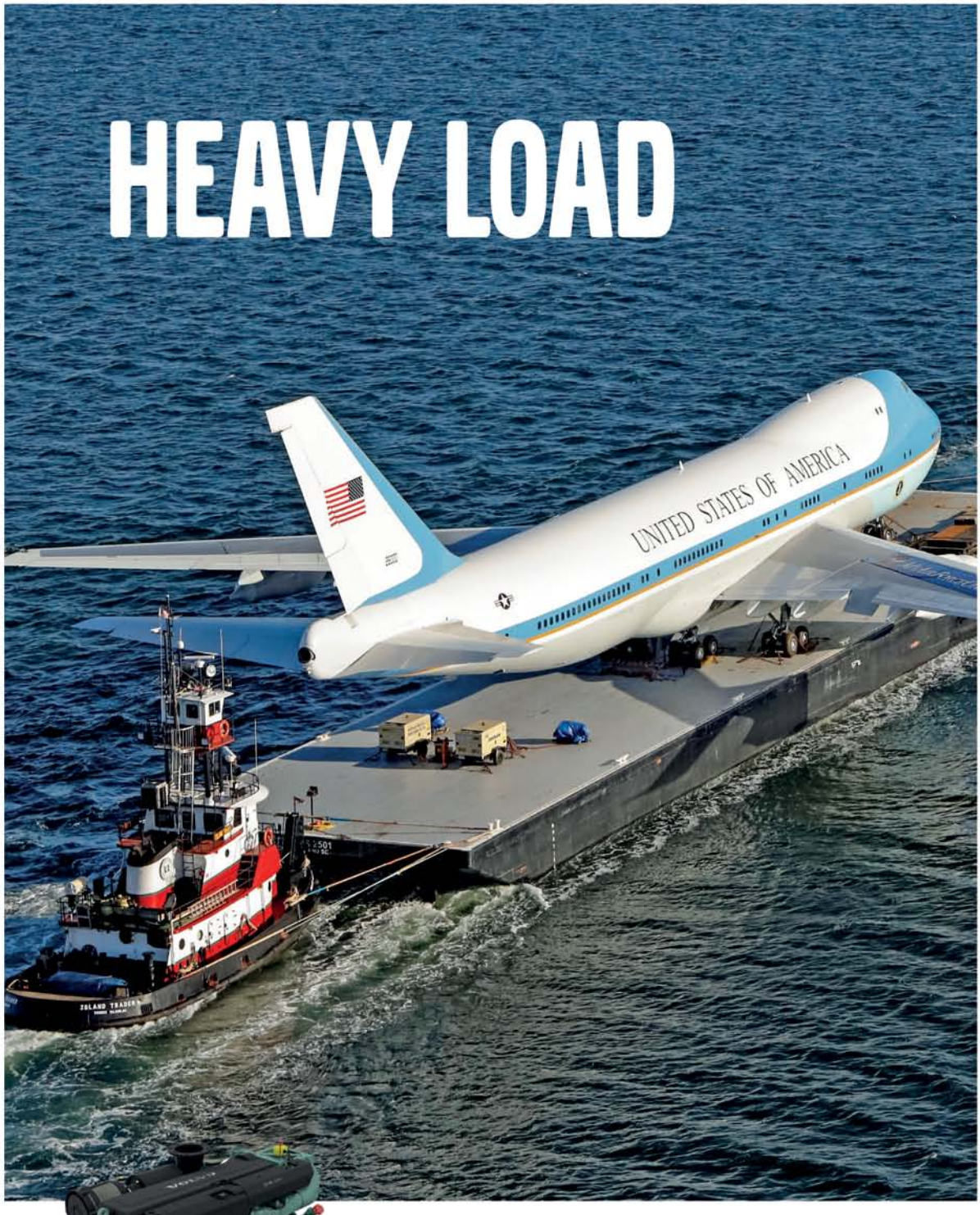

Stevens Towing Company specializes in moving large specialized cargo by water. For this project of delivering an enormous Air Force One exhibit for public tours from Rhode Island to Maryland, the tug Island Trader was up to the job. Stevens repowered the Island Trader in 2014 with Volvo Penta D16 650-hp engines. With more than 20,000 hours on them, the D16s are still going strong.

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the Inland Waterways Trust Fund paid for by the tax that commercial operators pay ($0.29 cents/per gallon of diesel fuel consumed during operations)/50% Federal Treasury funding to 85% IWTF/15% Federal funds that occurred in the Water Resources Reform Development Act (WRRDA), Olmsted was completed four years ahead of schedule and $330 million under the post-authorization change budget. Benefits of $600 million/year were also realized four years earlier than anticipated. WCI's key goal is to advocate for full and efficient funding of the Corps' Civil Works mission which maintains the inland waterways system. We can achieve more Olmsted success stories with this full funding, as we have been receiving the last several fiscal years, but we should also consider a similar cost-share change ahead for all the priority projects to complete their construction and have them delivering national benefits faster.

Regarding Olmsted – something that has been described as the 'Manhattan Project' of the inland waterways – are you seeing efficiency gains from the completion of that project, as yet?

Absolutely. To go from often days of delay locking through Locks 52 and 53 to the now state of the art Olmsted lock has meant efficiency gains for operators and shippers, and to those who await delivery of the product. Feeding the world is a tough job, but efficient, modern infrastructure allows commercial transporters and American family farmers and other shippers to meet their obligations in a timelier way.

Yours is a PA-based firm, and you are familiar with the Port of Pittsburgh's 'wireless waterway.' While that didn't work out as well as had been hoped, what's the current SITREP with regard to tug and barge outfits trying to secure reliable and robust bandwidth and broadband? That's become so much more important with subchapter M and the advent of software-based SMS on the inland waters, hasn't it?

The Port of Pittsburgh Commission was unable to financially sustain the Wireless Waterway system as it was proposed. The PPC is, however, aware of the importance and the need for reliable and full-coverage broadband for the users of the inland waterway system. The Port is currently examining federal and state programs for grants and other funding opportunities that will bring about improvements in wireless networks and electronic communication along the waterways.

Outline to the extent that you can, the Campbell business plan, looking forward? Could you anticipate the possibility of another acquisition?

Campbell has a long-term organic business plan, to increase our non-coal revenues. We will do this by moving different types of commodities with new customers and expand into different geographic markets. While we are executing this plan, we are also open to acquiring coal assets – at the right price.

Coal saw a bit of a rebound in 2017, in part due to the problems in Australia, in part due to (perhaps) a softening policy shift in Washington. Did it last or is that decline continuing? You've said that, "We need to wean ourselves off this by shrinking the fleet and by developing new petrochemical manufacturing markets in the Marcellus / Utica fields which happen to be on the Upper Ohio river." How is the latter effort going?

We have seen the coal rebound continue in 2018. The export coal markets have been strong, and the East Coast terminals are at capacity, which has forced coal exports to move through the Gulf ports. These long moves represent significant ton/miles and have consumed lots of barges. In terms of the opportunities of the Marcellus/Utica gas plays, we are seeing a gradual increase in volumes of NGL's originating on the Upper Ohio and moving to processing plants in the Gulf.

In 2017, you maintained that you had the correct mix of boats and barges for your clients. How much has that mix changed since September 2017, why, and where do you stand now?

We have seen tremendous amounts of rain in our region. In 2018, Pittsburgh saw a record amount of rain EVER in a given year. This has caused us to increase the size and horsepower of our boats.

You've said in the past, "We [meaning the industry as a whole] are so anxious for business that we have a habit of cutting our rates to the bone." This race to the bottom, as some would call it, can be a recipe for disaster. Have inland operators learned their lesson yet?

I think that we hit bottom with the pricing environment. If one or more of the carriers have excess equipment, and aggressively peruses a commercial opportunity at a rate that is below a reasonable rate of return, the entire market will suffer. One of my fears is that there is so much money on the sidelines, that we can easily see an oversupplied market again. The price of new marine equipment is clearly going up, making the cost of entry more expensive. Time will tell … It always does.

The Capital Construction Fund:
a valuable tool for ALL domestic vessel classes

How to make the Capital Construction Fund work for all vessel owners and operators.

By Thomas C. Escher

Escher

The Red and White Fleet is a passenger vessel operator on San Francisco bay with roots back to 1892. We make no secret of the fact that we want to build new vessels with zero environmental signatures, all in an effort to increase employment for shipyard workers, provide new jobs for U.S. mariners, and provide a training ground to support the growth of the U.S. flag deep sea ships. That mission is, today, unnecessarily difficult. The reasons why are easy to see.

Not too long ago, H. Clayton Cook, in an April 2017 column in this same venue, said, "When it was passed and signed into law during the Bush Administration, the Energy Independence and Security Act of 2007 was hailed as an important and long-sought objective of the U.S. Maritime community. The law was President Bush's extension of the Maritime Administration (MARAD) Capital Construction Fund (CCF) program to container and Roll-on/Roll-off (RO/RO) services in projects in the U.S."

"The act (Merchant Marine Act of 1970) also authorized MARAD to add U.S. shipyards and operators in the SST/AHT coastal and inland waterways trades as CCF Program "qualified vessel" participants." Cook continues, adding, "The 2007 Act gave MARAD the authority to add U.S. citizen shipyards and operators in the SST/AMH coastal and inland waterways trades as CCF Program "qualified vessel" participants. In the decade that has followed, not a single U.S. citizen shipyard, and only one U.S. citizen operator has sought to access this CCF Program opportunity. Why?"

Separately, the U.S. Department of Transportation insists that it has a laser focus on "rebuilding, repairing and revitalizing our transportation infrastructure," as well as its mission to preserve and defend America's domestic shipbuilding base. That's all well and good. However, and at the very same time, there are many U.S. flag operators – specifically those in the passenger vessel game – at an enormous disadvantage because today's interpretation of the MARAD Capital Construction Program excludes these operators from all the benefits of this well-intentioned program. Yes, a vessel operator can put income from operations into Schedule A "Agreement Vessel" income. But we will not have a Schedule B "Qualified Vessel," as MARAD will not approve a "pure passenger service," so there is no way to order a vessel utilizing the CCF without a penalty.

Credit: Red and White Fleet

46 CFR Appendix I, Part 390 lays this out nicely.

I believe that MARAD and the U.S. Department of Transportation are, in fact, interested in building the U.S. flag vessel fleet, so we have asked them repeatedly to add more passenger ferries and short sea shipping in the CCF. We have more than 6,000 (H, K and T) domestic passenger vessels with an average life of 27 years – fully five years older than the U.S. fleet as a whole – that potentially could be, and need to be renewed. It therefore makes sense to build new passenger ferries utilizing the CCF, as is being done by the blue water, deep draft operators. Nevertheless, MARAD appears to have washed its hands of the matter, saying in effect, "this is a legislative matter, out of our control."

The proper application of CCF regulations to the passenger vessel industry would make a great deal of sense, for many reasons. For starters, MARAD says that it wants more shortsea shipping, to remove cars off the road, and to clean up the air. What better way to accomplish this than to foster more robust domestic commuter ferries?

Similarly, MARAD has its much-publicized 'designated marine highway program.' But, if CCF rules only help blue water shipping, what's the point of having either the designated marine highways or pushing shortsea shipping at all? Finally, it should be lost on no one that Red and White Fleet's own, ultra-clean hybrid drive Enhydra is the perfect example of what we could be building to clean up the environment and at the same time furthering shortsea shipping.

On behalf of all shipyard workers and all members of the U.S. Merchant Marine we need MARAD's assistance in focusing on this important issue to include all passenger vessel operators in the CCF. It is not in our national interest for MARAD to continue to drag their feet on this important issue. And, yet, the question seems to be: "Does DOT and MARAD truly want to see a newer, stronger U.S. flag fleet or will they just continue to talk about it?"

Bringing practical clarity to this CCF topic, it is true that the gross revenue of the Red and White Fleet in relationship to its U.S. flag blue water, deep draft fleet operators is similar in size to "a pimple of the fanny of an elephant," but that fact has no relationship to building a stronger U.S. maritime industry. And the sooner maritime stakeholders realize that the backbone of the U.S. fleet now rests firmly in the workboat sector, with fully 16 percent of those totals classified as subchapter H, K and T tonnage, the quicker that the CCF can be opened up to a wider swath of its members. And, not a moment too soon.

*In 1960, **Tom Escher**, the grandson of the founder and now the current owner, started working as a sweeper and a mechanics helper on the Red and White vessels. In 1997, Escher purchased the Red and White Fleet, becoming the third generation of the family to own and operate the business. In September 2018, Red and White Fleet welcomed Enhydra, the newest and largest addition to the fleet. Enhydra is the first 600-passenger hybrid-drive vessel operating in the United States. Escher will be building more zero pollution passenger vessels.*

Smoother Sailing:

Consistent Regulations Critical to Maritime Commerce, American Prosperity

By Jennifer Carpenter

Carpenter

"The ease of moving people and cargo on America's waterways is a competitive advantage and wellspring for economic prosperity and national security," states the U.S. Coast Guard's Maritime Commerce Strategic Outlook, released last fall by ADM Karl Schultz, Commandant. The owners and mariners of the vessels that ply our nation's waterways, transporting the commodities that power the American economy, are a vital component of that prosperity and security. To maintain the safety, efficiency, and security of this vital commerce – indeed, to make maritime commerce possible at all – vessel owners and mariners depend on a nationally consistent regulatory framework, not a patchwork of requirements that vary from state to state.

Enactment of the Vessel Incidental Discharge Act (VIDA) last year was a major milestone, replacing an unsustainable patchwork of federal and state vessel discharge regulations with a federally-centered, balanced and environmentally stringent regulatory framework. At a time when partisanship and brinkmanship in Washington, DC are as intense as they've ever been, VIDA garnered bipartisan support and ultimately became law last December. This happened because Members of Congress on both sides of the aisle understood a commonsense, fundamental truth about the healthy functioning of the American economy: that a nationally consistent regulatory system is essential to interstate commerce.

