The Information Authority for the Workboat • Offshore • Inland • Coastal Marine Markets

Volume 31 • Number 11

Marine News

NOVEMBER 2020

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The Workboat Annual

Inland Waterways Report
Pushing through high waters & swirling market currents

The Great Lakes Group
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John Batten
One-on-one with Twin Disc's CEO

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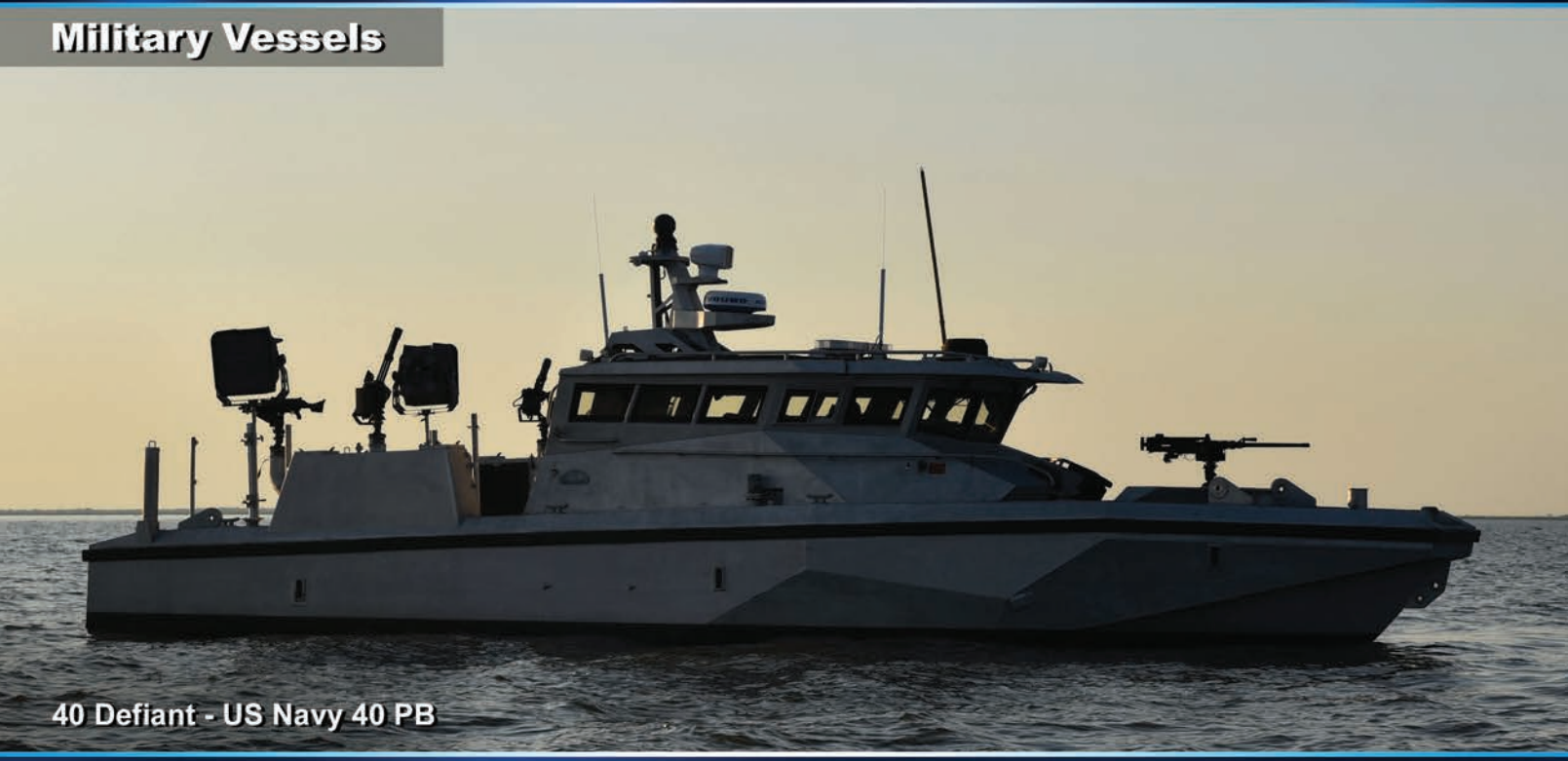

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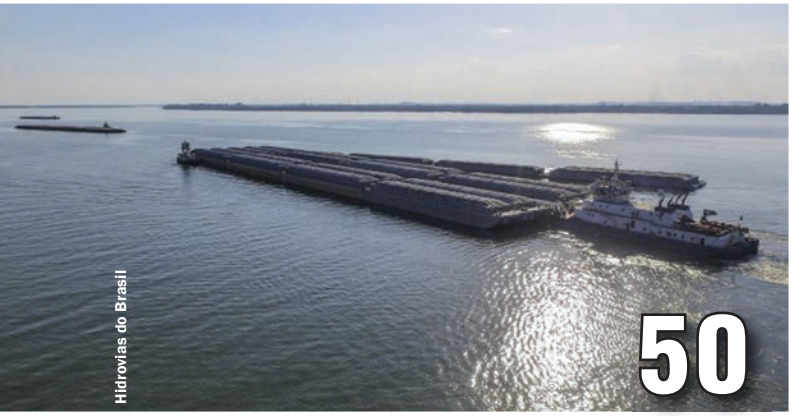

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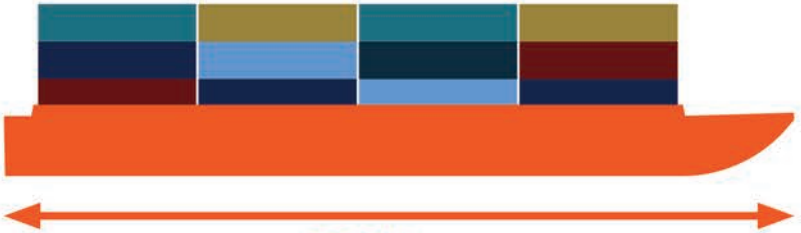

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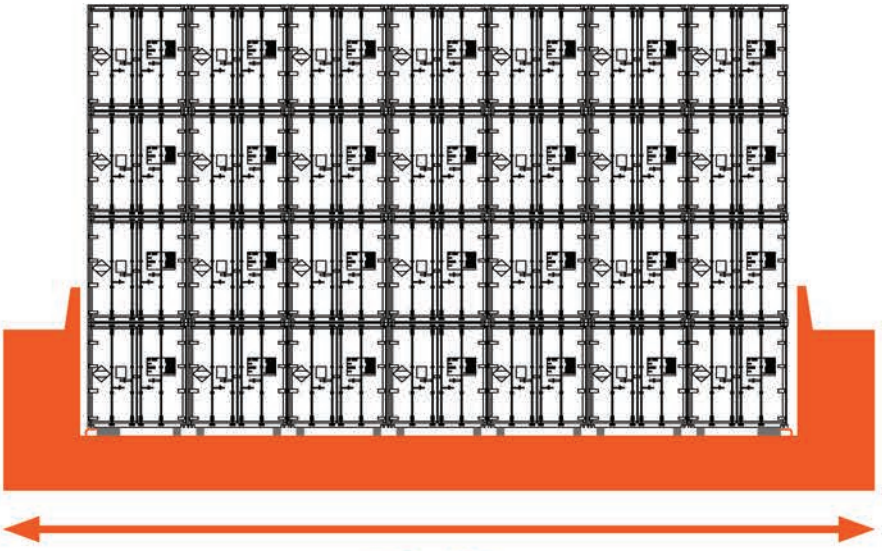

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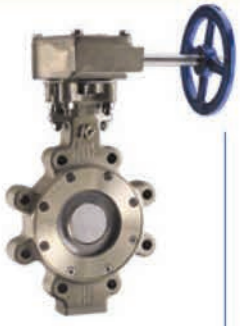

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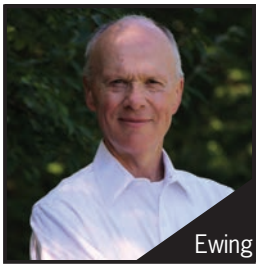
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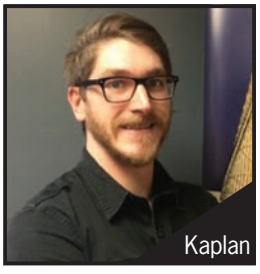
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EDITOR'S NOTE

Big, impactful changes are in motion across the workboat market. In recent weeks we've seen propellers start to spin for autonomous vessel projects, the U.S.' first operational newbuild all-electric passenger ferries and new plans for vessels to service America's budding offshore wind industry.

These groundbreaking projects and countless others underway or in development demonstrate that the U.S. workboat industry is filled with passionate people who are determined to innovate and explore new waters. One person pushing to innovate within the sector's technology landscape is Twin Disc's CEO, John Batten, who is among those driving the evolution toward vessel hybridization and electrification.

This transition, which is expected to herald a new fleet of more efficient and environmentally friendly working vessels, will be a true game-changer. "I can't tell you another time in my career when applications are more interesting and intellectually stimulating than right now," Batten said while discussing the rise of hybrid and electric propulsion technologies in this month's Insights interview. "I feel like it's been 25 years in the making for me to get to this point where the industry will start to change dramatically in the next few years. There's no doubt about it. And I don't think that's happened in the previous 60 years."

While major technological shakeups often require difficult industry adjustments, they also hold the potential to deliver new business opportunities, improved bottom lines and safety and efficiency gains—something for everyone.

And perhaps just as important these days, in the strange and eventful year that 2020 has been, dramatic change is certainly something to look forward to.

Eric Haun, Editor, haun@marinelink.com

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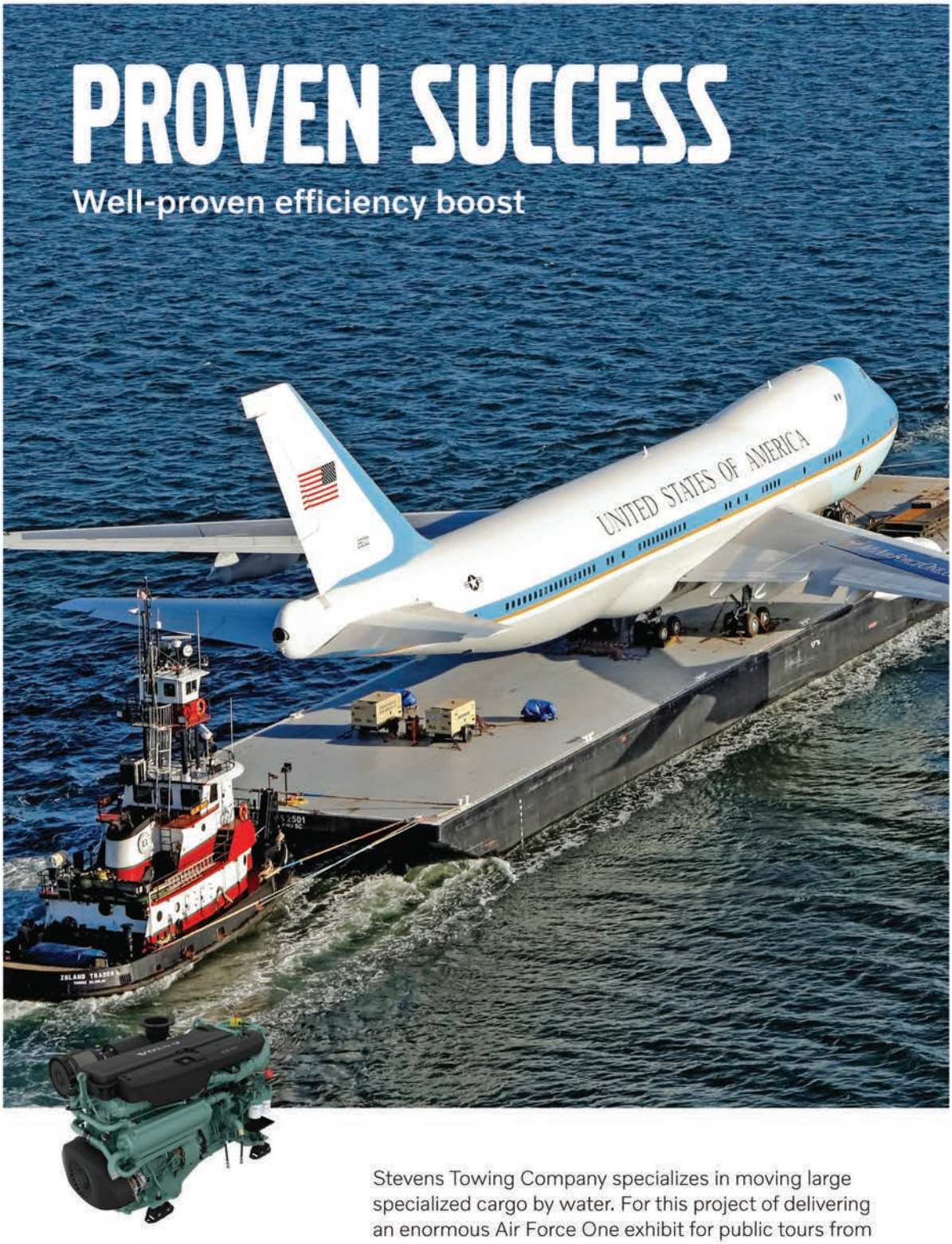

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Aids to Navigation Challenges

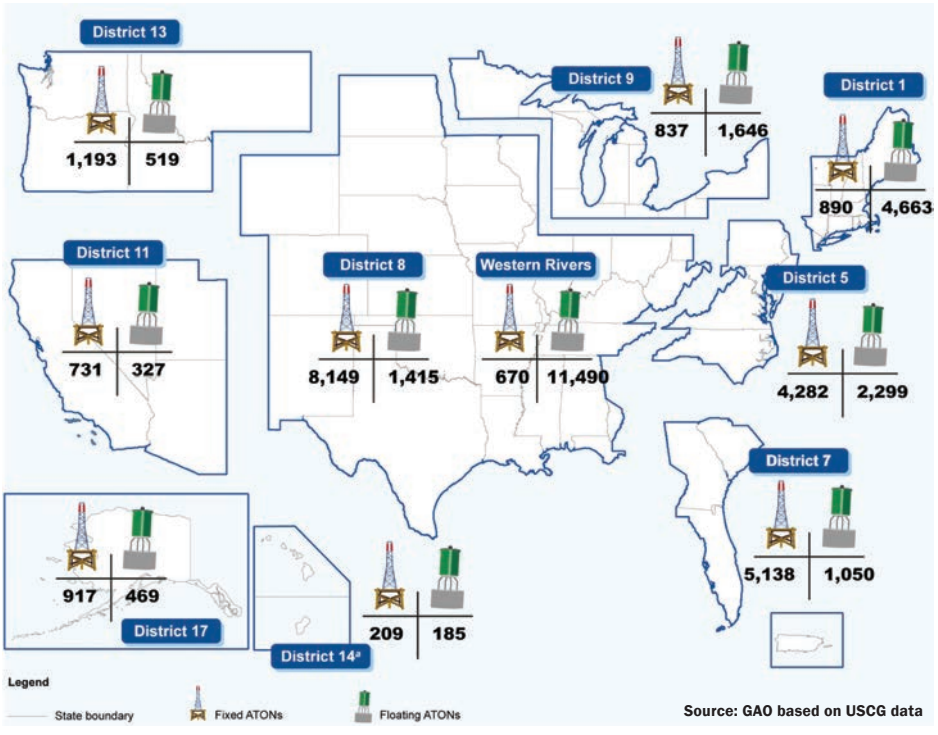
The U.S. Coast Guard's list of statutory missions is large and growing. Among these is the care and maintenance of tens of thousands of aids to navigation (ATON) dispersed across the conterminous United States, Alaska, Hawaii, Puerto Rico, Guam, American Samoa and even activities in Saipan, Singapore and Japan—certainly no easy task, as addressed in a U.S. Government Accountability Office Report earlier this year.

As of November 2019, the Coast Guard managed 45,664 federal fixed and floating ATON that are designed to assist those operating in the U.S. Marine Transportation System, which includes about 25,000 miles of waterways, 1,000 harbor channels, 300 ports and 3,700 terminals. According to the Coast Guard, as of July 2018, these ATON had a collective replacement value of about $1.6 billion. The Coast Guard has faced an array of challenges in managing its ATON, such as deteriorating buoys and questions have been raised regarding the extent to which the Coast Guard is addressing these challenges.

In recent years, the condition of the U.S. Coast Guard's ATON have declined slightly while the overall costs for repairing or replacing them increased. According to Coast Guard data, its key metric for ATON condition—the Aid Availability Rate, or percentage of time that ATON are functioning correctly—declined from 98% to 97.1% during fiscal years 2014 through 2018, dipping slightly below the 97.5% target rate in fiscal years 2017 and 2018. During this time period, the overall costs to repair and replace ATON increased from about $12 million in fiscal year 2014 to about $20 million in fiscal year 2018. According to Coast Guard data, the majority of the costs for fixed ATON were spent on repairs whereas the majority of the costs for floating ATON were spent on replacements.

The Coast Guard has developed plans and initiatives to address its ATON challenges, but it has limited assurance that the plans and initiatives will be effectively implemented. According to Coast Guard officials, the challenges include decreased availability of vessels to service ATON, reduced ability to provide routine ATON servicing in a timely manner due to severe weather, among other factors, and limited capacity at ATON major repair and refurbishment facilities. The Coast Guard has developed plans to guide the ATON program, and these plans have led to the development and implementation of various initiatives at the headquarters and field unit levels to address these challenges. However, GAO found that the initiatives do not contain certain elements that help ensure effective implementation—such as desired outcomes and schedule milestones and completion dates—as recommended by leading program management practices. According to Coast Guard officials, they are still developing guidance and procedures for ATON-related initiatives that are to be implemented by the districts. By updating these initiatives to include certain elements, such as the specific outcomes desired and timeframes for completing them, the Coast Guard would have better assurance that its initiatives to address ATON management challenges will be effectively implemented, GAO found.

The Department of Homeland Security concurred with the recommendation and stated that the Coast Guard plans to review and update ATON-related initiatives to include specific outcomes with associated implementation milestones by December 31, 2020.



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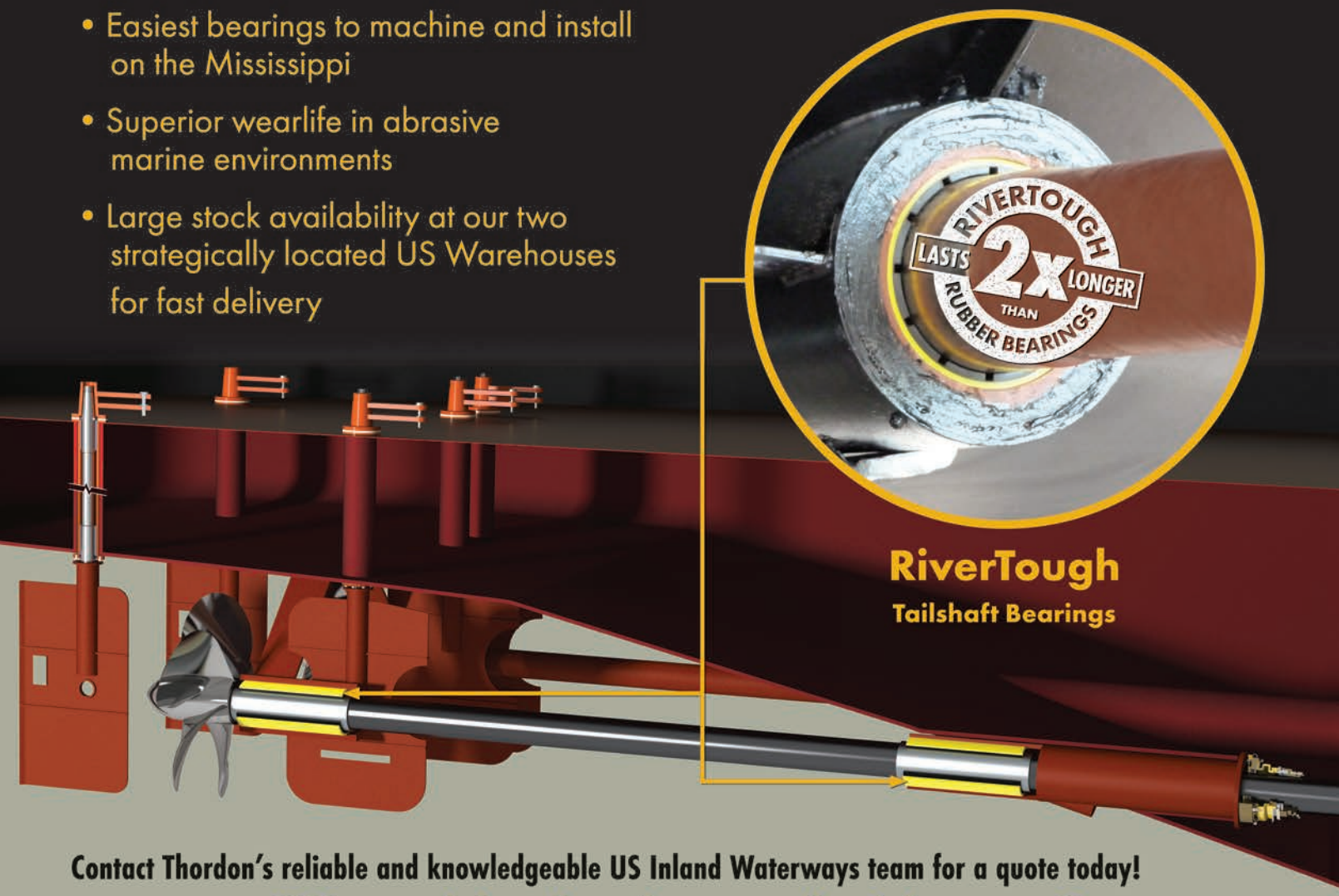

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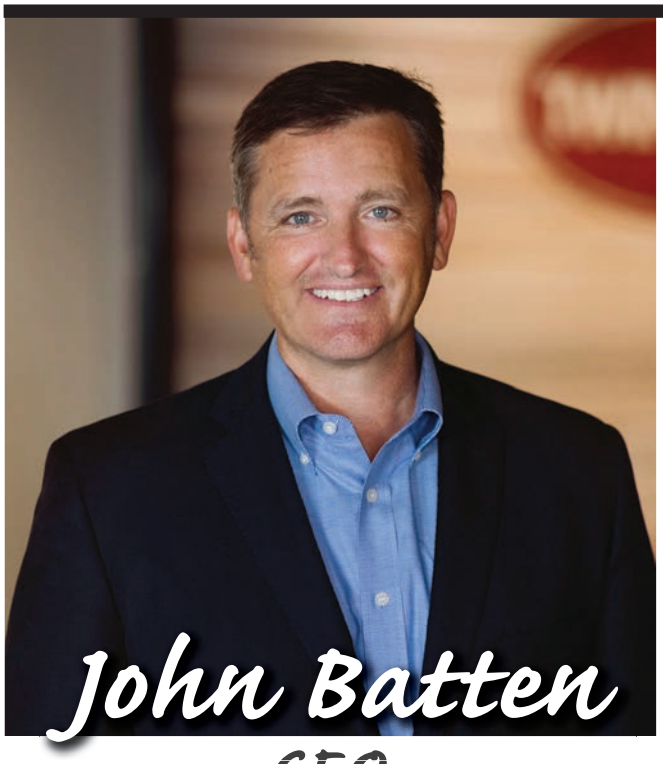
Twin Disc

John Batten
CEO, Twin Disc

How have major events such as the U.S./China trade war, oil price fall and COVID-19 impacted Twin Disc's commercial marine business to date, and what adjustments have you made in response?

These are the three things that I've been highlighting in employee communications and with investors over the last few months. For us, COVID was just the third punch after the other two. China is typically our second largest market after the U.S., and we lost lots of orders to our competitors as the trade war started to affect us. It's rebounding a little, but it definitely impacted our sales into China. The Russia/OPEC oil price war didn't help either. Offshore has been struggling for a few years, and the oil war killed any momentum and certainly put the hurt on our onshore business, but that stabilized too.

We had been in a cost containment mode prior to COVID, so we were already doing some things to reduce our costs and restructure. We were ready and reacted quickly, but some of our customers and suppliers didn't, and that—besides getting everyone who could work from home to do so, and trying to figure out how to work safely in the shop—was by far the top thing that kept us up at night. What supplier was going to be able to deliver? Who was going to be able to deliver you product? And who was going to be open to accept delivery and pay for our products? It was four to six weeks of sleepless nights.

My professional career spans 25 years, and I witnessed the early '80s at Twin Disc and saw the oil and gas crisis then. This felt like that back in January/February, but once COVID hit, I've never seen so many things come together. This is truly a unique cycle in my lifetime, and probably in a few generations.

What were some of COVID-19's effects in the commercial marine market?

Some of the markets that had been the most resilient were the inland market in the U.S. and Europe, as well as some of the coastal markets in Asia. Except for oil and gas, the economy was doing fairly well. We saw a lot of rail traffic and a lot of shipping on the rivers, and once COVID and the lockdown happened, that idled a lot of vessels and other assets while people tried to determine what was going to happen. That uncertainty postponed some new construction as well as retrofits and repairs. And that's the biggest thing that we've seen that's hit that commercial inland workboat market is a step drop in aftermarket parts and rebuild, and some delaying of projects. Now, thankfully, we've seen that come back. But that was the dead cat bounce of COVID-19 back in the March, April, May timeframe. Things responded quickly and everything got back to normal, but then people are wondering, "Do I really need to invest in a repair or rebuild, or should I just wait and see?" Through the summer we saw a lot of waiting to see what was going to happen, and thankfully it's picked up a little bit here in the last few weeks.

How do you see the health of the industry today? Where are you looking for opportunities?

The strongest part of the commercial marine is still tied to the economy, just moving goods up and down through our river system, whether it's here, in Europe or in Asia. The market has been resilient, and that's one of the reasons we were attracted to Veth, because we're seeing a growing number of these applications going to azimuth thrusters and potentially some hybrid or electric applications. We are looking for any and all applications that we can in that space, but particularly in the technology shift to the azimuth thrusters. More and more, we're seeing that as the future in the horsepower range. We're not turning away any application, certainly, but we're focusing on the technology shift and making sure that we're ready.

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Looking at your present commercial marine orderbook, which products have been in highest demand?

It would be our deep case transmissions—in that 800 to 1,500 horsepower range, a couple toward 2,000—and the controls here in North America. And then in Europe, it's the Veth thrusters. It seems like the European market shut down quicker but also rebounded quicker, so the demand at Veth came back quicker than it did here in North America. And so their thrusters for the European inland market have been pretty strong. Their core Northern European market had a pause but has come back relatively well.

In addition, I'm starting to see the shift here in the U.S. to be more open to hybrid or electric, like in the case of the new Niagara Falls vessels for Maid of the Mist. People are looking to do things, and I think we would have seen that shift sooner, but it's kind of hard to do a lot of these projects when everyone's working remotely. Hopefully as we get back to a more normal work environment these things will start to happen more quickly.

You mentioned the Veth acquisition. What were the drivers that led Twin Disc toward the acquisition, and how has Veth fit in with your portfolio so far?

We saw the azimuth thruster coming down the horsepower curve into what we would consider more traditional deep case marine transmissions, and we knew that we had to have a product line there. Typically, they were above our horsepower range that we currently sell, but we saw it coming down to lower horsepower.

And then the question was whether we could find a suitable partner that was for sale versus developing it ourselves. We make gears, we do machine castings, we do propellers. But we found Veth, which was the perfect size for us, and they fit very nicely: same horsepower range as us, and we shared a lot of customers. But one thing that really drove us was their control system and the amount of work that they had already done in the hybrid space. We really were able to leverage the controls work that they had already done into our standard marine transmissions. So, once we added the master clutch — which basically makes our marine transmission hybrid ready—we didn't have to do nearly the amount of controls development that we would have without Veth.

So, we gained another engineering team and a very strong sales team in Europe. Their market had historically been 95% Europe; they didn't really have extensive representation outside of Europe. And we're very strong in North America, South America and Asia, so it fit really well, and we could not be happier with how it's gone with the acquisition so far.

And we've had quite a few notable projects to date: towing companies in the Midwest, applications in the Gulf Coast in and the Northeast. The one that's getting the most press right now is the two electric tour boats for Maid of the Mist at Niagara Falls. ABB did the motors and the inverters, and we did the thrusters. I think you'll see plenty more come about.

It feels like it's been a long time coming, but hybridization seems to be picking up momentum here in the U.S. How do you see the future in this area? And what's Twin Disc's role and goals in this transition?

This is the hard part and this is why I think you see it taking off slowly. Marine, off-highway, construction and oil and gas are not like automotive where Tesla or Toyota, or Ford or GM can design a hybrid system for a platform of vehicles. We just went through an internal presentation on one industrial application, and it's designing a new system. Best case, they'll build 10 of them a year. And that's what we're

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On hybridization: *"I feel like it's been 25 years in the making for me to get to this point where the industry will start to change dramatically in the next few years. There's no doubt about it. And I don't think that's happened in the previous 60 years."*

seeing in marine. You're starting at square one for each project. You get better at it, but there's no one company that can supply everything, like for Maid of the Mist, like for a tugs project we did for Great Lakes Towing. It is a consortium of partners making it happen. And that's part of the reason why you're seeing it's not taking off as quickly as in some other markets is because there are more independent players who traditionally haven't come together, who are doing so now to make things happen. And I see the whole process is getting better and it's becoming more refined.

Lots of boat builders, fleet operators, they're designing one project to see how it goes and what the acceptance is in the market before they take it to the next level. Whether it's Great Lakes Towing, Ingram Barge or whomever, the big customers are looking at how to do it and then see if it's something that the market will accept before they do a general adoption. Will they be able to get the same day rate, etc.?

But I'm optimistic. I can't tell you another time in my career when applications are more interesting and intellectually stimulating than right now trying to convert a diesel only fleet into options. It's a paradigm shift to get to do things differently. You get to design new things, solve more problems. I feel like it's been 25 years in the making for me to get to this point where the industry will start to change dramatically in the next few years. There's no doubt about it. And I don't think that's happened in the previous 60 years. Maybe you could argue electronic controls and dynamic positioning would be the closest thing to the revolution that you're going to see in the marine market.

Why have electric and hybrid vessels caught on more quickly in Europe than in the U.S.?

A lot of it has been political driving for lower emissions in and around port. It's also economic. Fuel is more expensive in Europe. Electricity is also a lot more expensive in Europe, but if they can do it with renewables and have the right incentives, I think that is also why it's taken off more. And a lot of the vessels in Europe are not point to point; they come back to the same place, so they can weather they can recharge. They're generally smaller vessels with less horsepower, so they can experiment a little bit more at a lower cost point.

But every month there are more projects than there were the month before. You can definitely see the momentum building elsewhere in the market. And I see a lot more activity for us with sightseeing and tourist type vessels pushing the envelope on electric and hybrid and trying to have the lowest possible carbon footprint. So, I think we'll see a lot of firsts. Like Maid of the Mist, you're going to see that in areas that you may not have seen it before. They're going to be driving the technology paradigm.

Jumping back to mergers and acquisitions, when you look at the market do you see areas for further consolidation?