More than 200 years ago, the Framers had the foresight to acknowledge this reality by embedding in the Constitution the principle that rules governing interstate commerce lie within the exclusive purview of the federal government, precisely to avoid the imposition of overlapping or conflicting state regulations that could cripple the free movement of commerce throughout the United States. This principle is especially important in the maritime domain, where a patchwork of state regulations would impede the movement of 760 million tons of economically critical cargo transported annually by tugboats, towboats and barges, and vastly complicate compliance for mariners, subjecting them to civil and even criminal penalties for violations.

The need for regulatory consistency is common across all modes of transportation, and across many kinds of economic activity. We don't require or expect planes or trains to change out parts to meet varying safety or environmental standards when moving across state lines; and the U.S. Department of Transportation, citing the detrimental impact on interstate commerce, recently acted to preempt the State of California's efforts to regulate meal and rest break rules for truck drivers, notably stating that: "[California's law is] incompatible with Federal regulations and causes a disruption in interstate commerce. In addition, the confus-

ing and conflicting requirements are overly burdensome for drivers and reduce productivity, increasing costs for consumers." Within the past year, the federal government has also filed lawsuits and undertaken regulatory action to assert federal preemption over state activity in the areas of student loan servicing, transfers of federal land, net neutrality, and vehicle fuel economy.

Yet, while enactment of VIDA and federal intervention to preempt state regulation that obstructs the flow of interstate commerce are encouraging developments, we continue to see states like Massachusetts, Maine, New York and Washington attempt to usurp federal authority over maritime navigation. Such efforts not only violate the Constitution's interstate commerce clause, but create a balkanized regulatory environment that, ironically, undermines the very environmental and safety objectives they hope to advance. When vessel owners cannot be certain that on-board technology will be in compliance with environmental or safety regulations from one state to the next, they are rationally less inclined to invest in new equipment that will make vessel operations safer and greener, for lack of regulatory certainty.

There is a better way to ensure that maritime commerce continues to drive American prosperity, and still pursue and safeguard other key priorities like protecting the marine environment. Thoughtfully crafted federal laws such as VIDA and the Oil Pollution Act of 1990, which provide a consistent national regulatory framework with appropriate roles for the states, are essential. It is also critical that the Coast Guard, as our nation's maritime governance force, fulfill its responsibility to facilitate safe, efficient, environmentally sound maritime commerce through effective implementation of the laws and, when necessary, vigorous defense of federal authority.

A thriving American economy depends on thriving maritime commerce, but both are at risk when states impose a maze of restrictions on vessel operation. Federally-centered, nationally consistent standards advance interstate commerce, better protect the environment, and hold true to the Constitutional order on which national prosperity depends.

Jennifer A. Carpenter *is Executive Vice President and Chief Operating Officer of The American Waterways Operators.*

Credit: © Polina Krasnikova/Shutterstock

FUEL CELLS: industry examines options in race to zero emissions

A maritime consortium, including ABS and Sandia National Laboratories, recently proved the viability of a hydrogen fuel cell ferry designed for operations in the environmentally sensitive San Francisco Bay area.

By Domenic Carlucci

The IMO's mandate to cap the sulfur content in marine fuel at the start of next year may be the biggest regulatory change in shipping since the requirement for double hulls, but the challenge will fade in comparison to its future goals to reduce green-house gases (GHG).

A year ago (April 2018), the IMO agreed to a preliminary strategy that targeted a minimum 40% reduction in CO2 emissions on a cargo-tonne mile basis by 2030, and a 50% reduction in GHG emissions from shipping by 2050. To support and inform that goal, the mandatory collection of emissions data from ships started in January. The IMO's final strategy will be unveiled in 2023. In the interim, it is committed to release its fourth GHG study, and to analyze and report the findings from three years of having collected data on the industry's emissions.

The mandatory global targets to reduce the emissions from shipping are the most ambitious yet: they will require measures that combine improvements in ship design; the creation of new fuels and alternative forms of propulsion; operational changes; and the application of digital technology. Because those goals are unlikely to be met without the development of new technology, industry and governments will need to expand the resources they make available for research and development.

A TECHNOLOGY WITH POTENTIAL

One area of promise for energy generation onboard ships is fuel cells. Fuel cells are presently used in a variety of land applications, such as to provide power in remote areas, as well as for industrial, residential and commercial buildings. Energy from hydrogen fuel cells, in particular, is already used in land-based transport vehicles, such as municipal buses, trains and heavy-duty trucks, as well as for industrial equipment such as forklifts.

While submarines have been built recently with hybrid propulsion units using hydrogen fuels cells, its use in the commercial shipping sector largely has been limited to auxiliary purposes: fuel cells can provide shipboard heat and power – including 'hotel' power, such as that required on cruise ships – and 'cold ironing', providing an alternative shoreside power source that allows ships to shut down their engines while at dock, lessening their emissions output.

Additionally, there has been a lot of research and prototyping in the maritime sector to investigate applications on small passenger ferries and other short-sea vessels. ABS, in partnership with Sandia National Laboratories, recently confirmed the feasibility of high-speed, hydrogen-fueled ferries for use in the San Francisco Bay area. Separately, Norway late last year provided the funding for construction of a hydrogen-powered high-speed ferry and a short-sea freighter.

POTENTIAL, AND CHALLENGES

Hydrogen fuel cells technology has the potential to offer reliable, long-range power on an industrial scale, with relatively quick refueling when compared to the emerging battery-powered options. Hydrogen itself has higher energy density than batteries, potentially making fuel-cell systems more practical for operators looking to replace or supplement traditional bunker-fuelled propulsion units.

However, sourcing of hydrogen can be energy intensive. Without the incorporation of renewably generated hydrogen, the net impact on GHG gas for hydrogen produced by methane or similar processes is negligible. Also, adopting hydrogen as a deepsea marine fuel is not without challenges, even before safety factors are considered.

It is important to compare the energy density of different energy sources – including fuel cells – to better understand how they need to mature before they will be suitable for global shipping, where the carriage of cargo is the main focus. In general, fuel cell systems require less maintenance (potentially offering lower maintenance costs) and long service lives. They also generate less noise than present heavy oil power plants, contributing to a more comfortable work environment for the crew and less disruption for the surrounding marine life.

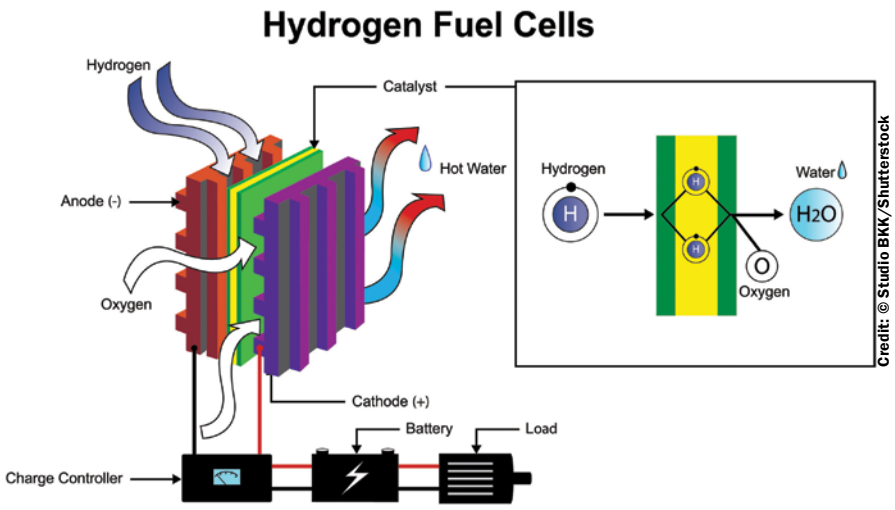
The suitability of fuel cell systems for hybrid propulsion solutions – coupled with diesel – has an extensive track record. But perhaps most importantly for proactive owners looking for a path to IMO emissions compliance in 2030 and 2050, hydrogen fuel cell systems would generate zero GHGs; their only by-product from energy generation is water. Another key challenge will be for the marine industry to develop a hydrogen-distribution system that is capable of producing and distributing the significant quantities required for a global network of large ships.

The refineries are adjusting their production processes to accommodate increases in demand as alternate fuels gain popularity, but the supply networks will need to mature before the marine industry will feel confident enough to widely adopt power systems that utilize fuel cells. As a power generation technology, fuel cells are comparatively mature. Shipowners may want to look at the technology as something more than a 'future fuel' and instead recognize its present benefits to the marine industry as they act to reduce the carbon footprints of their fleets and steer towards a more sustainable future.

HOW FUEL CELL SYSTEMS WORK

A fuel cell is a device that converts the chemical energy from a fuel into electricity via an electrochemical reaction of the fuel with oxygen, or other

"… fuel cell systems require less maintenance (potentially offering lower maintenance costs) and long service lives. They also generate less noise than present heavy oil power plants, contributing to a more comfortable work environment for the crew and less disruption for the surrounding marine life."



oxidizing agents. They differ from batteries in that fuel cells require a continuous source of fuel and oxygen (usually from the air) to sustain the chemical reaction, whereas the availability of energy from a battery is fixed by the amount of energy it has stored. Fuel cells can produce electricity continuously as long as fuel and oxygen are supplied to them.

There are many types of designs for fuel cells. Most consist of an anode, cathode and an electrolyte that allows positively charged hydrogen ions (known as protons) to move from the anode to the cathode side of the fuel cell.

SAFETY AND EMERGING REGULATION

There are currently no IMO regulations to provide prescriptive requirements for fuel cell installations; they are in the process of being developed. These developments are being reviewed as an extension of low flash point fuel requirements. Safety issues pertaining to gaseous fuels such as hydrogen, methane and other 'lighter-than-air' fuels, or propane (which is heavier than air), need special arrangements for ventilation to prevent the formation of the hazardous areas that are prone to explosion.

For many fuel cells, the non-hydrogen supply is externally reformed to hydrogen and other byproducts prior to introduction into the fuel cell. So the hydrogen portion of the fuel system – from the reformer to the fuel cell - needs careful design consideration and features.

Safety and operational reviews of fuel cell installations for marine and offshore assets primarily rely on risk-based studies in combination with IMO vessel regulations, IACS requirements, the applicable industrial standards and Rules or Guides based on the particular design and configuration of the fuel cell system.

The International Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels, known as the IGF Code, is currently being revised to address the requirements for fuel cell systems; it is anticipated by industry that this will assist with the present safety challenges.

To support and promote a safer and more sustainable practice as the industry increasingly adopts fuel cell systems, ABS will soon publish a Fuel Cell Guide on marine applications for the technology, including propulsion and other auxiliary uses. It will offer a structured approach to the application of fuel cell systems in a format that is flexible enough to include other gaseous fuels and any future technological upgrades.

Shipowners are facing some challenging environmental decisions as more stringent regulations shift the course of their industry towards a more sustainable future: a 0.5% sulphur cap on fuel by the end of this year; a minimum 40% reduction in CO2 emissions from ships by 2030; a 50% reduction in GHG output by 2050; and potentially even more ambitious goals set by regional and national governments.

It may be time for them to start to consider what if any role fuel cells could play in providing a solution.

***Mr. Carlucci** is currently the ABS Manager for Machinery, Electrical and Controls Technology. Since joining ABS in 2008 Carlucci has held several senior roles in asset integrity management, life cycle risk and reliability, design and plan review, and product and service development. With extensive experience in the marine and offshore industries, Carlucci's expertise includes: hybrid power applications, ship systems operations and maintenance, systems designs, risk and reliability analysis (FMEA, RCM), and condition/performance monitoring. He served in the U.S. Navy as a Nuclear trained Surface Warfare Officer. Mr. Carlucci received his Bachelors of Science in Mechanical Engineering from Duke University and a Master's in Business Administration from University of Houston.*

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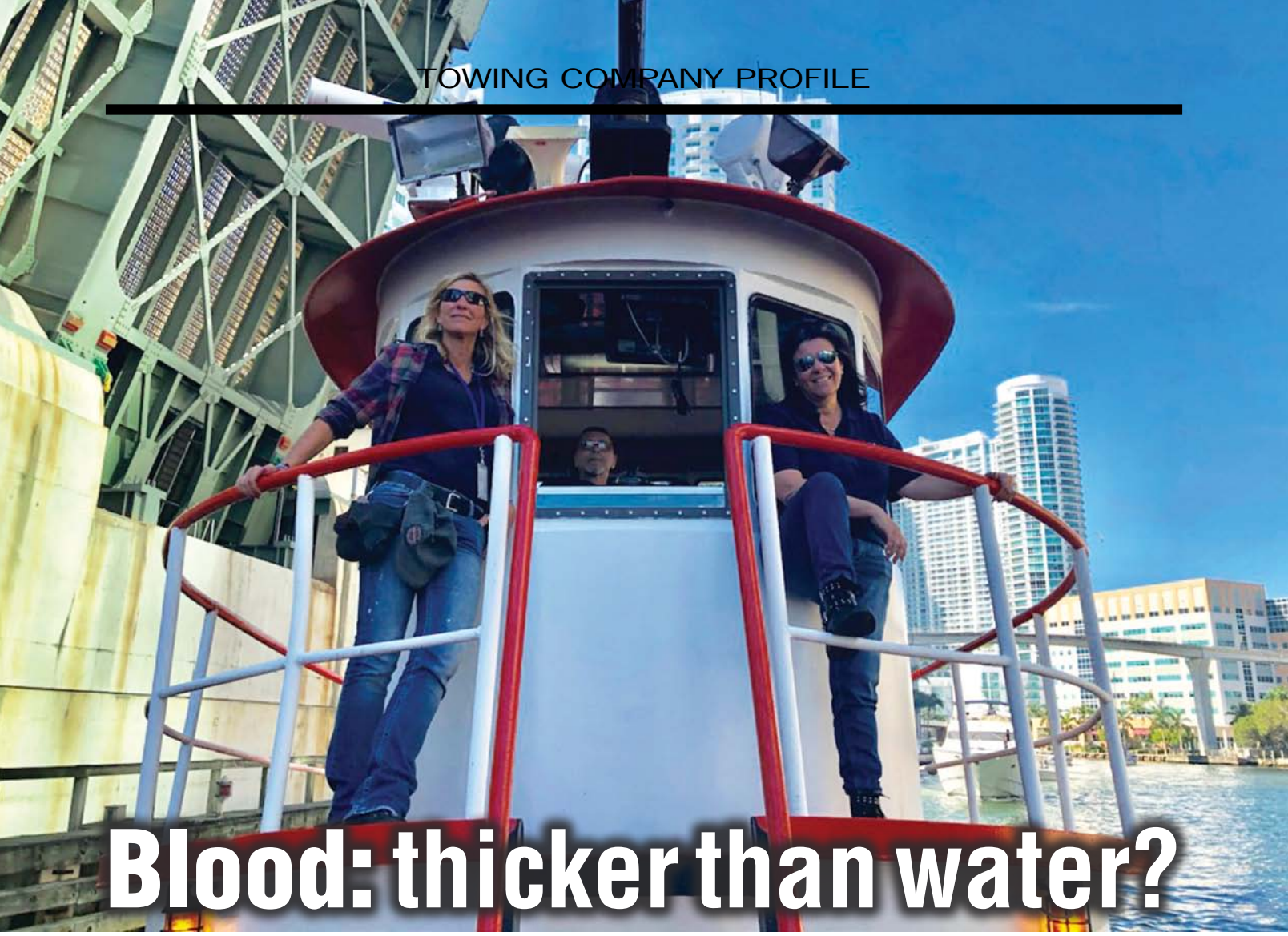


Blood: thicker than water?

The late Capt. Beau Payne's two ex-wives, Isabella and Heidi, unite to run P&L Towing to preserve their family legacy.

By Lisa Overing

Behind every good man is a good woman. Or two? In the case of the late Capt. Beau Payne, founder of P&L Towing and Transportation in Miami, Fla., there were three: his two ex-wives, Isabella Clark and Heidi Payne, and his sister, Cathy Sedano.

A Miami River Rat, Payne's sudden death at 52 was a shock to his family and friends. Cathy found her big brother, Beau, dead, apparently of arrhythmia, on March 6, 2017. Payne was the type of man who never went to the doctor. While Payne never saw a doctor, he did see an attorney.

A shrewd Payne took his best shot controlling from the grave as his last, loving act of paternalism. With a detailed last will and testament and his best friend, John Wilson, designated as his personal representative to oversee P&L's transition and his personal assets in the event of his demise, Payne made what he thought were appropriate arrangements for his largely debt-free enterprise, which was reportedly worth more than $5 million.

Payne did it the hard way. Climbing the hawsepipe, he also amassed quite an estate. Starting his career as a deckhand, Payne died with a fleet of four tugs, a successful business and an acre of coveted land directly on the Miami River. He also established a trust for his three children from his two families with ex-wives Isabella and Heidi.

Court was familiar terrain for Payne, who'd grown accustomed to fighting with his ex-wives during his life. His untimely death united the two women against the executor of his estate. After launching a protracted legal battle, the

Broward County Circuit Judge removed the first executor and ruled Heidi and Isabella as co-representatives in charge of P&L and the estate of Herbert "Beau" Payne in October of 2018, according to court records.

Getting Started Again

Now teamed together as partners after years of loathing, Heidi Payne, 53, and Isabella Clark, 52, cheerfully manage P&L with their sister-in-law, Cathy Sedano, 52, the office manager. From a cursory glance, the two ex wives are polar opposites. Nevertheless, the former rivals grew to respect each other while also comforting Payne's grief-stricken children. They speak lovingly of their common ex-husband in each other's presence and today, their personal support group of two fuels 'girl power' to run Payne's towing company, a totally new challenge.

"We fought to get the company for our kids," said Heidi. "The bonding wasn't immediate. It was awkward and took time."

Heidi and Isabella rotated out uncooperative crew and had a few quit. After attending their first Workboat Show, they hired John Tomlinson as operations director in December. "We assembled a good team," said Heidi. "We believe in them and they believe in us."

"I am protective of them," said Capt. John Tomlinson, operations director at P&L. "There are companies who won't answer their calls, but take mine. I don't know if that's because I know what I'm talking about or because I'm a man." A captain with an unlimited master's license, Tomlinson is an experienced mariner and a 2003 U.S. Merchant Marine Academy graduate. Managing P&L's fleet and personnel, Tomlinson is the point of contact for captains and quotes jobs while pursuing new business opportunities and niche markets for P&L.

Beau's angels tackle Subchapter M

"Heidi and Isabella are shrewd and intelligent women with strong business sense," said Tomlinson. Tomlinson initially worried that people "would smell blood in the water," and take advantage of his principals. "I believe in them and have put my reputation on the line for them," he said. "I want this to work. I'm in it to win it."

After meeting Isabella and Heidi, any blood that might be in the water would probably emanate from these two piranhas defending their turf against predatory sharks. While neither had experience in towing or the shallow draft market, Beau's angels were so charmingly green they actually wore Dramamine bracelets to prevent nausea when meeting their crews on board for the first time. "I was envisioning chum-

"Heidi and Isabella are shrewd and intelligent women with strong business sense … I believe in them and have put my reputation on the line for them. I want this to work. I'm in it to win it."

– John Tomlinson, operations director at P&L Towing

ming over the side," said Isabella. "But we won't quit, no matter what," said Heidi, in sync with her partner's thoughts.

In truth, both women were instrumental to Payne's successful career. Isabella helped him study for his captain's license, encouraging a young deckhand's dreams after their first date on a tugboat. As Payne's second wife, Heidi invested capital, helping him establish P&L. Individually tenacious and collectively relentless, Heidi and Isabella have keen legal minds complemented by strong work ethic. Heidi is a former criminal defense attorney with Miami-Dade County Public Defender's Office.

After taking over P&L, Isabella left her longtime career as a paralegal with challenging appellate work for the Florida Attorney General.

The fact that Isabella is so organized and unafraid of paper bodes well for P&L. In terms of Subchapter M compliance, she insists that she won't be intimidated by what's become the bane of existence for many towboat operators, but admits initial anxiety pangs. The daunting Subchapter M process actually provided a beneficial crash course in tug 101 for the ladies.

"When I saw that boat taken out of the water and all the parts on it, I was taken aback," said Isabella. "Subchapter M is all about safety and P&L will have the safest, cleanest and prettiest boats. Sub M gives us the opportunity to train with our crews. The challenge is keeping the boats running while complying."

"It is very expensive," said Heidi. "Just having the fire alarms and extinguishers inspected and certified was over $7,000 for two boats."

The Rikki will be P&L's first vessel to comply with her COI sometime prior to July, which is the official deadline for a quarter of our fleet to be certified" said Isabella. "But we're determined to conquer Subchapter M and are on target, so far. We want to be flawless when we get in front of the Coast Guard."

P & L contracted their Sub M audit services to Brian Downey (USCG Ret.) of Marine Compliance Solutions. "Based on his advice, we decided to go with the USCG route mainly due to the fact that cost of hiring a TPO wasn't an expense we wanted to incur due to the size of our fleet," said Tomlinson, adding "We also feel confident that we can handle the inspection process internally.

Looking Ahead

"We're here to stay and are not giving up," said Heidi. "It's a challenge, breaking through in this industry, if you're not in the boys' club. It's who you know. It helped that everyone knew Beau."

Is it possible for a couple of middle-aged women in steel-toed construction boots and helmets to fall off the banana boat and make it in a commercial marine network dominated by old-salts? "We've learned to stay one step ahead with the paperwork," said Cathy. "Others want us to fail."

"We have what it takes; give us a chance to do it," said Heidi. "The fact that we're women in this industry makes us fight even harder to prove ourselves."

P&L intends to add another towboat to its fleet of four stationed in New York, South Carolina and Florida. The ladies and Tomlinson have ambitious plans to obtain federal contracts. We have a lot of dredge assist jobs," said Isabella. "We did a big job for Great Lakes and pulled in Cashman and Weeks. We've learned how to bid jobs."

And what might Capt. Beau Payne say from his perch above, seeing his feuding exes running his company, side by side?

"He'd be shocked," said Heidi. "What he couldn't achieve in his life was achieved in his death. We motivate each other. I love this woman. We refuse to sink."

***Lisa Overing** is an award-winning marine journalist and copywriter. Lisa served on the board of directors of Boating Writers Int'l from 2007 - 2012. She is published in nine languages for some the world's leading yachting titles. Additionally, she is creative director for Megayacht Media, an advertising agency for marine businesses. Email: lisa.overing@maritimemail.com*

Hometown boy done good.

A self-made man, the late Capt. Beau Payne was a Miami River Rat who worked his way from rags to riches.

"We grew up poor," said Cathy. "Our mom was a barmaid. Beau was drawn to the water, instinctively, fishing the canals fishing near our first Miami home. Then he'd sit on the Miami River, for hours, just staring at the boats going up and down. As soon as he could, he got a job as a deckhand and worked his way up. We lived only a few blocks away from the river."

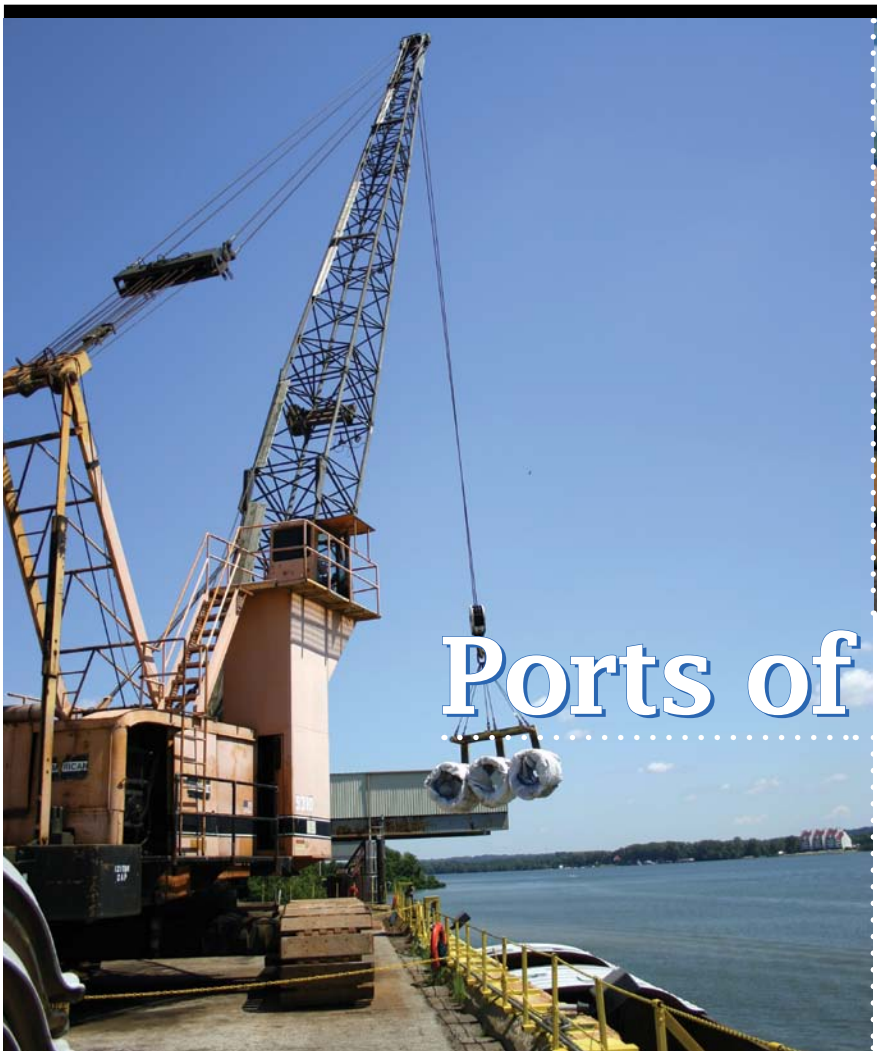
As a young man, Payne was a deckhand for Capt. Barr, and worked his way up, establishing his own towing company while running tricky tail and tow maneuvers.

"As the tail boat captain, this maneuver is your show to run," said Tomlinson. "Your boat acts as both the rudder and the emergency brake when moving these freighters who are not on their own propulsion or steering. You communicate with the towing boat and they act on your behalf to provide forward momentum and help start and check turns. The bridge reports distances to you. Imagine moving a 250-foot freighter in a channel that is 65 feet wide and having to clear anywhere between five and 10 draw bridges in downtown Miami with countless pleasure craft, fishing boats and million dollar yachts tied up on each side, or trying to pass at every impatient opportunity. This is not something just anybody captain can do and it is something I have never seen before working at P & L."

"Beau Payne was a legend on the Miami River," said Dr. Frances Bohnsack, former executive director of Miami River Marine Group. Bohnsack and Payne attended many Miami city commission meetings together. They fought bureaucrats and high-powered Florida law firms representing powerful real estate magnets whose agenda was rezoning working waterfront from commercial to residential for skyscraper condos on the Miami River.

"He could do anything," said Isabella. "He was a tough guy with a big heart who wouldn't back down."

"Beau funded the lawyers, we couldn't afford to," said Bohnsack. "At the meetings, they laughed at him because he was a hard working man. Beau was painstakingly scrupulous in showing up with us in front of disrespectful city commissioners bent on rezoning the river for developers to build four-story skyscrapers. Beau fueled our funding and was a significant contributor. We won all three times in court. He deserves a plaque somewhere on the Miami River. I miss him still. I don't know who'd have stepped up to help if Beau hadn't. He took a stand."



Ports of Indiana:

Big Successes, with Big Projects in the Wings

By Tom Ewing

For Indiana's state-established, but autonomous Ports of Indiana, 2018 was a record setting year, both for system-wide numbers and among the three individual Ports. These consist of Burns Harbor, on Lake Erie; Jeffersonville, on the Ohio, across from Louisville, KY; and Mount Vernon, also on the Ohio River, about 140 miles downriver from Jeffersonville.

Not only were actual numbers robust, but Port officials reported "unprecedented tonnage increases" within the three-port system. Total system volume was 14.8 million tons of cargo; a 25% increase over 2017 and a 21% increase over 2015, the previous record-setting year. Moreover, the statistics have depth – each quarter saw a new tonnage record. Beyond this, 2018 was the fifth consecutive year that the Ports handled more than 10 million tons of cargo.