I think we will see some shaking out in these partnerships that are developing hybrid systems. Perhaps engineering companies being consolidated into larger manufacturing companies, probably some consolidations in the customer area, and you could see some in the manufacturing space.

We are always looking for the right fit, but it's changed a little bit. For us, what we'd be looking for in the marine space is what's going to make us a better solution provider to someone who wants to do hybrid vessels and electric vessels. Not necessarily what can we provide more on mechanical product, but what can we provide more in technology and services. Anything to be a better partner in engineering and project management and make sure that you get all the components that you need. Someone who just makes mechanical components probably wouldn't be on the list anymore. The market is changing, and people are looking for someone to help them provide more of the propulsion package, controls and services that they need, not just mechanical parts.

Do you see an appetite in the market for new products, and is Twin Disc planning to roll out anything new in the next year or so?

I would say product line extensions, mechanical products that we currently make, whether it's marine transmissions thrusters, propeller size or control systems for our surface drives.

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Our R&D is focused on being the best provider and reliable partner that we can in this push to hybridization and electrification. A lot of our time is being spent on developing those interfaces with electric motor companies, with other control companies, with GPS companies. A lot more product development in the controls area and interface area to make sure that we can play in the plug and play environment as it moves forward.

Please give an in-depth look at a recent project you find especially noteworthy or gratifying.

I would go back to the two that I mentioned: The Great Lakes Towing tugs and Maid of the Mist tour boats. Both of those are focal points for their respective markets. I think there's no reason now that when people look at Maid of the Mist, that there is a point to point tourists, or ferry type application that it can't be electric or it can't be hybrid with a very small internal combustion engine. I think that is the future of vessels like that, especially in heavily populated, dense urban areas. There's no reason we can't do that.

The Great Lakes project was truly a team effort between MTU, Logan, Twin Disc and Great Lakes. It shows how one company didn't have all the answers, but when we sat down around a table how we brought a decades old philosophy of diesel engines—marine transmission conventional propeller shaft—how we kept the conventional propeller shaft, but made it truly a very good hybrid application that rivals a tug z-pellers. It is a fantastic tug, and that opens up opportunities for people who have a fleet of conventional tugs. The option there is to be able to convert to hybrid without having to spend all the money to go to thrusters. I'm really proud of both of those.

I often hear in this industry that many operators don't want to be the first mover on any new technology. So, would you say those two applications open doors for others who might want to try the technology but don't want to be first?

Absolutely. It's one thing I've noticed about the marine market that is different from others. We've seen quite a bit that people will watch and see what's been done, and if it works then it's a race to be second. There have been a lot of entrepreneurs and inventors in the marine space who have great ideas on paper, but once they put it on water and it doesn't work people are glad they didn't chase them right away.

But I think both those applications highlight that a new way of doing things is possible. And what I really like about the Great Lakes application is that it shows we can give you the perfect hybrid performance and you don't have to completely reinvent your vessel. We can do it with existing components.

In general, what would you say is your top goal as Twin Disc CEO, and what are you doing to make sure you achieve it?

Over the last 20 years, the momentum and the pull dragged us more and more into oil and gas, and we became much more dependent on that market than we had in the past. And so, our goal is not to leave oil and gas, but to diversify and grow in other areas so that the oil and gas cycles, whether it's offshore or onshore, don't affect us as much as they are. We have to have product development outside of oil and gas.

Twin Disc

The Veth Hybrid Drive combines proven quality and technology with the latest hybrid insights. Options include two drives, diesel-direct or diesel-electric, or a combination of both. This enables the use of a particular drive within the portion of the power curve where the efficiency is most favorable.

And Veth really jump-started us into diversifying away from oil and gas because they had very little involvement in it. We have product development in industrial and certainly developing the hybrid and electrification product lines for projects like Maid of the Mist and Great Lakes Towing.

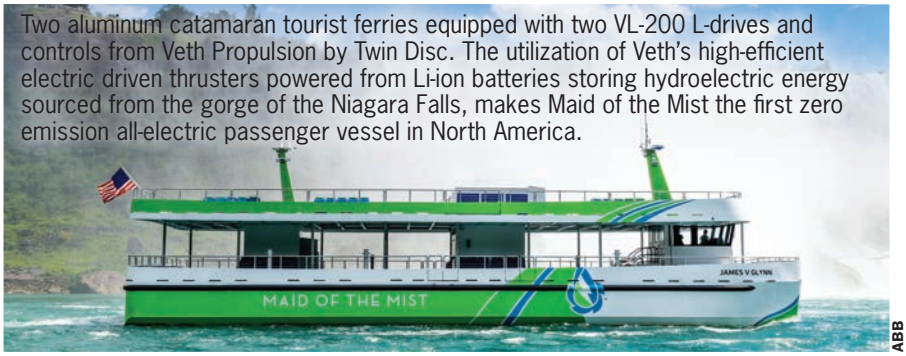
The other thing we have to do is lower our cost structure and look at our assets, whether it's machine tools or facilities, and determine whether they're really adding value and if we can do without them. We're opening a facility in Lufkin, Texas where our industrial business will be going after leaving Racine, Wis., and we're looking at selling our corporate headquarters here. With the work from home shift and some of the restructuring we've done, we have two other facilities in the immediate area, meaning we can consolidate.

We want to be a better performing company in both the top and the bottom of the cycle. And this cycle—the three-headed monster we touched on earlier—has been unlike anything we've seen. I would say it's a combination of the early '80s and the Great Depression. We're rationalizing a lot of what we do and some of the paradigms that we've held and challenging them to see if we can operate differently going forward.

And what would you count as your greatest challenge, and what are you doing to address it?

The greatest challenge is to stay up on the technology. It's our greatest opportunity and our greatest challenge to make sure we are one of the preferred partners in all of our markets, not just marine. As things go to electrification and hybridization, we aim to make sure that we are an integral part of that and a very reliable provider. These things are changing very quickly. We've been talking about hybrid for a long time, and it didn't move much, but now we're starting to see it move.

Also, we've had a lot of retirements and some restructuring in the last six months during the pandemic, and we don't know how much longer the work from home model will continue. It's easier to maintain a culture, and a team, working in the same office when you've had a chance to meet and get to know colleagues in person. Can you replace the people that have retired, build a team and maintain your culture when everything is remote? That is a challenge. It's meeting the things that we need to do strategically, but maybe not being able to do it in the way we had before where we can all sit around the table and brainstorm. Working remotely and trying to team-build are things that we weren't talking about last year when we presented our strategic plan, but they are at the top of the list on our plan to the board for December.



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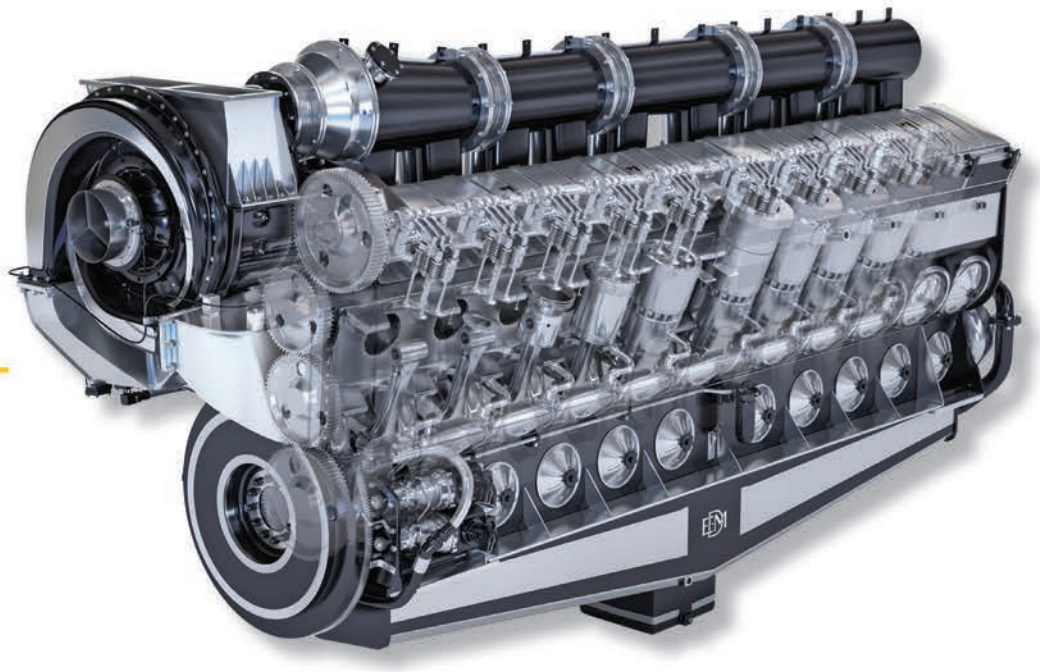

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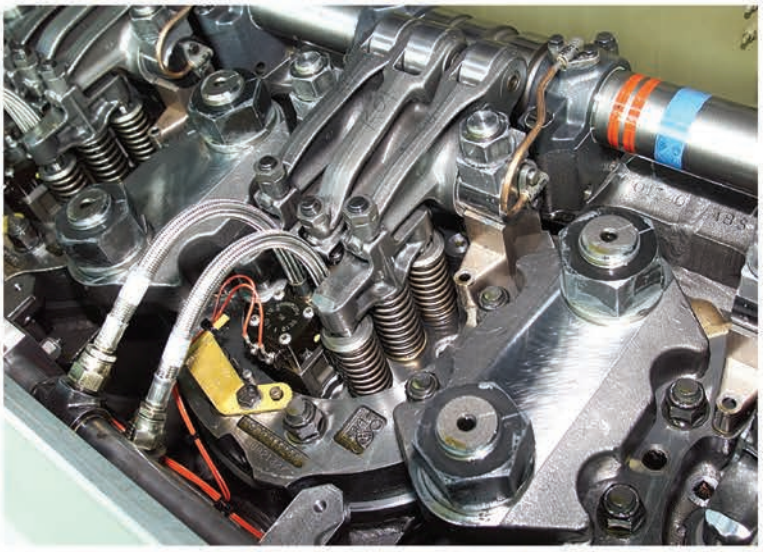

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Washington Watch

By Jeff Vogel

Working Out the Election's Impact on the U.S. Workboat Industry

By the time this article is published, voting will have concluded in the 2020 United States presidential election. Based on the possibility of legal challenges to the election, however, it may be some time before we know who will be occupying 1600 Pennsylvania Avenue on January 20, 2021. Additional uncertainty may linger with regard to control of the Senate. However, beyond the general spectacle of American politics, an important question remains: What does this election mean for the U.S. workboat industry?

Jones Act support will continue

Regardless of the outcome of the presidential election, it is reasonable to assume that Executive Branch support for U.S. cabotage laws will continue. President Trump had a somewhat turbulent start with the Jones Act. For example, it was widely reported in 2019 that the Trump Administration was considering a blanket 10-year waiver for the transportation of liquefied natural gas to Puerto Rico and New England. Ultimately, the Administration declined to issue such a waiver, and has only issued limited Jones Act waivers under the existing authority of 46 U.S.C. § 501, in response to Hurricanes Harvey, Irma and Maria in 2017. Moreover, in recent months, the Trump Administration has increased its public support for the Jones Act. For example, on October 2, 2020, the White Office of Trade and Manufacturing Policy released its Buy American, Hire American report, in which the Jones Act featured prominently. The report noted that the Jones Act "helps ensure America has a robust domestic shipbuilding capability, which is a critical element of our defense industrial base" and "helps ensure our nation has a merchant marine work force sufficient to serve both our commercial and military needs." Based on these recent reports, it appears that President Trump would support the Jones Act during a second term.

Correspondingly, Vice President Biden has been explicit in his support of the Jones Act, which has resulted in of-

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ficial endorsements from the International Longshore and Warehouse Union (ILWU), the Marine Engineers Beneficial Association (MEBA), the International Organization of Masters, Mates and Pilots (MM&P), and the Seafarers International Union (SIU). In accepting the endorsement of MEBA and MM&P, Vice President Biden wrote, "Just as unions are essential to the middle class, the U.S.-flag Merchant Marine fleet and the men and women who operate U.S.-flag ships are crucial to America's national security, our international trade relationships, and economic development. For this reason, I have been a consistent and strong advocate for the Jones Act and its mandate that only U.S.-flag vessels carry cargo in the coastwise trade. As President, I will continue my strong support for the Jones Act." Accordingly, it would appear that general Jones Act interests are in good hands, regardless of the outcome of the presidential election.

Post-election legislative opportunities

While U.S. workboat interests may have an ally in the White House, there is less certainty about the election's impact on pending maritime legislation in Congress. Indeed, there is much work to be done during the lame duck session (and beyond) with the current Continuing Resolution set to expire on December 11, 2020. Congress' failure to reach agreement on a subsequent funding bill could result in another federal government shutdown.

Beyond these funding issues, however, important legislation that impacts the U.S. workboat industry remains pending in Congress. As discussed in my September 2020 Washington Watch article, the House-passed version of the National Defense Authorization Act for Fiscal Year 2021 (NDAA) included the Maritime Transportation System Emergency Relief Act (MTSERA), which was introduced by Chairman of the House Committee on Transportation and Infrastructure Peter DeFazio (D-Ore.) and Chairman of the House Subcommittee on Coast Guard and Maritime Transportation Sean Patrick Maloney (D-N.Y.). MTSERA, if enacted, would seek to offset the economic costs of the COVID-19 pandemic incurred by the U.S. maritime industry, through the creation of a new Maritime Administration (MARAD) grant program. The grant funding could be used for the costs of capital projects to protect, repair, reconstruct, or replace equipment and facilities of the U.S. maritime transportation system that MARAD determines is in danger of suffering serious damage, or has suffered serious damage, as a result of an emergency. In addition, the funding could be used to cover one year (with the opportunity for an additional year) of operating costs of U.S. maritime companies affected by an emergency (including the COVID-19 pandemic), including costs related to emergency response, cleaning, sanitization, janitorial services, staffing, workforce retention, paid leave, protective health equipment, and debt service payments.

The Senate version of the NDAA, however, did not contain a similar provision. Accordingly, the House and Senate will discuss the inclusion of MTSERA during a lame duck session NDAA conference. Even if MTSERA is ultimately included in the final version of the NDAA, the work will have only begun. The new program would also require Congress to provide appropriations before the U.S. workboat industry could experience any sort of positive impact. If MTSERA becomes law, support from new Congressional members will be critical to obtain necessary programmatic funding. In addition, regardless of the election's outcome, MARAD may have new leadership in 2021, who could shape the manner in which MTSERA is administered.

In addition, there are opportunities for the Jones Act's reach (and therefore the U.S. workboat industry) to grow with the new Congress. On September 24, 2020, the House passed the Clean Economy Jobs and Innovation Act, which focused in job creation in the renewable energy sector. A last-minute amendment to the bill from Rep. John Garamendi (D-Calif.) would amend the Outer Continental Shelf Lands Act to extend federal laws (including the Jones Act) to "installations and other devices permanently or temporarily attached to the seabed, which may be erected thereon for the purpose of exploring for, developing, or producing resources therefrom or producing or supporting the production of energy from sources other than oil and gas." As explained in Congressman Garamendi's press release, "The Garamendi amendment will enforce Jones Act requirements for all offshore renewable energy production and strengthen our domestic maritime industry." The practical result would be to end the debate – once and for all – as to whether the Jones Act applies to offshore wind construction and operations.

It is unlikely that the Clean Economy Jobs and Innovation Act (including the Garamendi amendment) will be taken up during the lame duck Congressional session. However, Congressman Garamendi has made it clear that he intends to continue the fight into the next Congressional session.

Accordingly, regardless of the outcome, the election creates new opportunities for the U.S. workboat industry to build political support for both long-standing and brand new maritime legislation.