Key Drivers

Key drivers in 2018 were coal shipments (up 58% from 2017), soy products (up 26%) grain (up 17%) and steel (up 4%). Burns Harbor and Jeffersonville collectively shipped more than two million tons of steel, each Port's largest commodity. Mount Vernon, which has been breaking volume records for the past four years, handled 61% more coal this year than it did it 2017, and experienced increased shipments in ethanol, soy products and dried distillers grain.

Mount Vernon Port Director Phil Wilzbacher said that "continued strong international demand for coal sourced from the Illinois Coal Basin, overseas and domestic demand for agricultural products and investments to increase Port capacity" were the critical factors underlying this success. Mount Vernon, covering 1,240 acres and 8,000 feet of Ohio riverfront, is one of the largest inland ports in the country. Not only did it set quarterly records all through 2018 but it had two monthly peaks: May was a record breaker, then December tonnage surpassed May.

The C-suite View

Vanta Coda II is the new CEO at Indiana Ports, officially taking over on July 1, 2018. Coda has an extensive background in maritime and multimodal operations on

the Great Lakes, the Gulf of Mexico and the Ohio River. He was most recently the executive director of the Duluth Seaway Port Authority.

Coda was asked about factors driving the Ports' growth and how that growth is linked to its 2019 business plan. Infrastructure development, Coda said, is at the top of the list. "The Ports have significant projects through (DOT's) FASTLANE and TIGER (grants) that we will be completing," Vanta explained, adding that "we are reinvesting in the infrastructure that draws traffic."

Those DOT grants are for rail-multimodal projects. In addition, though, Mount Vernon is investing approximately $2 million in its general cargo terminal. That work includes replacing a 60-ton overhead gantry crane – a project that actually started last year – capable of transloading any general cargo between barge, rail, truck and the warehouse.

Another big transportation project underway at Jeffersonville will establish new direct highway connections, for heavy trucks, from the Port site to I-65, I-71 and I-64, all of which converge near the Port, within the Louisville, KY metropolitan area. Coda described these types of investments as "long-term plays because in our industry we, metaphorically, run marathons."

Regarding markets, Coda was asked whether shifting, and unsettled, federal tariff issues were impacting Ports' business. He said that tariff actions "have caused some degree of dislocation in the supply chain," adding, "the Ports are being "affected negatively and positively by these (tariff) actions." Nevertheless, he conceded, that it will take time to assess long-term impacts from the tariff uncertainties.

Coda said that "agriculture and steel form the bedrock of our system in Indiana." One operational change at Jeffersonville is that trucks are now hauling more steel because steel imports are down. Coda expects, however, that these perturbations will play out and wane. Confident that trade policy negotiators will resolve tariff issues, he offered, "Neither side benefits from a protracted high-tariff environment."

Regarding coal, the Ports are benefiting from continuing, strong international demand for coal, again, sourced from the nearby Illinois coal basin. Coda said these coal operations had a "significant effect" on Mount Vernon's 2018 coal volumes. He said that the world market is "still a relatively strong market for coal." Conversely, in the United States, it is Coda's view that coal has bottomed out and that natural gas is stabilizing, a status linked to the fact that electric generation utilities have taken inefficient plants off line.

Building for the Future

The completion of the Olmsted Locks and Dam this past summer is another big positive for Port operations. Roughly 100 miles downriver from Mount Vernon, Olmsted is already eliminating extensive – and costly – delays. This has obvious operational and logistical benefits. The Ohio River is working "a lot better for the inland water carriers," Coda said. Additionally, though, and importantly, Coda added that "the greater efficiency on the Ohio River creates opportunities for us." One reason: Port services are subject to less risk, schedules are now more dependable because of reduced delays.

Indiana Ports' year-over-year growth is impressive but it's important to keep in mind that it's occurring even before the completion of two big rail multimodal projects at Jeffersonville and Burns Harbor. These aren't incremental projects – they will really scale up operational assets and abilities, promising big payoffs. The projects – both partially underwritten by US DOT/MARAD grants – have been in planning for a number of years. They should be ready to come on line this year and in 2020.

Jeffersonville received a $10 million TIGER grant in 2015. This will enable unit train delivery to and from the

"The Ports have significant projects through (DOT's) FASTLANE and TIGER (grants) that we will be completing. We are reinvesting in the infrastructure that draws traffic."

– Vanta Coda II, CEO at Indiana Ports

port and reconfigure waterfront rail infrastructure. It also promises to increase operational efficiencies and allow development of a new intermodal facility. These changes could more than double the capacity of rail to barge transfers.

The Jeffersonville construction project has started, in phases. A first phase - 1,650 feet of new railroad track – was completed last summer. Next, bulk-to-barge terminals will be under construction during the first quarter of 2019. Total project cost is $17 million; a full funding package was not available for review.

Burns Harbor: take the Train

The Burns Harbor DOT grant, awarded in 2017, was for $9.85 million. Total project cost is almost $20 million. It's worth a closer look at some of the details. Specifically, the overall project includes a new bulk transload facility and expansion of the east side rail yard; Dock and apron improvements and a new west side rail yard; and a new truck marshalling yard.

The new transload facility includes construction of a 2.3-acre bulk berth facility with a conveyor system and bulk truck-rail dump. New mooring cells will provide a dedicated space for high-speed loading and unloading of waterborne vessels with trains and trucks and the conveyor will establish a direct link for rail-to-water, meaning that trucks won't have to support all intermodal transfers.

The new rail yard will have capacity for 93 rail cars and the current single-track will expand to four unrestricted tracks complementing the conveyor system and rail dump. The new yard will accommodate a 75-car unit train, allowing increased grain terminal shipments and a chance to take on new commodities currently transported by trucks.

A series of new connections will allow rail freight to bypass congestion at Norfolk Southern's (NS) 19-track switching yard, moving to new Port-owned tracks that will allow the Port to take on its own switching duties, with big operational benefits. Another new rail yard, on the Port's west side, will have capacity for 90 rail cars on US Steel's 57-acre parcel. All told, Burns Harbor rail storage will go from zero to 2.3 miles.

Dockside improvements at Berths 16 and 17 will support an increase in maritime freight at the Port's western end adjacent to the new west side rail yard. These upgrades will add 1,200 feet of dock space. Taken together, the dock and rail improvements will deliver a significant increase in maritime capacity at Burns Harbor and create the potential for intermodal synergies not currently possible.

The new six-acre truck marshalling yard at the southern end of the Port will accommodate a total of 135 75-foot trucks across 15 lanes. Two environmental efforts are also worth noting: parking runoff will be collected and treated to avoid contaminating Lake Michigan. Additionally, the

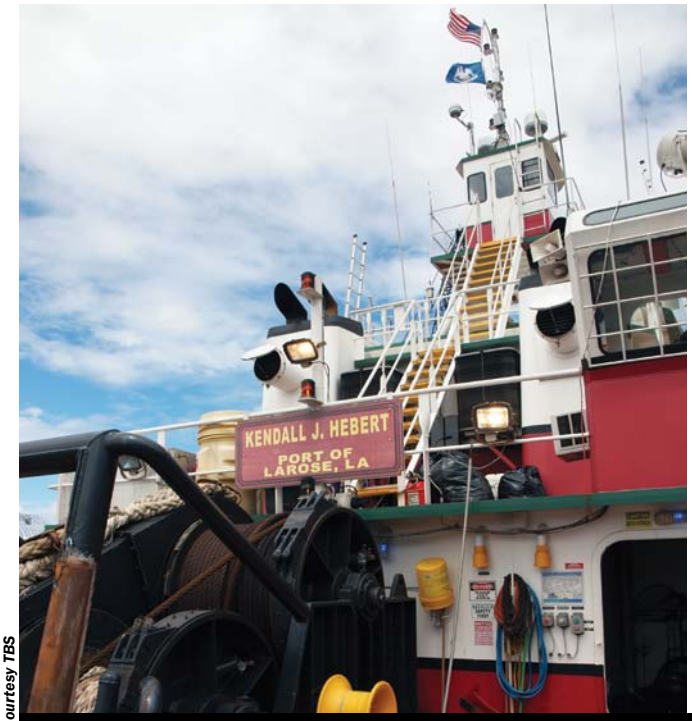
marshalling yard will be signed as an idle-free zone providing significant reductions in exhaust and greenhouse emissions, a huge concern in many larger multimodal ports.

Unanswered Questions, Unlimited Upside

The DOT/MARAD work at Jeffersonville is underway. The Burns Harbor work, though, has not yet started. Coda would not discuss total project financing at Burns Harbor. It remains unclear how the project's $20 million package is funded beyond the $9.85 million federal grant. Despite direct links to Norfolk Southern's trackage and facilities, NS is not contributing to project funding, Coda said; neither is NS involved in any aspects of the Port's rail upgrades.

Coda said that the Port and MARAD finalized their grant agreement in late 2018. In January, the Port issued two RFPs for rail development and general engineering. Coda predicted that "we will be getting shovels in the ground on two of the five segments later this year. We are on schedule and on budget." He said all projects will be complete in 2020. If so, the future is bright indeed for the Ports of Indiana.

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



All Images: courtesy TBS

Sub M is here, now what?

Captain Pat Folan outlines the way forward, especially for the smaller towboat firms. It's not rocket science, but it does involve common sense.

By Pat Folan

July 20, 2018 came and went, and we are all still here – mostly. The reality of Sub M has begun to sink in and for some it signals the end of a business and career. The AWO RCP members, oil movers and early adopters are going to make it. But for some of the 'Mom & Pops,' this is looking like a bridge too far.

And some of this group are the ones that needed to be weeded out. It's tough for the companies that are doing their best to comply to compete with the guys that don't run with licensed mariners and won't spend a dime on life-saving or firefighting equipment or even steel and glass. Sub M will level the playing field.

It is also true that there are operators that don't have deep pockets, are trying to make it and may not get there. The Coast Guard itself recently stated that they are far behind where they thought they would be in issuing COIs. The TPOs are looking for the work and we meet many owners who either have no desire to comply, think it doesn't apply to them or plan on running until the blue suits say they can't run anymore. One single boat owner told me he was selling the boat as soon as he could. He said if he had known it would be this bad, he never would have gotten in to the industry. He had a few words for me: "Mini-storage." They can't destroy your life when you store things for a living. And, his boat is in good shape with a current Loadline.

SO, WHAT IF THEY PASSED A LAW AND NO ONE COMPLIED?

I've spoken with the U.S. Coast Guard in multiple districts and they are wondering what the owners are going to do. I have spoken with owners and they are wondering what they are going to do. The Coast Guard doesn't have the manpower to shut down a big piece of an industry (although it could order them to moor the vessels and stop trading)nor do I believe that it wants to. But what happens if 1,000 boats just don't comply? The Coast Guard at the District level is looking at the same thing. Probably more problematic for them is what would happen if all those boats waited until the last minute and then applied for a COI? This is also a TPO worry. And, it's ours at Tug & Barge Solutions. We were pushing companies to get their TSMS audits done before Christmas, but that also makes June a tough month. And all the while the clock is ticking.

IF YOU ARE THE OWNER ON THE FENCE, WHAT DO YOU DO?

Some say that they will probably just go the Coast Guard Option because that is the cheapest path of least resistance. After all, they have had a good relationship with the Coast Guard, so far. But what they fail to realize is that the Coast Guard is not your friend; not your sworn enemy either, but an enforcement agency with a job to do. And that nice inspector in Florida is going to be in Dutch Harbor next summer and who will his replacement be? Another nice guy? Every mariner with a few issues under his belt will tell you the same thing: At all costs, keep the Coast Guard off my boat. So why invite them on?

A company recently asked the Coast Guard to attend a drydocking. Nine weeks later and with more than $100,000 in changes they are no longer advocates for the Coast Guard on their vessels. Separately, another company bought a boat on the Gulf and was bringing her home to the Mid-Atlantic region when the Coast Guard tied them to the dock about week away from home. Had they understood that Sub M was in effect when they left and what that entailed, they might have had the boat audited, deficiencies corrected and the crew properly trained, but they were just delivering the boat. What could go wrong? Three weeks later with a $30,000 tab and a new crew, the vessel headed north again. She will be sold upon arrival because the owner has lost his taste for the towing industry.

We didn't become involved with this vessel until after the COTP Order was issued. The Coast Guard did their job and was great to deal with. But this all was avoidable. How many more times will this happen before the industry awakens to a new day?

The TSMS Option is by far the better one for any company and certainly for the mariners. We have worked with

four of the TPOs and have watched our customers learn. We have seen the auditors teach the mariners and reinforce our message. We have seen companies improve. The TSMS is there for the safety of the crew and company. The Coast Guard option enforces safety through a checklist but never truly measures the safety climate in a company. That's unfortunate because the point of SubM is the safety of the mariner.

If you are one of those companies who has yet to decide on a path to compliance, choose the TSMS option. Look at your company as a whole, the vessel(s), their operations, the crew and the risks that are taken and work to minimize them. If you embrace the law, it will provide you with an opportunity to make your company better and your crew members safer. It goes beyond that.

As each company works within their TSMS and starts to truly understand it and make it theirs, they are then contributing to an overall safer work environment for industry. Don't be afraid to be selfish: that original outlay of money is an investment in your company. Safer vessels, better trained and educated crews will translate into better insurance rates. It might be that they just don't rise or as we have seen more than once, it might be a premium reduction with auditable proof of a working TSMS.

As a former tug owner, a safety management system helped me grow as a business (more opportunities with a good system and a good track record) and it forced me to look at risks and make some hard decisions. If you have a system, then you must live by it. And that may be the toughest thing that most of the small tug company owners are facing.

SEA CHANGE

Sub M is a sea change for the industry. You can't continue to operate in the manner that you have always done it. This is one case where curiosity will not kill the cat. Look around, ask questions, wonder why things are as they are. Most things on an older boat are there because someone else thought it was a good idea. Take the liferaft stored just above the engine room, for example. If your engine room is on fire, that raft is now a blob of melted plastic and it was your only way to escape safely. Look for a better spot to have it ready for emergency deployment.

We all keep the life jackets and immersion suits in the bunkrooms. It's almost like Moses had the locations on one of the tablets and since then we have kept them there. If you can, talk to someone that was on a boat that sank. They'll tell you that there was no time or desire to go back to the bunkroom to get the PFD or immersion suit. This happened to a friend of mine in New England waters in winter. The crew ended up in the water without their immersion suits because it was impossible to get to them before the boat rolled over. Hence, you MUST rethink safety.

Create a place at your Muster Station where your flares, PFDs, immersion suits and anything else you would need to abandon ship can be safely kept. A weather tight box in holder that will allow it to float free might mean the difference between life and death. Look under your wheelhouse dash. Many of those old wires can go. They are only there because someone else was lazy and could hide them behind the door.

Those are three relatively easy things to think about, but

that's Sub M with a TSMS. Look at your risks and minimize them. You do it everyday in the office, in the wheelhouse or on deck. Now do it with the bigger picture in mind. Then, document what is required (maintenance, training, tests and inspections, etc) and begin documenting risk assessments (Voyage Plans, JSAs, Near Misses) and soon it will all fit together. It's not the way that you always did it, but maybe the old way wasn't all that good. Embrace this change.

Our customers are the small towing companies across America. If you are in New York, look to Thomas J Brown and Sons for an example. Jim Brown owns and operates the company and vessels in the harbor. This law is a nuisance for Jim because his boats are yacht quality. They are impeccably maintained and excellently crewed. We installed HelmCONNECT for the recordkeeping with his TSMS and now a great company is getting even better. Or if you are on the Gulf Coast then Gulf Coast Tugs is the company to emulate. Another great company using HelmCONNECT with our system to continuously improve. Ken Hebert is living proof that not only can the small company comply with Sub M but that the three-boat company can be better than the big guys. Not only has Gulf Coast Tugs become better but they have pushed us and HelmCONNECT to be better.

Sub M is not insurmountable (yet). But the clock is ticking. It is the law. And that means that your vessels must be in compliance with the law now. If you have more than one towing vessel, 25% of that fleet must have a COI before July 22, 2019. That does not mean that the other 75% can be kept the way you always kept a boat until it is their turn for a COI. July 20, 2018 meant that all towing vessels subject to Sub M were required to be in compliance.

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*

DAPI 101: Outreach and Enforcement

Even as the minimum Random Drug Testing Rate is raised to 50 PCT, the Coast Guard wants its mission to consist of 90% outreach and just 10% enforcement. Really.

By Joseph Keefe

The domestic waterfront got some less-than-happy news when the U.S. Coast Guard announced that the calendar year 2019 minimum random drug testing rate had been set at 50 percent of covered crewmembers. It's safe to say that nobody is happy about it, much less the Coast Guard itself.

In truth, the Coast Guard had little to say about the matter. 46 CFR part 16.230(f)(2) requires the Commandant to set the minimum random drug testing rate at 50 percent when the positivity rate for drug use is greater than one percent. Indeed, every marine employer is required by 46 CFR 16.500 to collect and maintain a record of drug testing data for each calendar year, and submit this data by March 15 of the following year to the Coast Guard in an annual MIS report.

DAPI 101

In mid-December 2018, in advance of the increased random testing announcement, we traveled to Coast Guard headquarters in Washington, DC, to learn about the Coast' Guard's Drug and Alcohol Prevention and Investigations (DAPI) program, and to visit with its director, Mr. Patrick Mannion. What we found out might surprise most domestic maritime stakeholders.

DAPI is the lead entity for the Anti-Drug Demand Reduction Mission of the Coast Guard. Mannion started off by explaining, "We're responsible for ensuring that 225,000 mariners, over 5,000 marine employers, and another 300 sponsoring organizations are all acting in compliance with regulations. The DAPI program is placed under Investigations, because we have broader authority to conduct investigations on mariner drug use, and on marine employer failure to comply with enforcing the regulations. We have been operating an active drug and alcohol testing program since 1991."

Actually, Mannion is the sole person assigned to the DAPI program. A few others, once attached to the office, have since seen those billets reallocated. Nevertheless, says Mannion, "Although the program itself has gotten smaller, we've become more effective. In the past two years, I have trained over 149 new investigators and inspectors on drug and alcohol inspections and investigations."

Over a third of the American population is on some form of a narcotic – prescribed, for various reasons. Mannion addresses that reality by saying, "American citizens working on these vessels come from the general population, and they suffer the same afflictions, medical maladies and challenges as everybody else. We know that – through casualty investigations, through research done by our other DOT colleagues – that drugs and alcohol are a significant safety risk."

Mannion knows of what he preaches. That's because, as a civilian Coast Guard employee, he's also a licensed mariner (1600-ton masters offshore and 1600-ton master towing, unlimited). He sailed for many years. Because career choice (finance) did not suit him, eventually he went to sea. "I started out working on deck and working my way up as fast as I could – on OSVs, fishing boats, towing vessels, passenger vessels. You name it – if they let me do it, I did it, and I was fortunate enough to move up quickly in the ranks because I was young, unattached and you can sail 365 days a year. I enjoyed it tremendously. It was probably the most satisfying job I've ever had in my life."

Eventually, he found himself ashore and working very closely with the captain of the port in New York and the area maritime security committees. This led to a position as the Vessel Traffic Service Director in New York.

But, Mannion didn't step into his current job without credentials. For example, he ran the Drug and Alcohol Testing program for New York Waterway, something that involved keeping tabs on hundreds of employees as part of that testing program. "Just by the sheer number of volumes that we were operating at that time, marine casualties were going to inevitably happen. We were carrying passengers, passengers would fall down, and we always exercised an abundance of caution in doing drug testing, even when we weren't even sure it would turn into an issue."

Cosco Busan: Game Changer

The infamous 2007 Cosco Busan accident – the ill-fated vessel striking the San Francisco Bay Bridge and spilling 53,000 gallons of oil into the bay – served to establish more regular, thorough and more standardized medical

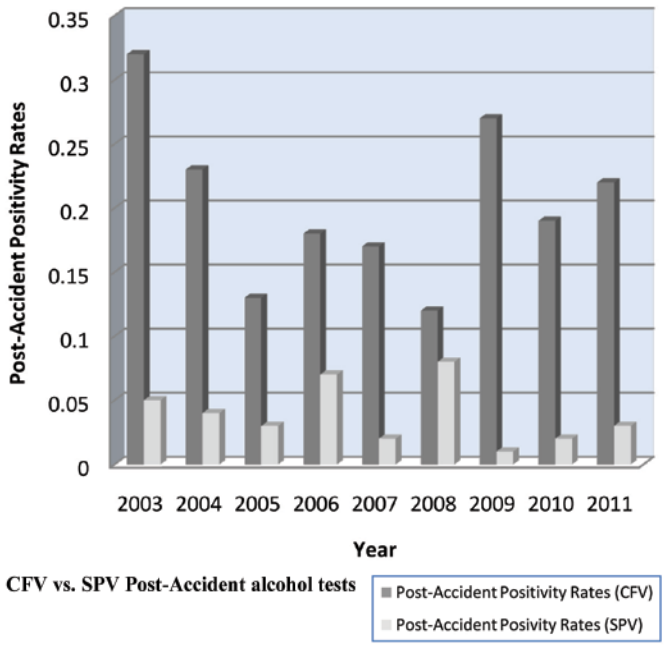
evaluations for mariners. And it put in place requirements for mariners, and employers, to report to the Coast Guard that a person not only has an underlying medical condition, and/or if that individual is taking medication that needs to be evaluated by the Coast Guard. But in truth, the regulatory regime had only finally caught up to the mariner population. "The Coast Guard standards for medical evaluations today are more closely-aligned with all the other transportation modes. I think that's a very good summary," said Mannion.

It is here where Mannion begins to show, if not a softer side of the Coast Guard, certainly one which is just as interested in helping mariners as it is in performing enforcement duties. Mannion insists, "I often say to mariners, 'This is a protection for you. This is your opportunity; if you are using some medication, to apply, to self-disclose and to apply for medical review as to whether or not you can sail while using this medication.'" He adds, "And if the answer if no, this is also a fantastic time for you to engage with your prescribing physician, and have that physician determine whether or not there is another medication that you can take, or perhaps alter your prescription so that it would be acceptable by Coast Guard medical staff."

In the end, says Mannion, the Coast Guard's going to find out whether or not you have a prescription for these drugs. He continued, "Our very last alternative is putting you on the beach. Industry is very clear that we already suffer from having too few qualified personnel. As a mariner, I know how hard it was and how much time and effort went into getting my license. And I treat that higher than just about any document I've ever received in my life. It still hangs on my wall with great pride. So when a mariner comes to me and we find out he has a positive drug test, or he chooses to self-disclose, he is treated with great respect and is offered the opportunity to get back onto the water as soon as possible, while not jeopardizing safety.

"It's difficult enough. But, every person I talk to has the opportunity to be part of the solution. And by that, I mean if you're not happy with a regulation, if you think it doesn't work, there's a process in place – petition for rule-making. They can write to their congressman, their senator, or the Commandant of the Coast Guard, requesting a change, outlining their position. And then make that an issue for debate at federal advisory committee meetings."

Figure 1



Apples & Oranges: Fishing & Passenger Vessels

It's been a few years since U.S. Coast Guard Chief Administrative Law Judge Walt Brudzinski penned an exhaustive study on the implications of drug and alcohol testing on board domestic passenger vessels and fishing vessels. In a nutshell, the study sought to define if the use of random drug testing had any impact of post-accident 'positive' tests. It turns out that it does. That much was easy to see since one group of mariners (passenger vessels) participates in the random testing program and the other (fishing) does not.

Mariners won't do what you expect them to do – they will do what you 'inspect.' We reminded Mannion that the domestic passenger vessel industry is one of the most highly regulated of any on the water. He responded quickly, "I will agree with you, depending on the size of the vessel. The 6-pack operators; it's very hard to be aware of who or where they are. They can put their boat onto a trailer and go to a different location. We've had surge audits and investigations in certain ports, and the results of those haven't always been as good as we would hope, but it gives the Coast Guard the opportunity – and industry – to refocus. As we start moving up, the 'T' boats, you start to see far greater oversight and requirements for performance. That's not only Coast Guard-driven; industry associations like the Passenger Vessel Association are putting in place stringent standards for their members. Moving further up into the larger passenger vessels, they're as heavily-regulated as any industry you will find in the United States today."

Brudzinski's data (figures 1 & 3) unequivocally shows that post-casualty investigations which involve drug and alcohol testing for fishing vessels were much higher than post-casualty positive readings for passenger vessel situa-

"My personal goal always is to be 90% outreach, 10% enforcement. If we have ten conversations, I want nine of those conversations to be about education, outreach and awareness. We saw the data coming from the laboratories long before the marine employers reported them to us. I made sure that we communicated that up the chain of command, and also reached out to industry."
– Patrick Mannion, Director, U.S. Coast Guard Drug and Alcohol Prevention and Investigations (DAPI) program

tions. We asked Mannion about this reality, and what was being done to level the playing field.

"We're looking real hard at changing that. We're taking a look at the data that leads us to the conclusion that perhaps we need to initiate a rule-making to encompass all of the marine industry in the United States and not to leave certain carve-outs unattended." But, concedes Mannion, "More than anything, it would take an authorizing statute from Congress to allow us to do that."

Mannion says that the Coast Guard tries to balance out audits to target those most at risk. "We find time and time again that the smaller the operation, the more potential there is for non-compliance. Not because they're trying to cut corners or even willfully making decisions to skirt the regulation, it's just a matter of they're not aware of the nuances of the regulations. Perhaps they've entered into what they understand to be 'contracts' with third party service providers that are sold to them with the impression that it'll meet all their compliance needs. Sometimes, that's not the case."

Random … Logic

Historically, and since the drug testing program started in 1991, the random test rate had always been set a 50%. But, in 2014, the drug test positivity rates went down. The regulations state that if industry's positivity rate is less than 1 percent of all mariners tested, the Commandant of the Coast Guard can reduce the random testing rate to 25%. "And, we did that," explained Mannion, adding, "In that timeframe, we actually continued to go down, to as low as 0.7 percent. Sadly, starting in 2015, we started to see numbers coming up dramatically. And regrettably, we see that the national trends of increased drug use are also reflected in the marine industry. We closed out our number at 1.08 percent."

While that number seems quite small, the data is telling. It speaks to the effectiveness of the program. Mannion also concedes that while the Coast Guard tests to 5 classes of drugs, industry will often test far more than that. In corporate America, a 12-panel drug test seems to be more standard. "Of course, because you're testing for more substances, the positivity rate will be higher. But I've seen national drug testing rates in the 5, 6, 7 percent range. So I think it's a real strong testament to the success of the Coast Guard's program that we were able to push it down, in partnership with industry, to 0.7 percent."

It is that very kind of logic that the Coast Guard can bring to the table when it is time to make the argument that drug testing regimens on board domestic fishing vessels need to be brought into line with all other classes of domestic vessels. Mannion agrees. "I think that's a fair assessment. It's consistent with the data that we've seen across the marine industry, and there's no reason that I'm aware of that would call into question the integrity of expanding the drug testing to the commercial fishing vessel fleet and achieving the same result."

Testing Schemes Evolve

Today, the sophistication of the drug market and the ubiquity of prescription narcotics used by the general public have given rise to new challenges. Part of the challenge involves deciding who gets tested, when and why. In the wake of a marine casualty, that's the million dollar question. Mannion puts it in perspective: "Is the individual who's asleep in their rack to be dragged out and tested? What did they have to do with the casualty? But perhaps that engineer who just stood that 4-hour watch, who did that fuel filter change one half hour before getting off watch and went into bed, and then that fuel filter, maybe he forgot to turn the valve open … fully. And it choked out the plant. And this is why it's important that we have employers and trained investigators from the Coast Guard working together to understand exactly what occurred."

Mannion continues, "It's very tempting for all involved to just have everybody on the boat tested. You have a compressed time window to do that test – whether it's drugs or alcohol. And if you choose not to do it, you don't get a second bite of the apple – you can't go back. And then maybe only later on in the course of the investigation do you find that the engineer who was on watch or changed out the filters didn't open the valve fully."