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Regulatory Update

By Jennifer Carpenter

Implementing VIDA: The Next Step Forward

The tugboat, towboat and barge industry has a profound impact on America's economy, security and quality of life, safely moving over 760 million tons of vital commodities every year and annually generating over $33 billion in U.S. GDP. Those numbers are a tribute to the hardworking men and women who ply our nation's waterways, as well as a testament to the national scope of a critical industry whose operations, and contributions, do not stop at state lines.

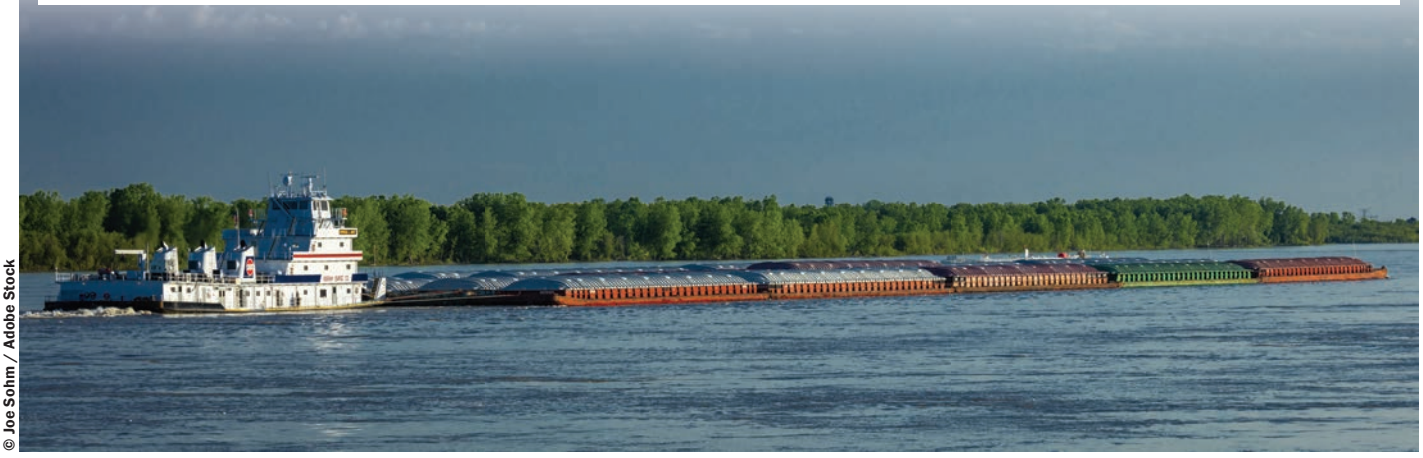
The Department of Homeland Security recognized the centrality of maritime commerce to our national economy in the early days of the COVID-19 pandemic, when the Cybersecurity and Infrastructure Security Agency (CISA) identified maritime workers as part of the essential critical infrastructure workforce, a federal recognition that maritime employees needed to continue working and needed to be able to travel across jurisdictions to report to their jobs.

Just as it would have been devastating to the industry – and to the nation – if states and municipalities had ignored federal guidance and set up a patchwork of regulations hindering mariners' ability to report to work and keep cargo moving during a pandemic, a patchwork of inconsistent state or local regulations established for other reasons is also detrimental to the marine transportation system and the national economy.

Congress recognized this reality when it passed the Vessel Incidental Discharge Act (VIDA) in 2018. Prior to VIDA, vessel discharges were regulated by two federal agencies and 25 states, requiring vessels traversing the waters of multiple states – a frequent, routine occurrence – to contend with a maze of conflicting, overlapping and confusing vessel discharge regulations and subjecting vessel operators to civil and criminal penalties for noncompliance. This pre-VIDA framework not only had negative consequences for the efficient movement of cargo, but also for marine environmental protection, discouraging investment in the most sophisticated environmental technologies given the absence of assurance that they would satisfy regulatory requirements from one state to the next.

VIDA fixes this broken system by assigning joint responsibility for vessel discharge regulation to the Environmental Protection Agency and U.S. Coast Guard, in consultation with the states. Under VIDA, the Environmental Protection Agency (EPA) is responsible for setting vessel discharge performance standards while the Coast Guard is responsible for regulations governing the design, installation and use of equipment required to meet the standards, as well as inspection, monitoring, reporting and recordkeeping requirements. This is a commonsense solution that streamlines a highly convoluted process while ensuring high standards of environmental protection, which explains why VIDA was enacted into law with bipartisan support even during an election year.

However, congressional passage of VIDA did not by itself fix the problems the legislation aims to address, and



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EPA and Coast Guard are now in the midst of a two-step rulemaking process to implement Congress's directive. Until then, the status quo ante remains in place, with vessel owners not yet benefitting from the relief VIDA provides. So, what needs to be done now?

Under VIDA, EPA has until December 2020 to promulgate regulations setting performance standards for vessel discharges. In October, the EPA Administrator signed off on a proposed rule, which will be published in the Federal Register by month's end. Industry, states, and environmental advocacy organizations are all working hard to review and provide comments on the proposal, after which EPA will finalize the rulemaking. When the EPA rule is complete, the Coast Guard will take the baton, with a statutory deadline of December 2022 to complete its piece of the regulatory process.

It will be critical that the Coast Guard hits the ground running and maintains a brisk pace to keep this important rulemaking on track.

The legislative intent behind VIDA was to fix a dysfunctional approach to vessel discharge regulation by creating a uniform system of national standards – one that keeps vital maritime commerce moving and better protects the marine environment by enabling vessel operators to invest in new technologies with confidence. Long before the COVID-19 pandemic emerged, policymakers on both sides of the aisle recognized the importance of replacing an ill-fitting patchwork with a more effective national approach to vessel discharge regulation.

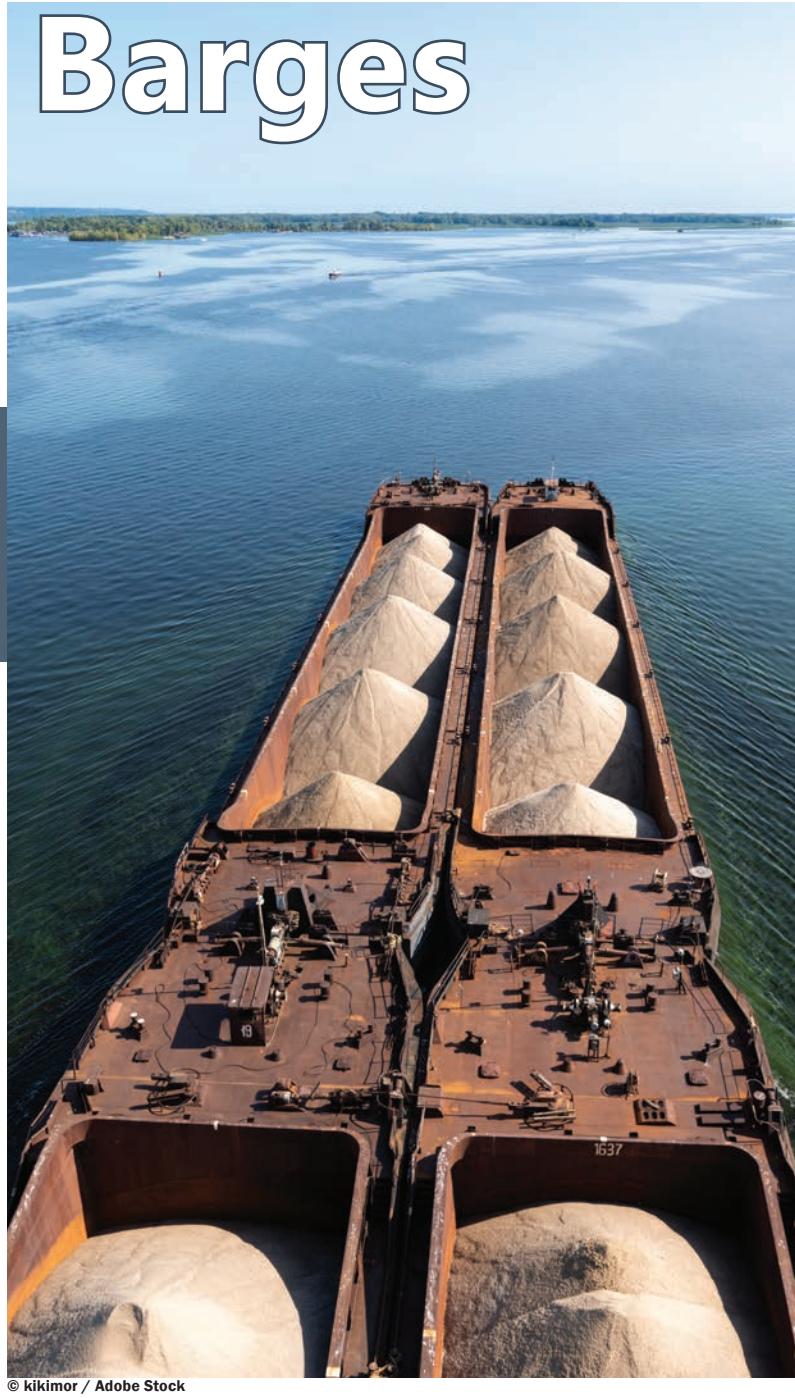
The need to bring to fruition the improved regulatory system directed by VIDA has taken on even greater urgency as our nation seeks to recover from the economic disruption caused by the COVID-19 pandemic. Vessel owners, shippers, and the economy itself can ill afford the additional costs and inefficiencies associated with a fragmented and duplicative regulatory regime.

EPA has gotten off to a strong start toward implementation of VIDA's framework for sensible, cohesive vessel discharge regulations; it needs to move quickly to digest public comments, refine its proposal, and publish a final rule this year. The next leg of the race will be run by the Coast Guard, where leadership and focus will be imperative to getting this long-awaited solution across the finish line.

Insurance

By Randy O'Neill

River Dance
Grounding Triggers Breakaway Barges



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It was a beautiful mid-summer afternoon in the nation's heartland. The skies were clear, the sun was shining and the variable southwest breeze barely caused a ripple on the muddy water of the winding river. Optimistic fishermen lined the riverbanks and a few recreational boaters were cruising close to the floating docks lining both shores.

This tranquil scene on this busy waterway was about to change…and quickly.

A parting of the ways

About a half mile upriver, a 95-foot tug was proceeding southbound on a slow bell with two barges made up end-to-end along her starboard side. The tow was proceeding at a speed of 3-4 knots with the tide beginning to flood and a light southwesterly wind. Suddenly, the wind unexpectedly turned gusty and, combined with the flooding tide, pushed the tow to port and out of the navigable channel where the tug grounded in the soft, muddy river bottom.

That's when all hell…and the two barges…broke loose.

Carried by their forward momentum, the two light sand skows being hip-towed end-to-end made up with soft lines with rakes facing out started their demolition derby-like rampage down river. First victims of the lead barge were a cabin cruiser and small sailboat tied up to a floating dock on the river's western bank. The barge sideswiped both boats, squeezing them with a crunching sound against the floating dock. The impact slowed the barge tandem, causing the trailing barge to pivot, swing out past the lead

barge and break away from its tow mate. Being pushed by the downriver current, the barge, which was now perpendicular to the riverbank, drifted to the other side of the channel and continued its trek downriver. The former lead barge, slowed by its allision with the docked boats, traveled another 50 yards before grounding itself in the shallow water on the river's western bank.

Span strike

Meanwhile, the bucolic scene of only minutes before downriver changed very rapidly as fishermen on both river banks watched in disbelief as the still free-floating second barge took dead aim for a railroad bridge spanning the river. Less than a minute later, the barge struck the eastern support columns of the span where it became pinned underneath the structure and held there by the current. Not sure what, if any, damage the barge/bridge allision had caused, railroad authorities immediately closed the bridge to rail traffic.

While this chaotic scene was playing out less than a mile downriver, upriver the tugboat's master was working to free his vessel from the mud while instructing a deckhand to contact the Coast Guard on his cell phone to alert it of his situation.

Soon after the captain freed his vessel from the bottom's grip, USCG investigators arrived on the scene having already been notified by witnesses along both sides of the river. Eventually, under Coast Guard supervision, the barge wedged under the bridge downriver was freed on the next ebb tide and eventually reunited with its prodigal sister barge which by then had been pulled out of the mud. Both were then moved to their originally intended destination a couple of miles downriver.

Back on the tug, the captain contacted his company to report the incident and then promptly reported the claim to his longtime license insurance company. Within minutes, a local maritime attorney had been assigned by his insurer and was speaking to the visibly shaken tug master on his cell phone preparing him for his initial interview with USCG investigators. All involved mariners involved in the incident were sent for drug and alcohol testing and, after a brief 'informal' interview while still onboard the tug, the master was instructed to complete and submit a 2692 Marine Casualty Report and be prepared to report for a formal interview regarding the incident. All of this communication was shared with his attorney who instructed his client to contact him as soon as he was given an interview date and time so he could accompany him to the critical Coast Guard meeting.

While, the railroad bridge was promptly inspected and determined to be structurally sound and reopened to rail traffic about six hours after the incident, the cabin cruiser, sailboat and floating dock did not fare as well, introducing the strong likelihood of civil suits being filed against the tug captain. That likelihood became a reality less than two weeks later.

A dual threat

Slapped with negligence charges from the Coast Guard shortly after his formal interview and then civil suits shortly thereafter from the boat and dock owners, after weighing his options with his attorney, the captain decided to reach a settlement agreement with the Coast Guard to avoid Administrative Court proceedings. The agreement mutually agreed to called for a 90-day license suspension of which 30 days had to be served immediately, followed by a 60-day probationary period. Importantly, the master could continue to work on his license after completing his 30-day suspension, but would have to serve the balance of his 90-day suspension if he had another USCG chargeable incident while still on probation.

The civil suits were also handled, and eventually settled, by the same insurer-assigned maritime attorney who negotiated the reduced sanction with the Coast Guard. And, because the master had chosen to insure his monthly income as part of his license insurance package, his family was protected from a financial crisis while he was serving his unpaid suspension.

So, what began as a lazy sun-drenched day on the river quickly deteriorated into a harrowing, dangerous and potentially career-threatening afternoon for the veteran tug captain. Thankfully, the license, income protection and civil defense package that the master had purchased years earlier and renewed annually but never had to use, enabled him to continue his professional career. Three months later, he successfully met the terms of his probation settlement agreement.

It was certainly a gut-wrenching experience, but one with an outcome which allowed the licensed mariner to continue his career.

Historic Dredging Unlocks the Might of the Mississippi

Humanity will forever remember 2020 as the "Year of COVID-19" fraught with the pains of a pandemic and its impacts on our physical and mental health. Yet, as a navigation representative along the Mississippi River Ship Channel (MRSC), I will always be able to see the bright side. In this case, that is life outside of COVID. The Mississippi River Ship Channel Deepening began in 2020, oddly enough on another date tied forever to a tragic time in our history. As a major focus for the Big River Coalition, the project to deepen the ship channel to 50 feet was one that I worked on for eight years prior to the official start of dredging on September 11, 2020. Yet the euphoria of success was numbed by the state of the pandemic. And while there were no parties to celebrate, the event remains historic.

The deepening is the flagship of improvements designed to maximize the effectiveness of maritime commerce on the Mighty Mississippi, our nation's river linking 31 states to international trade. In many ways it remains true that the Mississippi River feeds the world. The river composed of over 250 tributaries combines more miles of navigable waterways than the rest of the world combined. Projections are that the ship channel deepening will eventually capture another 20% of U.S. grain exports, raising the totals from approximately 60% to over 80% of all U.S. agricultural exports. The Mississippi is also the only place in the world where a major navigable waterway is directly linked to a large productive agricultural zone – 350 million acres of farmland are within 250 miles of the Mississippi River and tributaries.

It should be no surprise that there are improvements in the works for the ship channel as The Great Flood of 2019 led to calls to "Fix Southwest Pass". I often refer to Southwest Pass as "the revolving door to international trade." Many are surprised to hear that more water was passed down the Mississippi River during 2019 than in any other year, shattering not just eclipsing other renowned floods like those of 1927 and 1973. An important measurement utilized to measure flood waters is an "acre foot", equaling approximately 326,000 gallons of water, the amount an acre of land would hold if covered throughout in one cubic foot of water. The Great Flood of 2019 passed 185,000 acre feet more than the significant flood of 1973 and over 210,000 acre feet more than in 1927 – a flood that forever changed our nation and the management of this river system.

The National Oceanographic and Atmospheric Administration (NOAA) confirmed that the nation experienced the wettest 12-month period in recorded history, going back 124 years to 1895 when records began being kept. In 2019, there was a lot of focus on the ship channel, and leaders looked to the Big River Coalition for insight. We strive to never waste a good emergency, and this spotlight meant we were expected to propose real solutions. The response we campaigned was titled Full Funding Floats All Boats, and it requested an increase in federal funding to allow the U.S. Army Corps of Engineers (USACE) to better respond to channel maintenance.

Full Funding Floats All Boats was designed to increase the USACE's ability to maintain authorized channel dimensions of the MRSC. The Big River Coalition estimates that $200 million in annual funding would enhance the USACE's ability to restore and maintain Congressionally authorized channel dimensions. The benefit of knowing what the final budget is provides surety in response versus having to wait until funding was available and flood-driven shoaling had already started.

The Coalition's promotion focused on increasing the President's budget request, the starting point for the nation's federal budget process, which remains in the range of $90 million – although 10 years ago it averaged about $65 million. Thankfully, the U.S. Congress heard our pleas and committed significant supplemental funding through the USACE Work Plan and supplemental funding. Confirmation for the Coalition's financial target was that over $200 million was appropriated in both fiscal year

*Photo on page 32 provided by the Big River Coalition as captured by P.J. Hahn of Pelican Coast Consulting

By Sean Duffy

(FY) 2019 and 2020 – both record amounts, with FY 2020 establishing the new record of over $246 million. However, if we have a low river stage year there is no guarantee that such funds would flow, and the off years with a dedicated budget would allow other channel features to be done. Many of those features help reduce dredging in high river years.

The increased appropriations allowed the USACE to fund their cost-share for the ship channel deepening and make other adjustments outlined by the Full Funding Floats All Boats campaign – mainly the ability to issue dredge contracts before shoaling begins. For the first time ever, the USACE has three hopper dredges under contract in early 2021, and in FY 2020 the first Gulf Coast Regional Hopper Dredge Contract 2020 was awarded and allowed the industry hopper dredge Newport to work on shoaling between the USACE New Orleans and Mobile Districts. The Regional Hopper Dredge Contract in FY 2021 will provide another hopper dredge for channel maintenance next year.

Dredge contractors in response to the increased appropriations and market indicators have also responded by financing large capital improvements for new equipment, by documenting that three new large hopper dredges are being constructed in U.S. shipyards. There are also several new cutterhead dredges being built, and it is expected that there will be work for all of them.

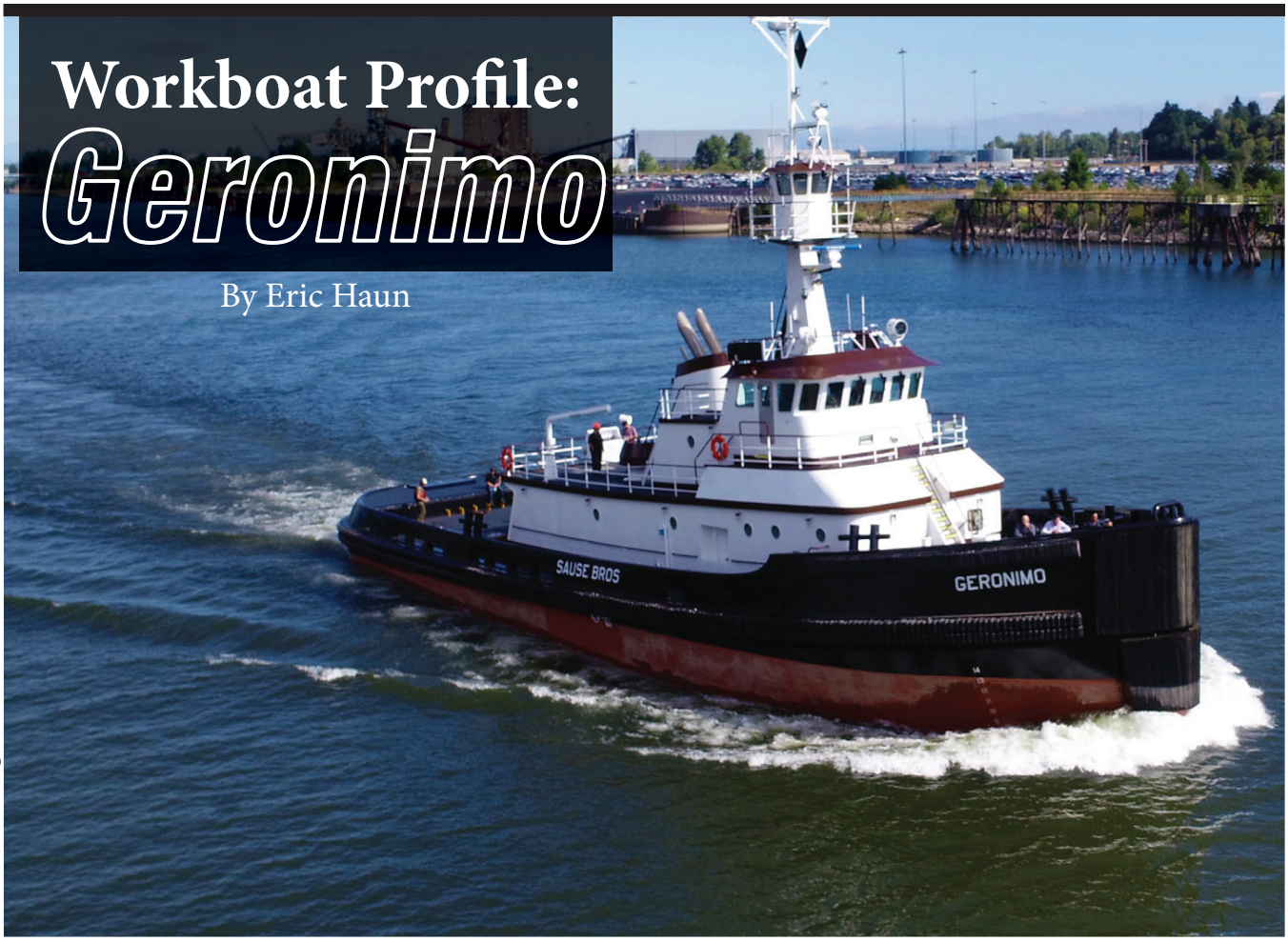
A quick rundown of dredge contracts along the ship channel including the deltaic passes shows a tremendous amount of work to be completed over the next two years, with totals of work approaching 65 million cubic yards (mcy) of material to be removed. This rundown includes the Phase 1 of the ship channel deepening (18.5 mcy), FY 2021 channel maintenance in Southwest Pass (estimated 18.5 mcy), existing contract for the Hopper Dredge Disposal Area (14 mcy), dredging of South Pass for the first time since 2007 (10.5 mcy) and Tiger Pass being dredged for the first time since 2012 (1.9 mcy).

The present timeline suggests that the first phase of the deepening to 50 feet will be completed by the end of 2021. This will open up the first 175 miles of the ship channel to the deeper draft (50 feet), and channel maintenance in FY 2021 will be off to a good start with the three hoppers under contract and the regional hopper contract to add the benefit of another hopper dredge to increase channel maintenance. Hopefully, as the impact of the pandemic fades, the world will notice the improvements made to help Fix Southwest Pass, and the channel maintenance will also be used beneficially to restore wetlands in the environmentally sensitive birds-foot delta. In 10 years the USACE restored over 10,600 acres (almost 17 square miles) of new marsh or wetlands in the delta. Based on the current contracts I believe that total will eclipse 15,000 acres over the next two years with up to 4,000 acres to be added by the work presently under contract as highlighted above.

Clearly, the calls to Fix Southwest Pass have placed a lot of focus on our advocacy efforts. However, waterways management is a team sport, and many will share in the rewards of increased channel maintenance and maritime commerce that can help drive our economic recovery.

Workboat Profile: Geronimo

By Eric Haun



Sause Bros. Ocean Towing Co.

Sause Bros. Ocean Towing Co., Inc., based in Coos Bay, Ore., got its start transporting timber with a single wooden tug in the 1930s. The company has grown through the years to provide a full range of marine transportation services to clients in the Pacific Rim: from ocean towing, cargo handling, oil towing and ship assist, to marine construction and repair.

Today the company owns and operates a fleet of ocean towing tugs from 3,000 to 6,000 horsepower and a fleet of oil and deck barges that run along the U.S. West Coast and Hawaii, and in recent years it found that it was time to replace some of its tugs built in the ’70s with more modern equipment.

Construction on a pair of new 4,500-horsepower twin screw tugs to support Sause’s oil transportation business was originally started in 2015, and the company tried for a very short period to build the vessels themselves before a backlog of repair work and other projects led them to hire Diversified Marine, Inc. (DMI) in Portland, Ore. to take over the newbuild project, said Mark Babcock, vice president of hull and machinery at Sause Bros.

Babcock has worked at Sause since 1993, first as an engineer working through various construction and repair projects before becoming engineering manager and then a VP. He has seen many construction projects and countless repair jobs over the years, witnessing firsthand a number of technological step changes put into application.

“From our standpoint, the biggest improvements have been in the advancements of computational fluid dynamics, which we use as a key part of our design efforts. The technology has become much more sophisticated and has improved our confidence with the results,” Babcock said.

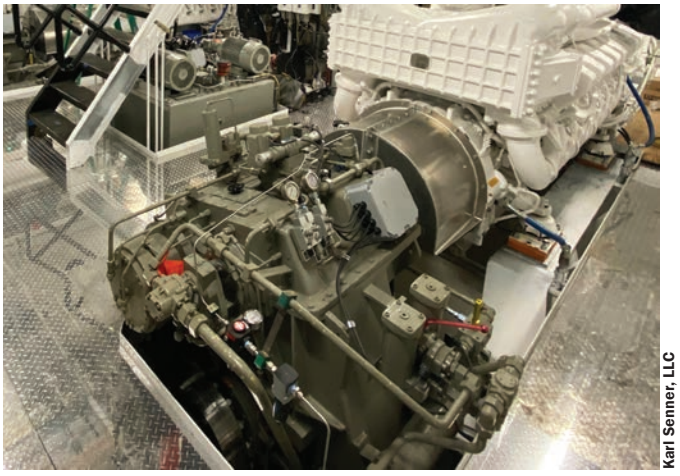
“The biggest gains in efficiency through fluid dynamics have been on the barge side, and have helped to change the designs of the bows and sterns to minimize wave making, which allows us to tow barges at higher speeds without increasing horsepower,” he explained.

The new tugs Apache and Geronimo, which Babcock described as “fairly typical hard-chined tugboats”, were delivered from DMI in July 2019 and September 2020

respectively. The newbuilds are sisters to the 2006- and 2007-built Mikiona-class vessels, designed in-house by Sause Bros.' SOMAR shipyard for long-distance ocean towing. Babcock said Sause's long-running success with Mikiona and Cochise led the company to order the next set of 128- by 35- by 18-foot sister tugs, which are designed to maximize fuel efficiency and crew comfort.

"The hull was designed to be fuel efficient at a specific towing speed, basically 9.5 knots," Babcock said, adding that the tugs' modest fuel capacity of roughly 126,000 gallons allows for a more streamlined shape.

For onboard comfort, the pilothouse and crew quarters have been placed as close to midship as possible to give the crew a better ride, Babcock said. "Many times, our vessels end up slowing down because the crew can't take it, not because the boat can't take it. A nicer ride will mean crews can tolerate a little more speed and it also provides an easier sleep to help alleviate fatigue."



Karl Senner, LLC

Karl Senner, LLC equipped each of the new tugs with two REINTJES WAF 873 reverse reduction gearboxes, each with 7.454:1 single-stage reduction, AMOT temperature control valves, internal hydraulic multi-disc clutches, and shaft brakes. "60% of the current Sause Bros. fleet is made up of vessels equipped with REINTJES reduction gears, all purchased and serviced through Karl Senner, Inc.," Babcock said.

Outfitting the Modern

Geronimo

Delivered: September 2020
Owner: Sause Bros. Ocean Towing Inc.
Builder: Diversified Marine, Inc.
The 4,500 HP welded steel twin screw tug has fixed nozzles and quad rudders, and is EPA Tier 3 compliant. The vessel is designed and built to ABS classification standards for Ocean Towing. It will carry an ABS load line with a summer freeboard assignment of approx. 2' 10-3/4".

Principal Characteristics

Length (reg): 123'
Length (oa): 128'-4"
Depth (mld): 17.6'
Breadth (mld): 35'
Draft (max): 16'
Disp. full (SLL): 997 L.T.
Net Tons: 136 REG 149 ITC
Gross Tons: 199 REG 499 ITC
F.O. Capacity: 126,000 gal.
F.W. Capacity: 10,400 gal.
L.O. Capacity: 1,500 gal.
Bollard Pull: 153,000 lbs.