The U.S. Coast Guard is a data-driven organization. Audits and investigations are based upon credible evidence of serious non-compliance. That said; it's not just the mar-

iner and his/her employer under scrutiny. For example, the Coast Guard not only regulates the marine industry. It also regulates the chemical testing industry – the doctors, the medical review officers, the collectors, and the laboratories.

On this point, Mannion is dead serious. "We have a duty, to not only the mariners, but to the American people, to make sure that the integrity of that test, the rights of the individual mariner, and the rights of the public – for safety – are assured. And we want to make sure that the mariner can be assured that that sample tested was actually his sample – it wasn't a mix-up."

The Coast spends a great amount of effort auditing collection sites, via 'clandestine audits,' where Coast Guard personnel will walk in to a collection site and say that they are there for a Coast Guard DOT test. "We find great adherence," reports Mannion, adding, "For the most part, you're finding a professional, organized, well-managed staff. You have some large, publicly-traded companies who own these sites and have a very active internal auditing program to make sure they are following standard procedures. What we do find is minor issues that can be corrected on the spot, or might require additional training."

Looking Ahead

In the end, the same test that the pilot takes, the aviation, railroad or trucking employee takes; it's the same test the Coast Guard mariner is going to take. "And it should be," says Mannion, continuing, "It's efficient, it keeps cost down, and there are few other tests out there that afford so much protection for the individual donor, the mariner."

Finally, Mannion projected out to what the Coast Guard's Drug and Alcohol Testing Program might look like in 5 or 10 years. One thing will likely remain the same. The process that's been in place for over 25 years – the DOT 5-panel – insists Mannion, is a very good process. "We have no intent on leaving it. However, there are new technologies that are coming out that are already in place, well-established. Things like oral fluid testing where you no longer have to urinate into a cup and that sample is sent off to a lab – they'll just do an oral swipe."

The advent of legalized marijuana has to be considered and the technologies to do just that are already on the way. To that end, Mannion says, "The testing function of today may look totally different in the future. Of course, anything we want to do – the Coast Guard – to promote drug and alcohol testing, it has to be mandated by Congress."

Today, the Coast Guard uses DOT testing protocols. DOT, at the same time, is looking at implementing very soon, once it's approved by the Drug Testing Advisory Board (among others), using oral fluid and hair testing. Mannion adds, "These are fascinating technologies that are going to make it a lot easier for marine employers, and for individual mariners to be able to meet these requirements."

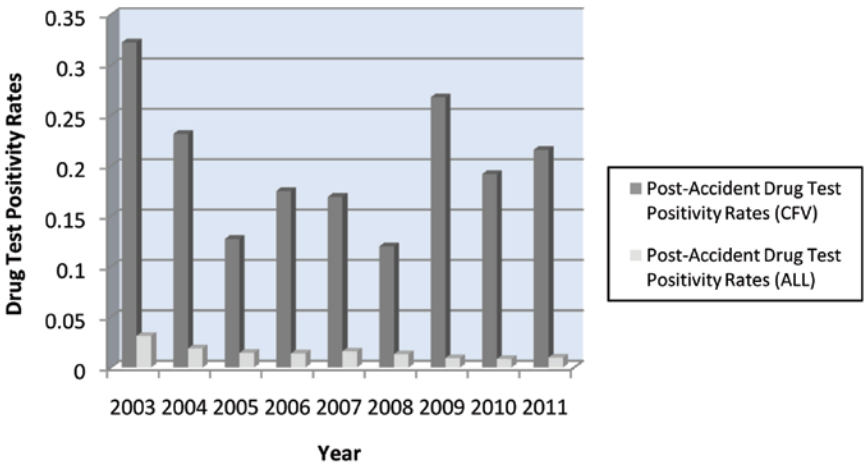
90 / 10: No Pipe Dream

Mannion defines the mission of his office as one which detects, deters, and mitigates the risk of drug use on the water. "If we can identify the problem, we can get that individual out of the safety sensitive role, and we begin the healing process of getting them the medical care they need. Nobody's looking to punish a mariner by taking their credential away. What we try to do is find that balance to promote safety while still respecting the rights of the individual.

"My personal goal always is to be 90% outreach, 10% enforcement. If we have ten conversations, I want nine of those conversations to be about education, outreach and awareness." As to the change in random testing rates, Mannion laments, "We saw the data coming from the laboratories long before the marine employers reported them to us. I made sure that we communicated that up the chain of command, and also reached out to industry."

When we left Coast Guard headquarters in December, Mannion was preparing to attend the PVA's Annual Convention in New Orleans, just a few short weeks away. The mission for that trip was outreach, but because of the 35-day government shutdown, he didn't get to deliver his message. Perhaps this article will serve the very same purpose.

Figure 3



Reducing the Potential for Marine Casualties Related to Drug and Alcohol Use
CFV vs. SPV Post-Accident positive drug tests per SMI

All Images: courtesy Robert Kunkel

Marine Hybrid quietly arrives ... positioned to explode

Hybrid is not only here, it is growing, and with that growth it will soon reach far beyond coastal applications.

By Robert Kunkel

For those who were around for the arrival of Y2K, you will remember the anticipation, preparation and perspiration as the maritime world waited for the failure of communications, navigation, security and machinery associated with the digital change of the clock. The forecasts, now historical urban legend, left the world without a digital catastrophe.

We wait now for 2020 and the advent of the IMO maritime emissions regulations. The industry standing by with bated breath to determine which propulsion system or fuel "alternative" will rise to the top of the debate and solve the SOx and NOx issues. Will it be ultra low sulfur fuels, exhaust gas recirculation, scrubbers, LNG, SCR, LPG or methanol? Take your pick if you plan on partnering up with your internal combustion engine. Understand that the plethora of choices leads to the fact that not one is the Holy Grail. We have a difficult decision ahead of us as the majority of alternatives have underlying costs and none at this point look to solve all of the future emissions requirements.

We as an industry are under increasing environmental regulatory pressure to step away from our dependence on fossil fuels. IMO GHG is now on its third major study and reports that the maritime industry emits nearly one billion tons of CO2 on an annual basis and contributes to 2.8% of the world's greenhouse gas emissions. The regulations and the debates are not going to end in 2020. Changes are coming.

Business looks to engineers and technology to solve industry problems. The environment that business will operate within dictates how that technology develops. Forgive us for a moment to stray away from a technical Hybrid discussion, as we offer as to why Hybrid and EV will soon dominate transportation both ashore and at sea.

HYBRID & EV

The electric alternative looks to solve many of the emission problems and if the automotive industry is an indication how technology is seductively satisfying the social demand, then marine EV and Hybrid have growth potential. That growth not only satisfies regulations but also the environmentalists and true believers of climate change debating the

issue in social media everyday.

Look how automotive EV developed. When was the last time you purchased an internal combustion automobile with a concern on how many miles it traveled before it stopped? Sure, you watched the gas gauge needle approach "E" and turned to the gas station. Was it ever a concern on what was the size of the gas tank to determine your purchase or model? Hybrid and EV announces the limit of their energy storage, the first automobiles traveling 150 to 250 miles on a single charge. The latest marketing efforts lead with new 500-mile capability.

Marine EV and Hybrid looked to enter coastal applications for the same reason of limited energy storage. That storage capability continues to become more and more efficient and now dictates our ability to design into longer voyage routes and faster speeds on that same single charge. A marine Hybrid decision is also coupled to the social aspects supporting the technology. Cleaner alternative propulsion developed along populated coasts in tour boat, research and ferry applications. The public wants this in their back yard.

Add now the influence of the millennial generation and social media. The average American Facebook user has 70% of their friends living within 200 miles of a home location and roughly 4% abroad. With the world struggling with trade tariffs, protectionism, "slowbilization" and the downturn of global trade, regional transportation and this generation's surge to be sustainable has allowed energy storage and battery technology to develop slowly in these regional markets. That slow steady growth leads to positive technology trends.

LIKELY MARKETS

Some believe that carbon neutrality must be achieved by 2030. Others look towards a more conservative approach and predict 2050. Whether the period is ten or twenty years from now, the answer will be our ability to adapt to new technology and embrace the speed at which that technical information travels. That's a speed that will most likely trim the neutrality prediction to five years along populated coasts simply with social pressure.

"The applications and markets may be small, but they share common threads. Voyage lengths are limited, the public surrounds the services and speeds are typically restricted. Growth outside of these markets will depend on the expansion of the energy storage systems. Despite these restrictions, the growth in the number of services has not been limited."

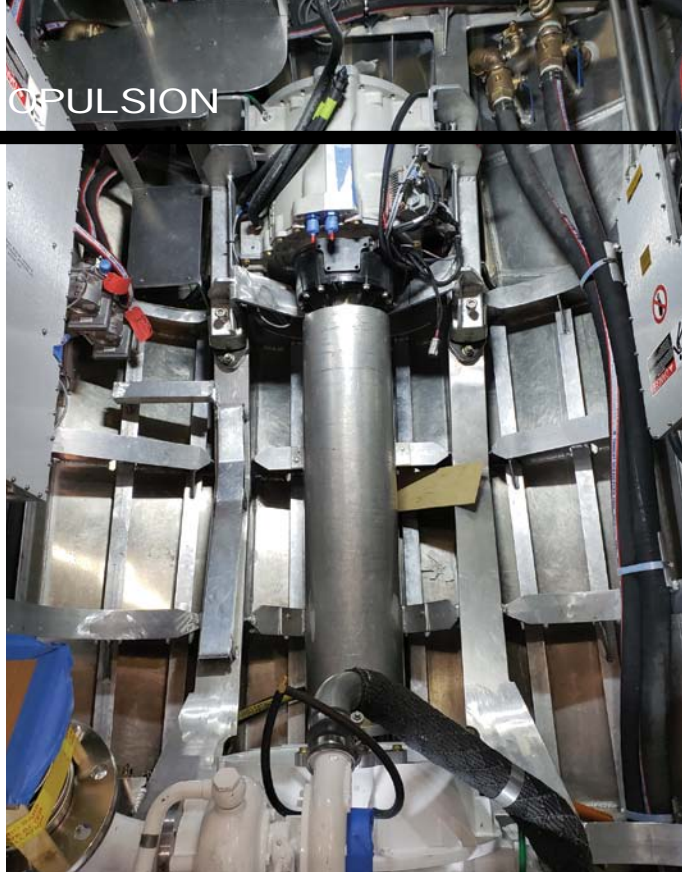
Not convinced? Watch as the major engine manufacturers, shipbuilders, marine engineers and naval architects tilted their heads at the 2018 Workboat Show when the Enhydra, a 600 person Red & White fleet Hybrid tour boat and latest development of BAE HybriGen won collective accolades, surrounded by the smell of diesel oil and a selection of historical ATB Tug Barge entries and LNG transportation projects. This was a 128' x 30' mono hull developed by Tecknicraft Design with a BAE/Corvus/Cummins 160 kWh generator, control system and AC traction motor drive system built at All American Marine in Bellingham, WA.

The applications and markets may be small, but they share common threads. Voyage lengths are limited, the public surrounds the services and speeds are typically restricted. Growth outside of these markets will depend on the expansion of the energy storage systems. Despite these restrictions, the growth in the number of services has not been limited. And that is an important factor to analyze.

Ferry system growth is not historically limited to vessel type or size but to infrastructure. More then several East Coast projects never made it to fruition simply because of lack of available parking, land access and NIMBY issues. Those problems have waned somewhat due to what is now defined as "shared mobility." The millennial generation supporting Uber and Lyft car services for their "door to door" transportation needs as they look support waterborne public transportation. The neighborhood and community impact is reduced, as personal automobiles do not enter the traffic patterns and parking flow. Look to companies like Brooklyn-based Switch who are introducing full door to door NYC & Brooklyn EV based transportation from scooter to marine ferry.

HAPPENING NOW

That generational movement also supports small local business with a social conscience and sustainability. The re-



cent Harbor Harvest Hybrid project taking place on Long Island Sound is another example of this generational shift. The recognition by the Marad Administration, Department of Transportation as a designated Marine Highway project indicates the importance of delivering new marine transportation without environmental impact. Partnered with the newly formed Connecticut Port Authority, Harbor Harvest will deliver local New England and New York family farm products in April of 2019 across Long Island Sound by refrigerated Hybrid Catamarans without emissions.

The Hybrid vessels, built at Derecktor Shipyards in Mamaroneck New York, are part of a continuing series of Hybrids developed at the shipyard. The first two developed as research vessels working in Long Island Sound and Rockaway inlet. The third in the series is the first U.S. built Hybrid cargo vessel, a catamaran with refrigerated cargo space and the capability to lift over 12,000 pounds or roughly 28 pallet loads.

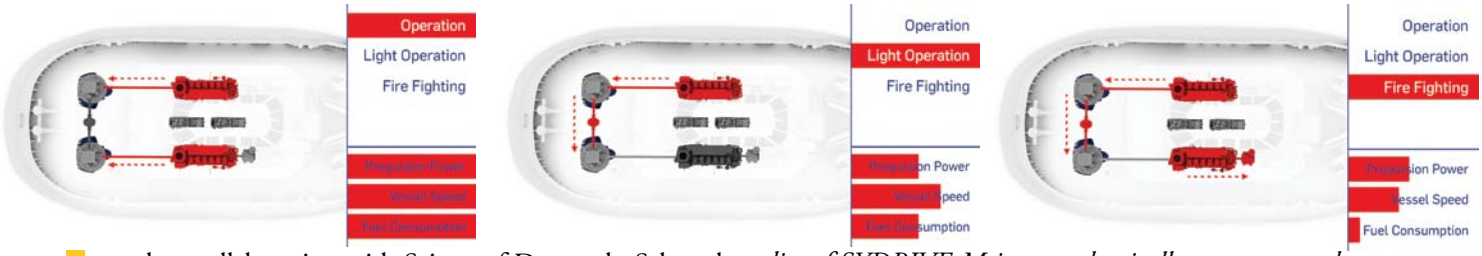
Marad's interest peaked when the existing Marine Highway legislation designating projects that moved truck, trailer or ISO container was modified in 2016 to include pallet, box and loose equipment. Harbor Harvest submitted their designation application with that legislation change and was approved in July 2018.

The vessel employs two BAE Hybridrive systems, one in each pontoon driving an AC motor for propulsion. Two Cummins series QSB 6.7 engines with BAE Hybrigen variable speed generators are used to charge XALT Energy XPAND water-cooled battery systems the actual energy source driving the vessel. Each battery pack delivers 45kWh to propel the vessel at 16 knots. The XPAND battery system uses XALT's pouch format lithium-Ion cells and assisted Harbor Harvest in meeting a 100% U.S manufacturer/U.S. built requirement for Marine Highway grant applications. Their XMP71P-based system is deployed worldwide on many commercial transit buses and trucks and recently received Type Approval from DNVGL. Shore based charging will be available at terminal locations with new charging connections supplied by Lutron Electronics of New York.

The U.S. marine Hybrid development path is following the Hybrid & EV marine applications that have quickly become a standard in Norway. Ferry new construction using both full electric applications and Hybrid systems grows each day in number and in total kWh power. We have seen over 16 U.S. information requests for new ferry services and vessels within the New York area alone in recent months. Hybrid is not only here, it is growing, and with that growth it will soon reach far beyond coastal applications.

Robert Kunkel *is President of Alternative Marine Technologies. He previously served as the Federal Chairman of the Short Sea Shipping Cooperative Program under the Maritime Administration and Department of Transportation from 2003 until 2008. A past Vice President of the Connecticut Maritime Association, he is a contributing writer for* ***Maritime Professional Logistics*** *Magazine and* ***MarineNews****. A graduate of the Massachusetts Maritime Academy, Kunkel sailed as a licensed engineer and eventually continued his career in ship construction at myriad venues.*

Schottel's Mechanical Hybrid Propulsion Solution



In a close collaboration with Svitzer of Denmark, Schottel has developed a new hybrid propulsion concept. The new concept is based on the recent Schottel Y-Hybrid thruster technology and connects a port and starboard mounted azimuth thruster in a vessel with each other. This makes it possible to drive two thrusters with either one of the main engines.

The companies are now discussing a pilot project to retrofit an existing tug with the new mechanical hybrid technology. This will transform the direct driven vessel into a greener and more cost-efficient vessel. Svitzer runs a fleet of 430 vessels and operations all over the world, and focuses on innovations for fleet modernization. Thomas Bangslund, Group Head of Innovation at Svitzer, was closely involved in the development of the synchron-mechanic hybrid drive system. Svitzer is convinced of the operational and environmental benefits of the new Schottel SYDRIVE-M in both retrofits and newbuilding projects.

Common vessel operation profiles for tugs or workboats include up to 90 percent of operation time with low engine loads. To optimize propulsion systems for such load, conventional hybrid propulsion systems come with two independent power sources per propeller, normally configured with a main engine and a smaller electric motor. Those additional electric components make those hybrid concepts more complex and more expensive.

Advantages in Main Operation Modes

Based on the unique Schottel SRP-Y Hybrid upper gear module for azimuth thrusters, Schottel SYDRIVE-M is a new variable and purely mechanical hybrid propulsion system with no need for any additional electronic components or an additional gear box. This system comes with many advantages as noted in the three following main operation modes:

• *Light Operation or Free Sailing Mode: The core functionality of SYDRIVE-M is to mechanically connect two thrusters and one of the two main engines for all light operation activities which do not require full power of the two main engines. In this synchronized Light Operation Mode, one of the two main propulsion engines remains alternating off. This leads to a noticeable reduction of operating hours of the main propulsion engines, and thus to a reduction of maintenance costs. In addition, the single running main engine remaining in operation is now better loaded by two thrusters and operates in a better specific fuel consumption range, leading to less fuel consumption and emissions. In contrast to a conventional tug, with two engines running in traditional Light Operation Mode, where both engines are operated at a relatively low rpm range which is not efficient with regard to fuel consumption and emissions.*

• *Full Thrust Operation Mode: For short operation times when full propulsion power is needed, the connection between the two thrusters is disengaged and each engine is engaged to each thruster. The system is now identical to any other directly driven propulsion system.*

• *FiFi-Mode: For any directly driven vessel the new SYDRIVE-M system provides a solution to enable fire-fighting operation with no need of an additional investment in components like medium or heavy duty slipping clutches, CP propellers or dedicated engines to supply power to a FiFi-pump. For the SYDRIVE-M FiFi-mode, the disengaged main engine is used to drive the FiFi-pump through its front PTO.*

For Newbuild and Retrofit

SYDRIVE-M can be integrated into any usual vessel design with direct propulsion with no need of design changes. It is available for the Schottel Rudderpropeller and Schottel EcoPeller series of azimuth thrusters from 1,000 kW up to 3,000 kW. Retrofit is possible upon request for specific Schottel azimuth thrusters and engine types. The system has been filed for patenting.

Next Generation of Z-Tech Tugs Arrive

At the end of 2018, Gulf Island Shipyards completed the first of ten Z-Tech 30-80 tugs, five of which were ordered by Bay Houston Towing Company through its operator G & H Towing Company in Galveston, Texas. The Z-Tech 30-80 tug Mark E. Kuebler evolved from the previous design for the same owner. A main feature of this latest Z-Tech incorporates Robert Allan Ltd.'s unique RAstar series sponsoned hull form into the existing Z-Tech design. Computer simulations conducted by RAL's in house CFD team demonstrate escort performance of the new tug will be significantly increased by generating more than 100 mt steering force at 10 knots which is particularly important for escorting large vessels.

LOA: 98'-6"	Bollard Pull, ahead: 81.5 MT	US Regulatory: 297
Beam: 42'-8"	Propulsion: CAT 3516E, EPA Tier 4	Speed: 13 knots
Depth: 16'-5"	GenSets: John Deere 6068AFM85	Class: ABS
ITC: 411	Builder: Gulf Island Shipyards	Z Drive: Schottel

First Newbuild SubM COI for M/V Virginia

The M/V Virginia, the United States' first new towing vessel to receive a Certificate of Inspection (COI) since the implementation of 46 CFR Subchapter M, is owned by Plimsoll Marine, was built by Blakeley BoatWorks, and will operate within the Cooper Consolidated fleeting footprint, the largest fleeting footprint on the Lower Mississippi River. All three companies are part of the Cooper Group of companies. Designed and built over the course of a year, the 70-foot long, 28-foot wide, and 1,600 horse power vessel is both SIRE and 46 CFR Subchapter M-ready. Plimsoll Marine will operate the M/V Virginia on the Lower Mississippi River for Cooper Consolidated.

Metal Shark Delivers Pilot Boat to Brazos Pilots

Louisiana-based shipbuilder Metal Shark has delivered a custom welded-aluminum pilot boat to the Brazos Pilots Association in Freeport, Texas. The new vessel, "Brazos Pilot," is a 64' x 19' Defiant-class monohull pilot boat designed by Metal Shark and built at the company's Franklin, Louisiana shipyard. This new pilot boat is intended to replace the pilots' smaller, single-engine 40' pilot boat, improving safety for crews while enhancing service to operators and providing around-the-clock service at Port Freeport. A spacious, climate-controlled wheelhouse employs Metal Shark's signature "Pillarless Glass" for dramatically improved visibility, in a reverse-raked arrangement developed by Metal Shark specifically for pilots. Large overhead skylights provide upward visibility while approaching and operating alongside moving ships. Visibility is further augmented by the vessel's centerline helm position.


Crowley Logistics

Collins Ayala de Jordán


Cohen


Waterways Council, Inc.

Duckworth Toohey


Dreyfus


Aurichio

Crowley Makes Logistics Group Organizational Changes

Crowley Logistics recently announced personnel moves with their logistics group. **Patrick Collins** has been promoted to vice president of terminal operations; **Jose "Pache" Ayala** has been named vice president of Caribbean logistics, and **Claudia Kattán de Jordán** has been appointed vice president of Central America logistics. All three report to Steve Collar, senior vice president and general manager, Crowley Logistics. Collins is responsible for the overall operations and strategy for the company's domestic cargo terminals. Ayala now has expanded responsibility for coordinating sales, marketing and operational shipping activities throughout Crowley's footprint in Puerto Rico, Dominican Republic, and the Caribbean islands. Kattán de Jordán is taking on expanded responsibility for all of Crowley's supply chain services throughout Central America. These promotions follow the company's recent integration of its liner services and logistics business lines into a singular, highly focused logistics organization providing customers with end-to-end services.

Port of Los Angeles Names Cohen Policy & Legislative Affairs Director

Jennifer Cohen has been appointed by the Port of Los Angeles as its new Director of Policy and Legislative Affairs. Cohen most recently served as the Director of Government Affairs for the Los Angeles Department of Transportation (LADOT). Cohen will direct the Port's legislative team and help establish the Port's policy priorities at the local, state, federal and international levels. Prior to joining LADOT, Cohen oversaw state and federal government and regulatory affairs at the Southern California Regional Rail Authority (Metrolink). Cohen earned a master's degree in public policy from the University of Southern California and a bachelor's degree from UCLA.

WCI Presents Leadership Award to U.S. Senator Duckworth

In February, **Senator Tammy Duckworth** (D-IL) received Waterways Council, Inc.'s (WCI) 18th Annual Leadership Service Award for her continual championing of ports and inland waterways. She was presented the award by Wade Beasley, Business Representative, Carpenters Local 174, Chicago Regional Council of Carpenters. WCI President & CEO **Mike Toohey** said, "Senator Duckworth is an American hero, and a stalwart advocate for the inland waterways in her state of Illinois, and throughout the United States."

Matson Names Dreyfus VP, Alaska

Matson announced that **Branton B. "Bal" Dreyfus** has been appointed vice president, Alaska. Dreyfus now has management responsibility for all Matson operations in Alaska. Dreyfus joined Matson in 1993 as General Manager, Sales Mainland after six years with Sea-Land. He holds a Bachelor of Science degree in Business and Economics from the University of San Francisco and is a graduate of the UCLA Executive Program. He also serves as a member of the board of directors of PMSA.

Aurichio Named Executive Director of CII

The Containerization & Intermodal Institute (CII) has named **Lisa Lo-Manto Aurichio** as Executive Director. Aurichio will continue her position as President of BSY Associates Inc. BSYA will continue as the CII secretariat. Aurichio is a graduate of University of South Carolina and was awarded a master's degree from William Paterson University in Communications.

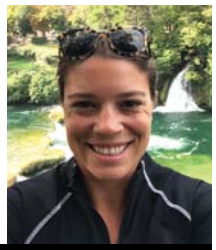
O'Brien joins Vigor as EVP of Strategy and Business Development

Vigor announced the addition of **Jackie O'Brien** to Vigor's leadership team. As EVP of Strategy and Business Development, Ms. O'Brien will oversee business development for all Vigor business units including defense, aerospace, infrastructure, alternative energy and marine. She comes to Vigor following a 25 year career at Alcoa and


O'Brien


Schultz


Jofs



PVA
Lawler Mooney

Arconic, mostly recently serving as Vice President of Business Development and Global Affairs. She holds a Bachelor of Science degree in Civil and Environmental Engineering from Ohio State University and an MBA from Case Western Reserve University.

Sherwin-Williams' Schultz Wins Award of Merit

The Society for Protective Coatings has named **Mark Schultz**, Government Marine Project Development Manager for Sherwin-Williams Protective & Marine Coatings, winner of the 2018-2019 John D. Keane Award of Merit. The award recognizes Schultz's 25 years of significant contributions to the development of the protective coatings industry and to SSPC. Schultz, an SSPC Protective Coatings Specialist and active member on a variety of SSPC technical committees influencing technology updates and guides, is a contributing author to SSPC Painting Manual, Volume 1, Fifth Edition "Good Painting Practices," and has been a member of the SSPC Education Program Advisory Committee. He is a NACE Course Instructor for Coatings Inspector Program (CIP) Level 1 and Level 2, as well as a NACE Certified Coatings Inspector Level 3. Schultz has a Master of Science degree in engineering from the University of Illinois.

New Staff Announcement at Marinsa International

Ken Jofs has accepted the position of Director of Sales for Marinsa International. Ken has worked in the Marine Industry extensively over the past 20 years and has a degree in Mechanical Engineering from Vaasa Institute of Technology in Finland. He is experienced in Marine Engineering and Naval Architecture.

PVA Announces New Emerging Leaders Committee

The Passenger Vessel Association has formed an Emerging Leaders Committee to identify and support a community of individuals within the passenger vessel industry who are transitioning into leadership roles in their companies. The Emerging Leaders Committee will help encourage their growth as the next generation of industry leaders through customized seminars, resources and programs. **Bob Lawler**, PVA 2019 President, said, "Growing and empowering this group is a priority of my term as president. We were all emerging leaders at some point in our careers and I am looking forward to seeing the initiatives and developments that come out of this new committee." Captain **Morgan Mooney**, Director of Social Media and Public Relations, Fire Island Ferries, Bay Shore, NY will be the group's Chairperson for 2019-2020.

EBDG Welcomes Nani as Project Manager

Elliott Bay Design Group (EBDG) has hired **Matt Nani** to join their team of naval architects and engineers as a Project Manager. Nani brings with him eleven years of experience in the marine industry including work with an operator, class society and consulting firm. Nani is a licensed professional engineer in Washington and Texas, and he received a BS in Naval Architecture and Marine Engineering from the University of New Orleans.

Coast Guard Foundation Hires Northeast Regional Director

The Coast Guard Foundation announced that **Marc Cregan** has joined the Foundation's staff. In his new position as regional director for the Northeast, he will work closely with Coast Guard units in New England and New York to identify and fulfill education, morale and family support for Coast Guard members. Cregan brings more than 20 years of comprehensive fundraising, donor relations, leadership and volunteer board management experience to his role at the Coast Guard Foundation.