Miscellaneous

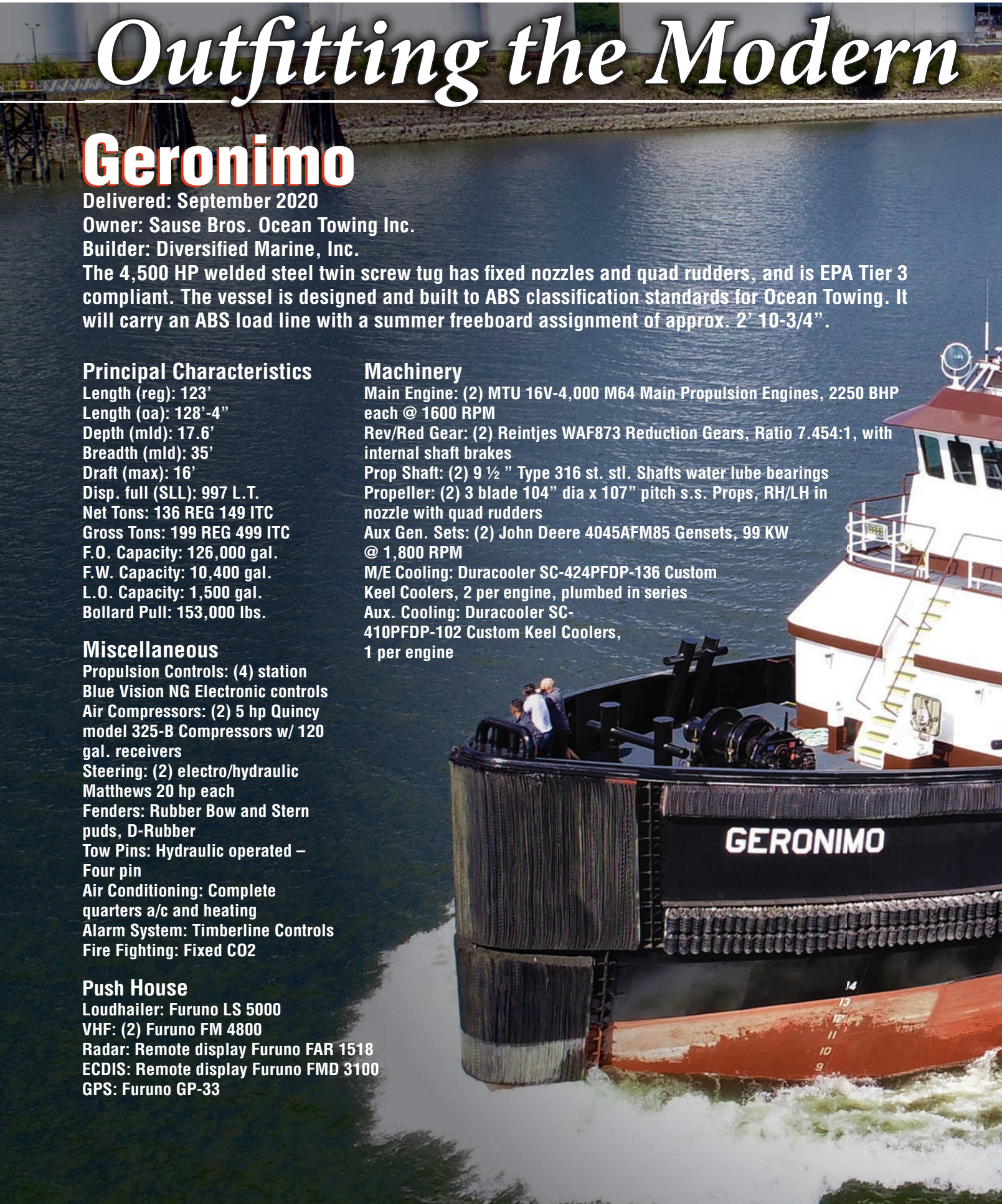
Propulsion Controls: (4) station Blue Vision NG Electronic controls
Air Compressors: (2) 5 hp Quincy model 325-B Compressors w/ 120 gal. receivers
Steering: (2) electro/hydraulic Matthews 20 hp each
Fenders: Rubber Bow and Stern puds, D-Rubber
Tow Pins: Hydraulic operated – Four pin
Air Conditioning: Complete quarters a/c and heating
Alarm System: Timberline Controls
Fire Fighting: Fixed CO2

Push House

Loudhailer: Furuno LS 5000
VHF: (2) Furuno FM 4800
Radar: Remote display Furuno FAR 1518
ECDIS: Remote display Furuno FMD 3100
GPS: Furuno GP-33

Machinery

Main Engine: (2) MTU 16V-4,000 M64 Main Propulsion Engines, 2250 BHP each @ 1600 RPM
Rev/Red Gear: (2) Reintjes WAF873 Reduction Gears, Ratio 7.454:1, with internal shaft brakes
Prop Shaft: (2) 9 ½ " Type 316 st. stl. Shafts water lube bearings
Propeller: (2) 3 blade 104" dia x 107" pitch s.s. Props, RH/LH in nozzle with quad rudders
Aux Gen. Sets: (2) John Deere 4045AFM85 Gensets, 99 KW @ 1,800 RPM
M/E Cooling: Duracooler SC-424PFDP-136 Custom Keel Coolers, 2 per engine, plumbed in series
Aux. Cooling: Duracooler SC-410PFDP-102 Custom Keel Coolers, 1 per engine



Ocean Towing Tug

Safety & Navigation

Radar: (1) Furuno FAR-2117; (1) Furuno FAR-1518
VHF Radios: (3) Furuno FM 4800
Fathometer: AIRMAR 235DHT-LMSE shared through INS & N2K networks
Anemometer: AIRMAR 110WX shared through INS & N2K networks
Signaling Device: Kahlenberg system
Loudhailer: Furuno LH 5000
GPS: Furuno GP-39 & Furuno GP-170D
Navtex: Furuno NX-700
ECDIS: Furuno FMD 3100
SAT Compass: Furuno SCX21
Auto Pilot: ComNav Admiral
AIS: Furuno FA-170
Life Raft: Zodiac 8 man Inflatable
Speed Log: Furuno GS 100
BNWAS: Furuno BR 500
VDR: Furuno VDR 7000S

Deck Machinery

Tow Winch: Rapp Hydema Tow-22031 Tow Winch, with capstan, pennant, and tugger drum
Wire Capacity: Main Drum 2600' – 2 ¼" dia. IWRC / Pendant Drum 900' – 2¼" dia. IWRC
Line Pull/Speed: 80,000 lb. @ 50 – 180 fpm
Power: Hydraulically powered, John Deere 6068AFM85 Winch Engine,223hp@1800rpm w/ 60 HP electric motor back-up.
Control: System control provided by PTS Pentagon TOW towing control computer.
Bow Winch: Rapp Hydema TOW-4002 BB Bow Winch, hydraulically driven with 1 capstan and 1 drum
Brake holding capacity of 150,000 lbs.

THE GREAT LAKES TOWING COMPANY AND GREAT LAKES SHIPYARD

(*) All images courtesy The Great Lakes Group

"...We have built our reputation job by job, *boat by boat, and tow by tow, and we intend to continue to do so."*

By Tom Ewing

The Great Lakes Towing Company (GLT) and the Great Lakes Shipyard are core businesses within The Great Lakes Group of Companies, based in Cleveland, on the Old River, a shipping channel that runs west from where the Cuyahoga River meets Lake Erie. Company towing operations extend from Buffalo, N.Y. in the east to Duluth, Minn. in the west. Great Lakes Towing owns and operates the largest U.S.-flagged tugboat fleet on the Great Lakes, serving more than 35 ports in all eight U.S. Great Lakes states. Services include harbor towing, docking and undocking assistance, ice breaking and inter-port towing of vessels and barges.

GREAT BONES

The Great Lakes Group has deep roots in America's industrial business history; almost mythic, really. Consider: in 1899 John D. Rockefeller was the founding shareholder.

Over the next century America's Midwest states became the greatest industrial dynamo in the world. Waterborne transport was critical to that success. The Great Lakes Group has been a dominant maritime player during that entire century. Over the decades, the company continuously evolved to meet the changing demands of the agricultural, steel and construction industries, and the needs of the ships and tug/barge units which serve those industries.

Today, The Great Lakes Towing Company (a privately owned subchapter S corporation) has about 100 full time employees. Joe Starck, who joined the company in 1991, is current president.

Many of GL's executives have been with the company for over 20 years. Their expertise ranges from vessel design, to project management, to vessel construction and repair. "As a small company," Starck commented, "most employees wear many hats. One core strength across our team is the ability to multitask, maintain flexibility and

work well with each other across departments." Employees hold numerous certifications documenting skills and training. Additionally, GLT's team is involved beyond the shop floor, and contribute to advancing local maritime and community-based business issues through the American Bureau of Shipping, SNAME and the Propeller Club.

Originally established to build and service its own fleet, the Shipyard division specializes in a wide range of marine construction and repair services. The Company began offering these services to third party customers in the early 1980s. Then, in the early 1990s, services expanded to include marine fabrication and, in the early 2000s, new vessel construction was added.

Now, the Shipyard division provides in-house expertise for designing, building and maintaining its own tugboat fleet. Its portfolio includes an extensive list of commercial and government vessels. The Shipyard also performs extensive government contracted work for many federal agencies, including U.S. Environmental Protection Agency, the Coast Guard, NOAA and many state and local governments.

Topside repair work and winter layup services are provided on any vessel, at any Great Lakes port in the U.S., customers' docks, other deep-water berths, or alongside one of GLT's Cleveland facilities. Drydocking and bottom work are facilitated via the Marine Travelift. Steel fabrication and winter lay-up work are also offered in Cleveland.

SMART SPACES

Starck says the GLT facility itself, particularly the way it was designed and laid out, provides core operational strengths and advantages. He refers to the layout as "nimble and capable." With the Travelift, for example, placed in service in 2011, GLT's team can schedule and sequence multiple new construction and repair projects. The Travelift allows for emergency haulout for repairs and, perhaps more importantly, a quick return to service.

This is a busy shipyard. The Towing Company is in the process of a fleet renewal program to produce a total of ten new harbor tugs for operation in its own fleet. In 2016, the Shipyard laid the keels for Damen Stan Tug 1907 ICE. Five are complete, the sixth is under construction. The company builds to a customer's plans, or it can provide its own designs including several from Damen. Over the years, GLT's relationship with Jensen Maritime has also resulted in several successful tug designs, including the "Z-Class" 94-foot ASDs and "HandySize Class" 74-foot twin-screw conventional model.

WORKING ON WORKFORCE

Like many businesses in many locales across the nation, The Great Lakes Group of companies work to stay on top of challenging workforce issues. "Finding good, qualified full-time shipyard employees has always been a challenge for the Towing Company," Starck noted. "We have supplemented (our staff) with labor supply contractors for the past several years, and many of those 'contract' workers have been here so long, they have become fully integrated into our team. In the meantime, we are always trying to 'grow our own' and when we find talented candidates who have unique skills and the right experience, we generally find a place for them."

The company is active in the workforce space. It has a continuing partnership with area schools to provide internships and on-the-job training opportunities. "This is especially true for the trades," Starck commented. "Recruitment in such fields is an ongoing effort, something GLT maintains as a priority within its larger corporate culture."

GLT's education and training focus is linked with three local programs:

• *At Cuyahoga Community College, the Company works with the Advanced Technology Academy Workforce, Community, & Development Division. GLT assists in the development and implementation of new technologies and has worked with the school to establish pathways for students who are interested in a career in the shipyard or maritime industry. The Company works with instructors to ensure students are receiving the most up-to-date training that reflects industry trends.*

"One core strength across our team is the ability to multitask, maintain flexibility and work well with each other across departments."

– Joe Starck, President, The Great Lakes Group

• *A cooperative working agreement has been in place with the Cleveland Municipal School District's Max S. Hayes High School for over 20 years. The Company has helped develop a program for students to obtain shipyard related training at the school, and practical on-the-job experience in the shipyard. With the opening of the Max S. Hayes' new school building in 2016, the Company has helped to outfit state-of-the-art labs with modern equipment to train students in welding and diesel engine mechanics – skills much needed in the Tugboat and Shipyard industries.*

• *At Polaris Career Center, the Adult Education Welding Program serves as a great feeder program for certified welders. GLT's Shipyard Executive team volunteers to help structure the welding curriculum and write course material.*

2020'S UNIQUE CHALLENGES

It's a sad and obvious understatement to note that 2020 seemed to present endless and unique challenges for just about every business in every business sector. Fortunately, Great Lakes has been able to persevere. Starck said that commercial repair work was slow, likely attributable to the pandemic. On the other hand, he said there has been a steady flow of government repair work, which is expected to last through the winter.

Starck and GLT remain optimistic. As noted, the sixth Damen 1907 tug is under construction. Plus, their crystal ball hints at several commercial vessels due for drydocking and repair in 2021. And, possibly, even more: "A number of potential projects are in the pipeline," Starck notes with anticipation, "work involving both new construction and repair." In addition, industry investment by companies all across the Great Lakes Region is at a level not seen since the 1980s.

There are other future-focused plans. One important example: in late 2017, GLT joined Green Marine, an international, business based maritime environmental group. Green Marine has a North American based certification program.

It addresses key environmental issues through 13 performance indicators. To be Green Marine certified, companies must benchmark their annual environmental performance through the program's self-evaluation guides, have their results verified by an accredited external verifier and agree to publication of their individual results. Indicators include greenhouse gases, air emissions, spill prevention and community impact.

The Great Lakes Towing Company joined Green Marine as a vessel operator and shipyard in late 2017, the first U.S. shipyard to do so. In the past two years both the towing and shipyard operations became certified Green Marine participants. The companies continue to keep their operations within the program's demands.

Another important new focus for GLT, again with an eye on the future, is to be ready for offshore wind – in this case Great Lakes offshore wind. GLT has provided transport services for turbine components and continues to collaborate with wind developers on logistics, maintenance and the repair services that will be necessary once offshore wind projects take hold in Lake Erie and the Great Lakes.

Recall that the Lake Erie Energy Development Company (LEEDCO) was tantalizingly close to generating power with its proposed Icebreaker wind farm, in Lake Erie, near Cleveland. The Icebreaker project was stopped at the last minute, in May, after Ohio regulators set strict limits on nighttime operations. That decision, though, was overturned in September. The project can proceed subject to plans to minimize bird and bat strikes.

When energy and environmental specialists figure out how to implement those protective moves, the Great Lakes Companies will be ready. Just like they've been ready to work with every other change for the past 121 years.

Kirby

U.S. INLAND WATERWAYS:

High Waters & Swirling Currents

By Barry Parker

Marathon Petroleum

The inland waterway system, flowing through the United States heartland, is a microcosm of all that has been happening in 2020: trade tensions, infrastructure issues, shifting trends in fuel consumption and the pandemic that has gripped us since the winter months. Shortly after the initial coronavirus outbreak here in the U.S., maritime workers were deemed to be "essential", paving the way for cargo flows to recover from their springtime nadir. As COVID-19 infections turned up on U.S. shores, the boats continued plying the waterways, albeit with reduced volumes in some cases. Notably, the American Waterway Operators (AWO) took a proactive role in guiding its members on best safety practices. At a time that supply chains are ripe for fine-tuning, participants are not standing idly by, waiting for demand to bounce back; rather, they are exploring new business alliances, and picking up on another trend, digitalization.

The macro picture shows that cargo flows on the inland river system peaked in 2004-2006, reaching approximately 625 million short tons in those years (440 million dry and 185 million tank basis 2006). By 2017, overall tonnage stood just over 530 million short tons. Coal movements on the inland system have seen sharp declines; in the late 1990s, 176 million tons of coal moved annually (out of 600 million total inland tons). By 2016, 110 million tons of coal were moving on the system (the majority originating in the Ohio River region), with the decline of coal fired powerplants (though export traffic has been an incremental positive in strong years such as 2017 and 2018).

Agricultural cargo flows are heavily linked to exports. Corn and soybean exports (which create demand for downbound cargo on the river system) generally were lackluster throughout much of calendar 2020, though observers pointed to a strengthening late in the year. The trade war attracts headlines; an announced U.S. review of the Trade Deal agreed with China in January, 2020 has been delayed. In mid-September, an officer of the U.S. Grains Council (representing U.S. agricultural producers), speaking about China, said, "Importers are expanding their trading capabilities in the United States and partnering with key river freight and port loading facilities. These are signs China will continue to procure grain from the United States well beyond recent purchases." In an early October 2020 report, the U.S. Department of Agriculture said, "…if the early projections [based on current trends] are realized, the higher exports would significantly increase the demand for transportation."

Meanwhile, infrastructure issues continue to loom large. Looking toward Washington, D.C. the House quickly passed the Water Resources Development Act (WRDA) in mid-year, but, several weeks prior to the 2020 elections, had not yet cleared the Senate. Cost sharing on inland projects (presently a 50%/50% split between the U.S. Treasury and Inland Waterways Trust Fund, or IWTF) is one item still to be worked out. The bill would modify the inland waterways project cost-share to 65% U.S. Treasury and 35% from the IWTF, which funded by a tax from commercial barge fuel on federally maintained waterways.

Earlier this year, the reduced cargo flows took a major casualty, as inland stalwart American Commercial Lines (ACL)—reportedly controlling more than 20% of covered hopper capacity (approximately 3,000 barges)—filed for a bankruptcy reorganization in early February. Three months later, a recapitalized ACL emerged from a prepackaged bankruptcy, with debt reduced by approximately $1 billion. The previous debt holders, linked to a $640 million credit facility led by Wells Fargo Capital Finance and

Ingram Barge

a $1.5 billion revolving credit led by Bank of America, emerged with 95% ownership in the newly capitalized company. Bankruptcy case filings reveal the deleterious financial straits just prior to the filing: "As of December 31, 2019, ACL generated approximately $974 million in operating revenues for the prior 12-month period and incurred a net loss of approximately $140 million. Its unaudited balance sheet reflected assets of approximately $1.441 billion and liabilities of approximately $1.977 billion as of December 31, 2019."