Duluth Seaway Port Authority Board Announces Staff Additions

Commissioner **Michael Jugovich** was appointed to complete the remaining term of former Commissioner **Pete Stauber** on the Duluth Seaway Port Authority Board, effective January 8, 2019. Jugovich has held many positions over the years. In 2000, Jugovich was elected to the Chisholm City Council, serving six years before being

Nani

Cregan

Duluth Seaway Port Authority

Jugovich Hron

Glen

elected mayor in 2006. He served as mayor for a decade before being elected SLC Commissioner of the Seventh District in 2016. He was elected vice chair of the SLC Board in January 2019, and currently serves as chair of its Public Works and Transportation Committee. Separately, the Port Authority also named **Jayson Hron** as Director of Communications and Marketing. Since 2013, Hron has been a communications manager for USA Hockey in Colorado Springs, Colo. For eight years prior, he led communications efforts as senior public relations specialist in the financial services industry, for the ING Group in St. Cloud, Minn. Hron has a bachelor's degree in communication from UMD and a master's from St. Cloud State University.

SpotSee Promotes Glen to VP, Supply Chain

SpotSee has promoted **Dale Glen** from director of supply chain to vice president of supply chain. Glen has 24+ years of experience in manufacturing, quality control, plant management and supply chain optimization. He has earned several industry certifications including a Lean Six Sigma Green Belt Certification.

EBDG Represents AMD Marine Consulting Designs

Elliott Bay Design Group (EBDG) has signed a licensing agreement with AMD Marine Consulting (AMD) of


Foti


Greg Beers, BHGI


Kirby acquires Cenac assets


Middlebrook

Sydney, Australia to be their exclusive North American vessel design representative. AMD specializes in high-speed, multi-hull vessel designs. The partnership brings together a wide-ranging collection of vessels and marine expertise. AMD's catamaran hull forms are ideal for high-speed ferry, military, patrol and SAR missions. Most recently, AMD designed three 43.5 meter passenger ferries for San Francisco Bay's Water Emergency Transportation Authority (WETA), currently under construction at Dakota Creek Industries.

Vigor selects Vancouver, WA for New Aluminum Fabrication Site

Vigor has entered an agreement to take over the former home of Christensen Yachts in Vancouver, WA. The firm says that this is the best location to build the U.S. Army's new landing craft, Maneuver Support Vessel (Light) or MSV(L). The MSV(L) contract represents the largest award in Vigor's history with a total value of nearly $1 billion over 10 years and hundreds of family-wage jobs. Vigor expects to eventually employ approximately 400 workers at the site and will be investing millions in capital upgrades and equipment. **Frank Foti**, Vigor President & CEO, noted, "While we've had operations in Vancouver since 1980, this move represents a substantial increase in the number of Vigor employees who will be living and working here."

BHGI Awarded IDIQ Contract through SeaPort-NxG

Bristol Harbor Group, Inc. (BHGI) announced that it was awarded a five-year indefinite-delivery, indefinite quantity contract through the U.S. Navy's most recent contract vehicle, SeaPort-NxG. Through this contract, BHGI will have the ability to bid on various task orders throughout the entire contract period.

Kirby to Purchase Cenac Marine Assets

Kirby Corporation has signed an agreement to acquire the marine transportation fleet of Cenac Marine Services, LLC for approximately $244 million in cash. The purchase will be financed through additional borrowings. Cenac's fleet consists of 63 30,000-barrel inland tank barges with approximately 1.9 million barrels of capacity, 34 inland towboats, and 2 offshore tugboats. Cenac moves petrochemicals, refined products, and black oil, including crude oil, residual fuels, feedstocks and lubricants on the lower Mississippi River, its tributaries, and Gulf Intracoastal Waterway for major oil companies and refineries. The closing of the acquisition is expected to occur late in the first quarter of 2019 and is subject to customary closing conditions, including regulatory approvals under the Hart-Scott-Rodino Act. **David Grzebinski**, Kirby's President and Chief Executive Officer, commented, "The acquisition of Cenac's young fleet of well-maintained inland tank barges and modern boats is an ideal complement to Kirby's operations. Cenac has a strong history of operational excellence, and is well respected by the industry and its customers."

Seaway Activity Exceeds 40 Million Tons in 2018

The St. Lawrence Seaway Management Corporation (SLSMC) announced that tonnage on the waterway during the 2018 navigation season totaled 40.9 million tons. The highest result since 2007, much of the credit for the increase in tonnage can be given to healthy movements of grain, the best on record since the turn of the century. Marketing efforts under the "Highway H2O" initiative served as a catalyst to spur increased movements of a broad range of cargoes including grain, road salt, stone, cement, gypsum and refined fuels. **Craig H. Middlebrook**, Deputy Administrator of the U.S. Saint Lawrence Seaway Development Corporation said, "Total tonnage on the St. Lawrence Seaway exceeded the 5-, 10-, and 15-year averages, making 2018 an exceptionally strong shipping season, the best in over a decade."

In-Mar Solutions: Alu Pilot Chairs & Deck Rails

In-Mar Solutions offers a complete line of Alu Design & Services Marine Pilot Chairs and Deck Rails. There is a standard line in addition to the option for custom designs to suit specific needs. Sleek, modern design and maximum utility and comfort are emphasized.

www.inmarsolutions.com

IMO Tier III Nod for Compact MAN 175D SCR

MAN Energy Solutions' compact MAN 175D SCR system has been awarded IMO Tier III certification by all IACS groups. The SCR system was released for production in October 2018, and won its first order in January 2019. With an excellent power-to-weight ratio, airless operation and closed-loop NOx emission control, the MAN 175D SCR now offers a competitive solution for IMO Tier III applications.

www.man-es.com

HEVIMA Hybrid Propulsion for Passenger Ferries

The HEVIMA Innovate UK co-funded project, led by REAPsystems, involves innovative modular hybrid propulsion. This system offers savings in fuel, engine power rating, weight and emissions, as well as reduced noise and vibration for commercial vessels up to 250kw. Use of this technology is particularly relevant to the small commercial marine market where many vessels have duty cycles requiring significant load changes from their prime movers.

www.reapsystems.co.uk

Glosten's New Harbor Tug Design

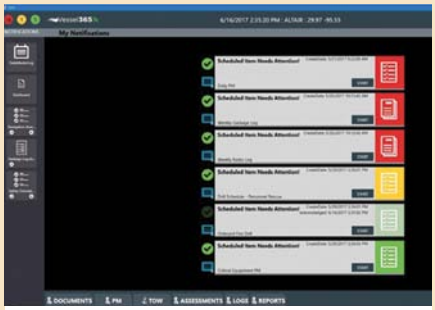
Glosten latest design in their harbor tug series – the HT-60, is a compact (60'x28'x10') tug designed as a 'do-it-all' harbor boat, ideal for handling small scows and barges, light assist work, line-handling, and construction support. Current configuration plans for the ASD tug include general harbor work and ice management duties, including an ice strengthened hull and propulsion system, a deck-mounted crane, and two forward staterooms.

www.glosten.com

Schoellhorn-Albrecht Deck Machinery for Icebreaking Tug

Schoellhorn-Albrecht recently designed and manufactured a Vertical Anchor Windlass and Thru Deck Capstan for St. Lawrence Seaway's newest Ice Breaking Tug. Designed to ABS standards for a minimum design temperature of -25F°, the Thru-Deck Capstan features a Variable Frequency Drive (VFD) control package, a right angle drive gearbox, 20 HP marine duty motor and 18" diameter barrel. Both feature Nema 4 stainless steel enclosures.

www.schoellhorn-albrecht.com



Robbins Maritime Opts for MarineCFO's Vessel 365

Robbins Maritime chose MarineCFO's Vessel 365 solution in June of 2017 in preparation for Subchapter M compliance. Robbins Maritime operates 5 near-coastal tugs and provides its customers with high-quality marine transportation services, while promoting safety and dedication to minimal environmental impact. The firm says Vessel 365 to be the most feature-rich and was also simple for the mariners to learn and use.

www.MarineCFO.com

BWC - a Menu of Options for BWT Compliance

BWC offers containerized Ballast Water Treatment in a range of technologies. Users can choose a BWTS in a pre-fabricated, pre-installed deckhouse for a ship or containerized systems for barges, using UV, Electrochlorination or Chemical Injection as the technology. All BWT solutions provided by BWC are available with US CG type approval. BWC collaborates with Alfa Laval, Ecochlor, Optimarin, Wartsila and ERMA FIRST.

www.ballastwatercontainers.com

BioGrease HDS 2: New High Performing EAL Grease

BioBlend Renewable Resources' lubricating grease is designed for dredging applications. Clamshell or dragline dredging involves multiple lubrication requirements, including two primary lubrication points, the hinge pin and the sheave, and proper lubrication here is crucial. Extreme pressure and water wash-out, provide challenges for lubricants, especially in salt water. Traditional petroleum-based lubricants pose an environmental risk. BioBlend's BioGrease HDS 2 meets the standards for the EPA EAL's.

www.bioblend.com

Trelleborg Strengthens Safe Piloting and Nav Offering

Trelleborg has bolstered its advanced navigation and piloting offering with SafeTug, a software solution that through real-time data sharing, helps tugboat operators and ports optimize safety and efficiency in their day-to-day operations. Enhancing collaboration between the tug skipper, bridge team, pilot and port, the SafeTug system uses dynamic data to give tugboat skippers accurate, real-time information on the movement of the ship they are maneuvering.

www.safepilot360experience.com

Dockmate's Next-Generation Wireless Docking System

Dockmate allows boaters to easily operate electronically controlled engines, bow and stern thrusters, anchor winches and horns from anywhere on board with a small handheld device. Available in Single, Twin, Twist 3-axis joystick models with proportional control, and Twist IPS for POD drives such as the Volvo IPS, the system features "fail safe" technology that increases reliability and operating range without the need for additional hardware.

www.dockmate.us

Trelleborg's Smart Rope Free Mooring System

Trelleborg's rope-free automated mooring system, AutoMoor, is ideal for ferry and ro-ro ferry berths. Using vacuum technology to rapidly attach to and secure a vessel at berth, AutoMoor reduces vessel motions and continuously monitors all mooring loads acting on the vessel at berth. It also minimizes personnel involvement to reduce human error and improve safety. Vessels can be secured in under a minute and released in 30 seconds.

www.trelleborg.com

Harrington Hoists' Standard Duty Spreader Beam

Harrington Hoists' HSDSB Standard Duty Spreader Beam can be used where headroom is not limited such as in outdoor shipyard applications. Available in 2 through 40 Ton capacities with outside spreads from 4 to 24 feet, the spreader beam utilizes an upper rigging spread between two lift points which adds extra stability. Supplied with a pair of heavy-duty swivel hooks, additional lift points are optional.

www.harringtonhoists.com

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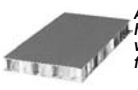

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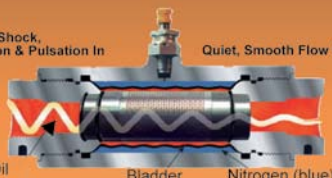

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Woods Hole, Martha's Vineyard and Nantucket Steamship Authority

NOTICE OF REQUEST FOR PROPOSALS FOR CONSULTING SERVICES TO ASSIST THE STEAMSHIP AUTHORITY IN TRANSITIONING TO A PROCESS-BASED APPROACH TO MANAGEMENT, INCLUDING THE DEVELOPMENT AND IMPLEMENTATION OF A NEW SAFETY MANAGEMENT SYSTEM (SMS) AND QUALITY MANAGEMENT SYSTEM (QMS)

CONTRACT NO. 03-2019

The Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (the "SSA") has issued a Request for Proposals ("RFP") from consulting firms to assist the SSA in transitioning to a process-based approach to management, including the development and implementation of a safety management system (SMS) across its fleet and facilities as well as a quality management system (QMS) across its entire organization, as recommended by HMS Consulting, Glosten and Rigor Analytics (collectively, "HMS") in the report they issued on their comprehensive review of the SSA's operations, dated December 13, 2018 (the "Report"). The SSA has not yet established a deadline for the submission of proposals, but will do so in a subsequent addendum to the RFP. At this time, the SSA anticipates that the deadline for submitting proposals will be in late April or early May 2019 so that the SSA will have sufficient time to respond to consulting firms' questions and suggestions regarding the RFP after they have had sufficient opportunity to review both the RFP and the Report.

In order to receive electronic versions of the RFP, the Report, and all subsequent addenda issued by the SSA to the RFP, please email the SSA's Procurement Officer, Peggy Nickerson, whose email address is pnickerson@steamshipauthority.com. Electronic versions of those documents may also be requested by calling Ms. Nickerson at (508) 548-5011, ext. 515, during the SSA's regular business hours.

The SSA is utilizing a RFP procurement process for this Contact. Under such a process, the selection of the most advantageous proposal will be based upon price and other evaluation factors specified in the RFP. The RFP fully details the procurement process and the requirements for each proposal, and persons interested in submitting proposals for the Contract must comply with the provisions hereof.

Unless all proposals are rejected, the SSA shall award the Contract to the eligible and responsible consulting firm who offers the most advantageous proposal to the SSA, based upon the RFP requirements and the evaluation criteria established for the Contract. In this regard, the Total Proposal Price is only part of the evaluation process, as more fully detailed in the RFP.

The SSA is soliciting competitive proposals pursuant to a determination that such a process best serves the interest of the SSA and the general public, and not because of any legal requirement to do so. The SSA reserves the right to accept or to reject any and all proposals, to modify or amend with the consent of the consulting firm any proposal prior to acceptance, and to waive any informality, all as the SSA in its sole judgment and discretion may deem to be in its best interest.

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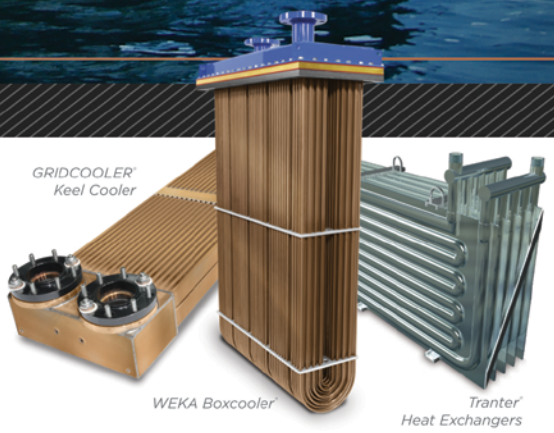

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