Ingram Barge, with a home base in Nashville, is a leader in the dry segment. operating nearly 4,500 barges (mainly dry) with a fleet of more than 150 tug/tow boats. The total dry barge fleet totals approximately 18,600 units. Other large owners include American River Transport (ARTCO, controlling roughly 1800 covered barges), Marquette Transportation, based in Paducah, Ky., with 800 barges and Campbell Transportation, headquartered near the Monongahela River, with more than 700 barges.

Liquid cargo is also a big mover on the waterways, with NYSE-listed Kirby Corporation providing visibility into a business dominated by private entities. Consolidation, in the form of corporate acquisitions by well-resourced participants, has continued. In early 2020, Kirby acquired the inland barges (92 units aggregating 2.5 million bbl of capacity) and fleet of 45 boats of Savage Marine (along with a bunkering business) for $279 million. This follows up on blockbuster asset acquisitions of 2018 Higman Marine (163 barges) and 2019 Cenac Marine (63 barges). At mid-year, Kirby controlled 324 river towboats and 1,131 inland barges. The league tables in the tank barge sector include ACL with 408 tank barges at mid-2020, Canal Barge with 340, Ingram with 276 and Florida Marine Transporters with 270 barges.

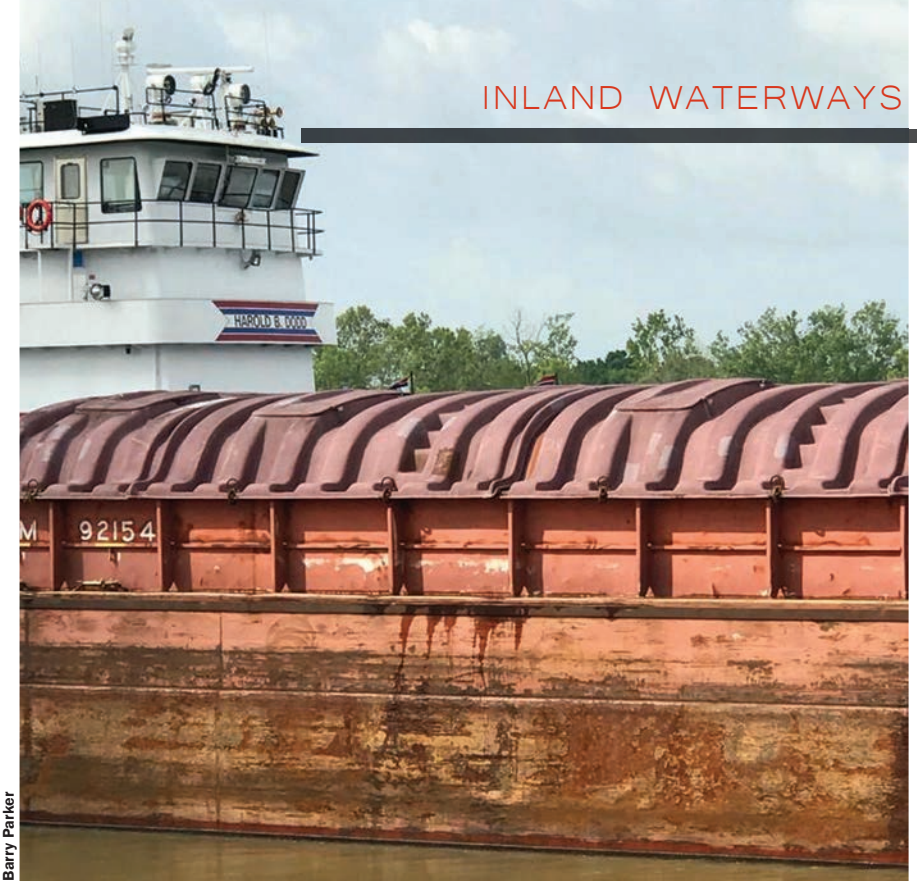
Randy Giveans, Jefferies & Company equities analyst, writing at the time of a recent Kirby earnings release, linked the inland tank barge business to developments in the petroleum and chemicals businesses. Writing about the overall sector, he explained, "The current economic crisis has put downward pressure on both refinery and petchem utilization, leading to reductions in both volumes and rates for the inland barge market."

Giveans continued, "Utilization had begun to rise, but was battered again by recent hurricanes and storms in the US Gulf while refiners continued to struggle due to reduced demand for fuels. Inland utilization remains below

80%, resulting in both spot and term pricing down roughly 5-10%."

A top executive from Golding Barge Line (with two dozen boats and 65 barges), headquartered on the Lower Mississippi and active in the refined products and chemical trades, interviewed in an early September on a public radio program, cast a very cautious tone. He commented, "This has been the roughest disruption that we've dealt with is in our company's history. And we were definitely feeling it on our end from a volume standpoint… People are just not moving product like they did before." Kirby Corporation, in a late September regulatory filing, said, "Reduced demand as a result of the COVID-19 pandemic and resulting economic slowdown contributed to lower utilization during the 2020 second quarter."

Going forward, the medicine for



Barry Parker


Kirby

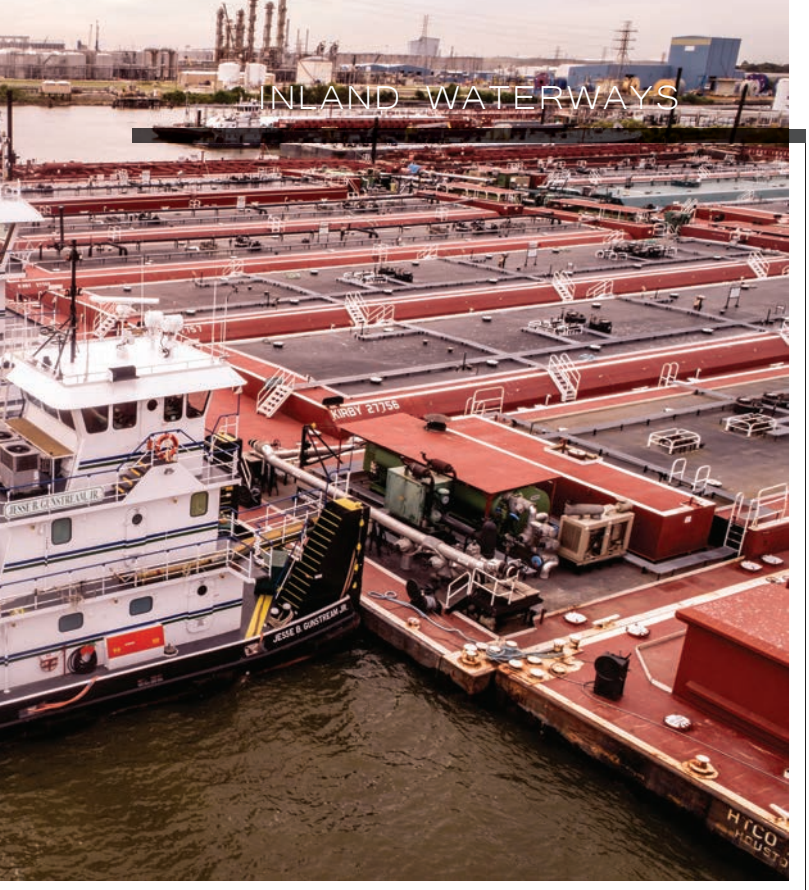
the sector's health will come from broader economic trends. Giveans, from Jefferies, wrote, "[Kirby] continues to be the strongest player in its respective markets and has a fortress balance sheet to weather both the literal and figurative storms as the global economy continues to show signs of economic recovery." He pointed out that, "On a positive note, newbuilding ordering remains weak, with very few net additions expected this year. Looking ahead, increased refinery utilization should boost inland barge volumes and pricing."

Kirby's filing, in its forward outlook, offered that "with barge utilization rates starting the 2020 third quarter in the mid-70% range, the company anticipates lower average barge utilization sequentially." The barge supply is the other side of the equation, with Kirby saying, "Given current market conditions as a result of the COVID-19 pandemic, the company believes that industry retirements could be in the higher end of the historical range during 2020," citing potential retirements of 500 barges (out of an industry fleet of 4,000 tank barges) during 2020 (compared to a "normal" retirement count of 75-150 barges).

For bulk cargo, barge transportation offers great economies compared to surface transport but does not always offer a close connection with cargo originators. In recent years, the Inland River Services group within NYSE-listed Seacor Holdings Inc., which manages more than 1,110 barges (including the former Bunge grain fleet and those of leasing giant SCF), has augmented its primary dry bulk business with a niche hauling containers between Memphis and New Orleans, with empties downbound and laden boxes moving into the Port of New Orleans sent up the river to major distribution hubs Memphis and St. Louis.

Success in the business has required deep logistics expertise that could be ported from adjacent sectors, and, increasingly, strategies for meeting sustainability objectives. A potential new entrant to the river marketplace, American Patriot Holdings, has big plans, with a design for a liquefied natural gas (LNG) fueled vessel that could haul 2,400 trailers in the inland trades. If plans go forward, the innovative vessel (with the owners discussing up to four newbuilds) would figure into plans for future intermodal terminals to be constructed at Plaquemines Parish, in Louisiana, and Cairo, Ill.

Like other maritime sectors, the inland business is driven by external trends. Digitalization, a trend across all businesses, is taking place on the customer side, and carriers will need to integrate with the cargo side's information infrastructure. When it comes to linking customers' supply chains digitally, dry barge stalwart Ingram has been innovative with its Towline, while others, including ARTCO with its e-ARTCO, ACBL with its ACBL_Trac, Kirby and Marquette have all made strides in this area. Necessity has been the mother of invention in 2020, a time when the industry is halfway into its Subchapter M inspection program. Equipment owners have now seen virtual inspections, by both the U.S. Coast Guard and by inspectors from Third Party Organizations (TPOs), against the



backdrop of restricted travel.

Shipper-owned equipment still plays a role in supply chains. On the dry side, ARTCO is tied to grain giant Archer Daniels Midland (ADM). In the liquid sector, midstreamers MPLX (a partnership owning 300 barges, linked to Marathon Petroleum) and Enterprise Product Partners have integrated their barge fleets into broader supply operations, while privately held Magnolia Marine Transport (with nearly 100 tank barges, mainly in the dirty oil and asphalt trades) is tied to the closely held refiner and marketer Ergon.

"ESG" (Environment, Social, Governance) is also finding its way into the business, albeit more likely to impact listed companies. SCF, the barge owning arm of Seacor, recently touted its purchases of carbon credits as a way to offer its container on barge customers a much-desired carbon neutral transport alternative. In 2020, Kirby Corp provided a lengthy "Sustainability Report" that included some old themes (safety, no spills, good citizenship) but also broke new ground providing some real numbers on CO2 emissions for the barge fleet overall, and for Kirby specifically now, and for enhancements to future reports. The "E" trend shows no signs of abating. Domestic boat owners ought to be looking carefully at the international deepsea shipping sector, where a group of major dry bulk cargo providers (including ADM, Bunge, Cargill and Louis Dreyfus, all well-known in the inland markets) have agreed, in early October, to measure, and publicly disclose, the CO2 emissions from their shipping activities.

Hidrovias do Brasil

There's Room to Grow on Brazil's Inland Waterways

By Claudio Paschoa

Brazil's waterways are underused for commercial transport, and shipping on them is generally inefficient. But, enormous potential exists in the country's 12 river basins, according to Brazil's National Transport Confederation (CNT). Of the 63,000 kilometers (km) that could potentially be used for inland navigation, only 19,500 km (30.9%) of the existing network is currently used commercially for cargo and passenger transport, leaving more than two-thirds unused.

However, despite wasted opportunities, Brazilian rivers have registered an increase in transported volume in recent years, which shows their huge potential to contribute to the development of the country's economy. Only 5% of cargo transportation in the country is by inland waterways. Brazil currently has 2.3 km of usable waterways per 1,000 square km, but the figure could reach 7.4 km per 1,000 square km if all the navigable waterways were utilized, according to a recent study published by the CNT. "Most of the rivers being used for transportation are in Brazil's northern region. In those areas, passenger transportation is in most cases made through rivers, but still, water transportation is far from reaching its full potential," said Vander Fancisco Costa, President of CNT.

The CNT attributed the low usage of waterways to factors such as infrastructure deficiencies, bureaucracy and low federal and private investments. According to the study, from 2011 to 2018, only 10% of the federal investments in the commercial transportation sector were focused on inland navigation. Investing in waterways would take some burden off highway transportation, and increasing the use of inland navigation would also help reduce transportation costs, with the advantage of cutting back on carbon emissions, the CNT added.

Brazilian waterways challenges

There is a dire need to expand the integration between river basins and other transport systems and also efficiently expand the connection of inland waterways with major commercial sea ports, Costa said. Another hurdle is to improve infrastructure in inland terminals, navigation systems, buoys, along with police and customs patrolling of the river basins.

"Navigation locks that are required for ships and barges to pass through high dams, such as Itaipú and Tucuruí are another important necessity and a master plan is required for combining hydropower plants and river navigation. Major maintenance dredging is required on all basins, but is especially urgent in South Brazil. Another problem relates to environmental licensing processes, which can cause long and time-consuming procedures for permissions to be granted, therefore causing delays waterway transportation projects," Costa said.

Novel LNG barge project for the Amazon

Last year Rolls-Royce signed an agreement with the Brazilian company Amazonica Energy to develop barges and tugs powered by natural gas that will be used in the commercialization of liquefied natural gas (LNG) in northern Brazil. The partnership is to be run through Rolls-Royce subsidiary MTU. The investment in the development of the vessels is estimated at around $2 million to start. In all, 30 barges will be built by 2021. The construction of the barge trains will be done by Rio Maguari Shipyard (ERM), in the city of Belém, located in the northern state of Pará. The logistical project for transport and distribution of LNG in the northern region, conceived by Amazonica Energy, foresees the construction of 20 barges and five or six pushers in the first phase. The goal is to build the units beginning this year. Each of these pusher engines will have a power of approximately 4,200 horsepower and each barge will carry 1,200 cubic meters of gas.

Brazilian waterways opportunities

"There is an ongoing plan to design new navigation channels, locks and other structures to overcome missing links in the waterway systems in order to enhance the efficiency of inland waterway transportation," Costa said. CNT is also preparing an integrated plan for the logistics of transport over water and land in order to increase efficiency and safety. Costa also emphasized that work is ongoing on the implementation of advanced navigation systems for increased safety and guaranteeing optimal navigational conditions, even in adverse weather conditions. Negotiations are underway with foreign governments, businesses and academia to secure technology transfer in the fields of hydrodynamics, morphology, nautical expertise and modelling through the National Institute of Waterway Research (INPH). It is hoped that these partnerships will also attract foreign investments as a lack of robust public policies toward increasing the commercial use of inland waterways over the past decades has led the country to delay its economic development, emit more greenhouse gases than necessary and lose much needed income. Such factors could be reduced if there was a balance between the inland waterway modality and cabotage, road, air and rail transport. As it is, investments are lopsided and the vast majority of commercial transportation in Brazil is done through highways.

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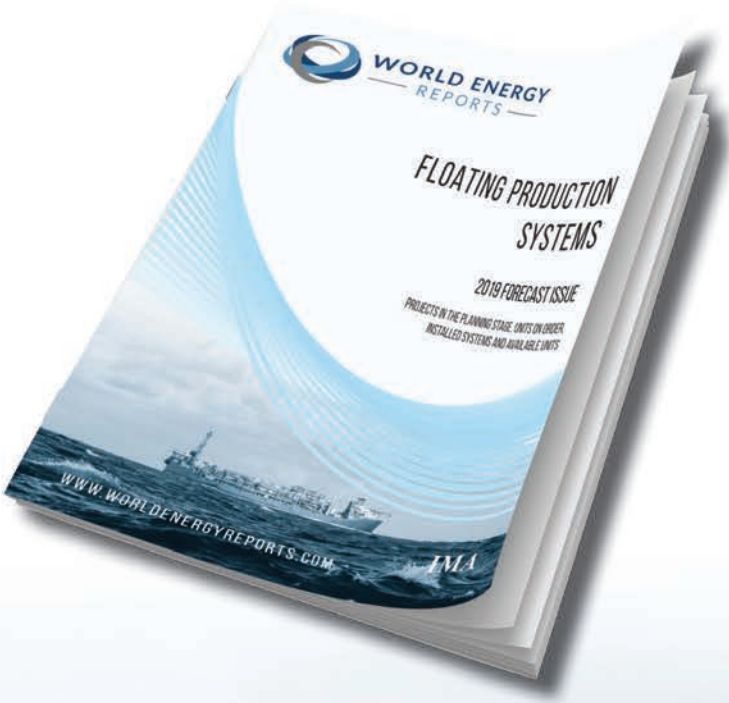

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Tech 'Breakthrough' Enables Real-time Vessel Surveillance on the Paraná

Four push boats operated by Impala Paraguay on the Paraná River have been equipped with Inmarsat's Fleet Xpress connectivity. According to the mobile satellite communications provider, this marks a breakthrough for maritime broadband inland along one of South America's longest waterways.

The prime mover vessels are used by Impala Paraguay to steer its fleet of 30 double-hulled barges along the waterway system to move gasoil, jet fuel, gasoline and naphtha products from Argentina onward to Paraguay and Bolivia. The same network enables soy bean oil in the other direction from Paraguay to Argentina. Long sections of the transit take place outside the reach of 4G or GSM cellular networks.

Impala Paraguay's pushers are fitted with modern navigation and night operation equipment, and its barges are equipped with alarm systems to alert crew members when the barge is 95% and 98% full in order to prevent overflow and subsequent spillage. GPS monitoring systems report the exact position of each barge and the quantity of product in its hull at any time of day.

To date, continuous push boat connectivity has been sustained using Inmarsat's FleetBroadband service, which the company said guarantees connectivity for the modern navigation systems and night operation equipment, as well as the load sensors and GPS position monitoring installed on barges. On average, each push boat consumes around 500 gigabytes (GB) of data per month for vessel management and crew connectivity.

However, the unlimited bandwidth available from Fleet Xpress has proved necessary to support internet protocol (IP) camera surveillance to ensure the safety of crew and the cargo transported by Impala. As part of a three-year Fleet Xpress contract, each push boat is installed with 20 IP cameras connected via onboard antennas, enabling continuous monitoring from Impala Paraguay offices.

"We are invested in providing the best service possible to our clients and ensuring that we have state-of-the-art technology supporting every aspect of our operations," an Impala Paraguay spokesperson said. "We believe using IP surveillance in our pushers sends a clear message to our clients that we will take all measures necessary to ensure that our operations are done in an efficient, reliable and responsible manner."

Following installation works undertaken in Asunción, Paraguay, Inmarsat's sales director for offshore and fishing, Chuck Moseley, said, "The choice of Fleet Xpress represented an inland breakthrough for the hybrid combination of high-speed Ka-band plus continuous back-up over FleetBroadband's L-band.

"Fleet Xpress is already powering the maritime data revolution, but recent months have also seen ship owners accelerate uptake of video-based applications to enhance collaborative working, security, telemedicine and crew connectivity," Moseley continued.

"The Paraná River is an artery for economic development, carrying around 80% of Paraguay's trade. This order demonstrates that guaranteed global bandwidth via Fleet Xpress brings comparable gains inland to those already being achieved at sea. Committed data rates backed-up by service level agreements also guarantee that Fleet Xpress customers always gets what they pay for."

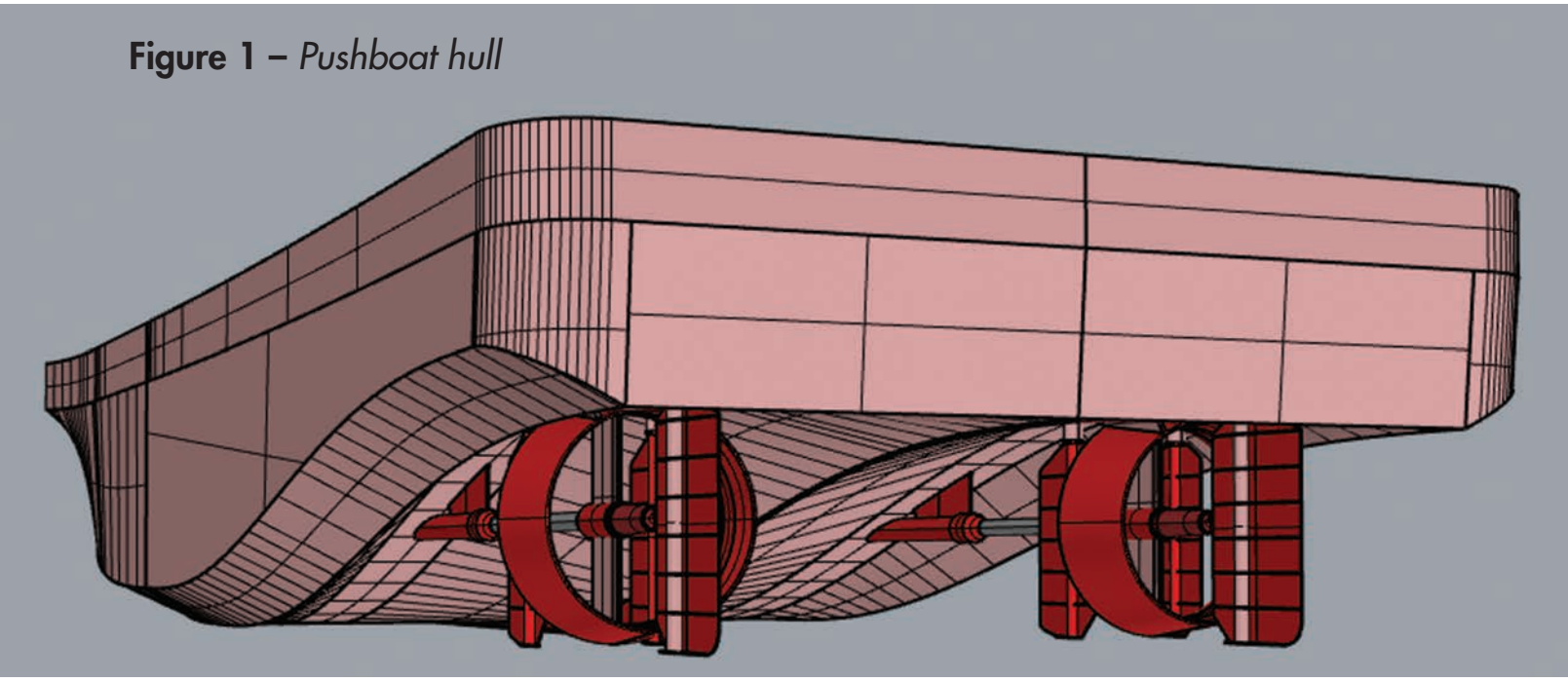
Real time video surveillance via Fleet Xpress is keeping cargoes and crews secure along the Paraná River, the artery for economic development that carries around 80% of Paraguay's trade. Inmarsat

Propeller Considerations for Inland River Pushboats

By Donald MacPherson, Technical Director, and Adam Kaplan, Project Manager Propeller Tools, HydroComp

Images courtesy of HydroComp

Figure 1 – *Pushboat hull*



Inland river pushboats operate in a harsh environment. Transiting our rivers, bays, lakes and inland waterways, these vessels push barges between hubs of commerce. Swift currents, trash and debris, heavy traffic and narrow waterways are day-to-day realities for these vessels and operators.

Pushboats have two typical modes of operation: steady-state (long haul running) and transient-dynamic operations (backing, maneuvering and acceleration). Unlike almost any other vessel type, pushboats have a larger proportion of dynamic operation which will affect the selection of engine and propeller characteristics.

The vessel-propulsor-drive system

Each component of the system affects the others, so they must work together to achieve useful thrust-making performance. The propulsor—typically an open or ducted propeller—is the central element of the system, taking energy from the drive and developing thrust within the influence of the vessel.

The hull shape establishes the environment for the propellers, and the particular characteristics of a pushboat hull will greatly influence the selection of the basic style and principal parameters of the propellers. Typical hull characteristics of inland-river pushboats include a flat nose (for pushing against the barges), a wide hull to provide space for multiple side-by-side engines (for the substantial installed power requirements), a shallow hull (for operation in rivers and other shallow waterways), and an upturned stern to accommodate a large propeller diameter (to partner with the large engine power).

Due to the shallow and wide stern, the inflow into the propeller is not ideal. The flow is stratified with slower water closer to the hull. The non-uniform wake field means propeller will be seeing high variation in blade angle of attack against the water flow.

Engines on inland river pushboats are still typically high-

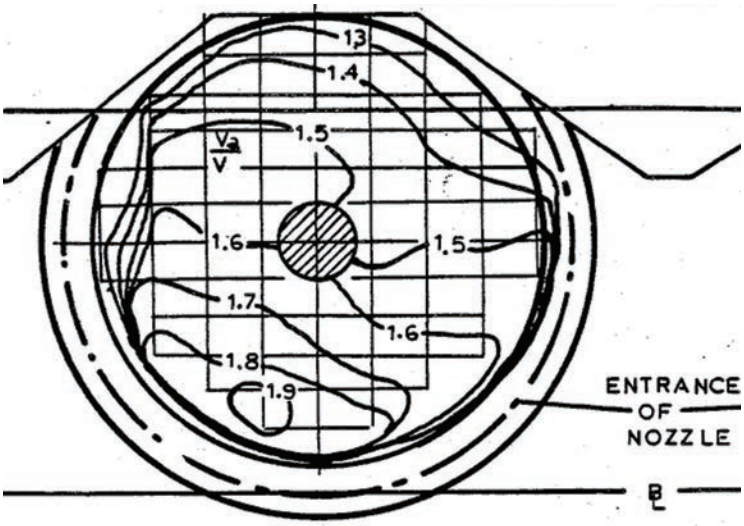


Figure 2 – *A stratified wake field; slower water near hull*

powered medium-speed diesel engines, although we are seeing the emergence of other drive options. The installed engine power far exceeds the vessel's own resistance requirements and will be used to generate additional thrust for pushing barges and barge trains. The shape of the maximum power curve is critical to a pushboat's performance. During steady-state towing and dynamic bollard-like conditions, the propeller will demand all of the power available from the engine, so generous power below rated RPM is essential.

Selection of propeller characteristics

The first decision is typically whether to use an open or a ducted propeller. Ducted propellers are designed for low-speed thrust, where the nozzle becomes a thrust-making contributor. Additionally, the nozzle also helps protect the propeller and provide reduction in wake field variability.

When part of a well-designed and functioning "propulsor" unit, a nozzle can contribute as much as half of the total unit thrust. However, this contribution is compromised when a portion of the nozzle is blocked, such as when the nozzle is attached via a headbox or is integrated into the hull. This compromise is known as "nozzle effectiveness" and it results in a slight reduction in the inflow velocity into the propeller. The propeller loading will then increase, restoring much of the lost nozzle thrust. However, this redistribution of loading comes with a corresponding increase in power demand. In other words, reduced nozzle effectiveness can be considered a power penalty.

One characteristic of a nozzle that can be modified to increase its thrust-making function at low speeds is its length.

Figure 3 – *Nozzle and rudders*

Longer nozzles will generate a bit more thrust at low speeds, but will also have a larger "appendage" drag at high speeds (which is not generally critical for pushboat operation).

Once a decision on open versus ducted is in place, we can then focus on the propeller itself. The typical propeller model selection strategies for transit vessels must be modified somewhat for pushboats to account for their dynamic operation (such as backing or maneuvering) and stratified wake field (with variation in blade angle of attack into the flow). For example, propellers for pushboats should avoid anything that would push a blade's leading edge into a negative angle of attack (and its corresponding potential for damaging face cavitation). This would mean a strong preference for flat-faced propellers instead of propellers with face camber (also called "progressive pitch"). Cupping should also be avoided for the same reason. Further, both cupping and camber also cause a reduction in backing performance.

Propeller sizing and analysis calculations

Sizing and analysis calculations for pushboat propellers require a different set of criteria than those for transit vessels. For example, the prediction of required minimum blade area ratio (BAR) against typical cavitation criteria should include a margin (commonly some 10%) for the frequent dynamic and transient heavy-thrust modes of operation. Blade count is generally selected to mitigate drive-line vibration issues, and four and five blades are common due to BAR requirements.

Unlike transit vessels such as merchant ships or motor yachts, for example, the loading on the propeller will vary day-to-day, as the number of barges and river environment changes. Therefore, a suitable propeller sizing design point for pushboats will be based on matching the propeller's performance against the engine's potential maximum power, rather than against the vessel's thrust requirements. To properly evaluate the delivered thrust capabilities of the system, the calculations should employ what is called a "towpull" analysis that determines the maximum potential delivered thrust for the given engine, driveline and propeller.

Suitable system analysis and propeller sizing tools (such as NavCad and PropExpert) will include appropriate ducted propeller types (ideally with consideration of nozzle length and effectiveness); calculation of pitch, BAR and gear ratio; sizing against engine power with a "torque-identity" option, and calculation of "towpull" that takes the engine's power curve into account. Propeller design tools (such as PropElements) can include greater detail for optimization of pitch distribution, and a more refined consideration of wake field and nozzle function.

Readers who want to learn more can view a few of HydroComp's recent recorded webinars for additional information on ducted propellers, pushboats and towpull. These webinars can be found at: ***https://www.hydrocompinc.com/blog/work-from-home-webinar-series/***

LNG Bunker Barge Hose Handling Cranes

LNG bunkering barge currently under construction at Fincantieri Bay Shipbuilding

Fincantieri Bay Shipbuilding is currently building a liquefied natural gas (LNG) bunker barge for Polaris New Energy, a subsidiary of Northstar Midstream.

MacGregor, part of Cargotec, recently revealed it secured an order from the Sturgeon Bay, Wis. shipbuilder to supply two fixed boom cranes that will handle the hoses on board the unique vessel.

The MacGregor Rapp HP63-13F cranes will handle the hoses that transfer LNG from the barge to the LNG-powered vessel during bunkering operations. The hoses will be 63 feet long and designed to handle 6,500 pounds at 42 feet and 1,000 pounds at 63 feet.

MacGregor, which noted that it has an established history delivering hose handling cranes for oil tanker barges to Fincantieri Bay Shipbuilding and other barge constructors in the U.S., said this will be its first pair of cranes to be delivered for an LNG bunkering application.

"We have a long-standing relationship with Fincantieri Bay Shipbuilding, and a proven reputation of delivering high-quality hose handling cranes to the U.S. barge market," said John Carnall, Senior Vice President, Global Services Division, MacGregor. "These are the first hose handling cranes that MacGregor will deliver to an LNG bunkering barge, and we have tailored the specification in close cooperation with Fincantieri Bay Shipbuilding's engineering group to ensure the exact configuration for the owner's hose handling operations."

"We are glad to select MacGregor as the supplier for our LNG bunker barge project's hose handling cranes. MacGregor's support prior to order was an important part of our design development. We are confident that these cranes will meet or exceed our customer's requirements," says Hugh Haggerty, Project Engineer, Fincantieri Bay Shipbuilding.

The builder hosted a private ceremonial keel laying June 24 for the new barge, following several months of prefabrication work of its modular sections.

Slated for completion in late 2021, the 5,400 cubic meter capacity barge, to be named Clean Canaveral and homeported in Jacksonville, Fla., will operate as an articulated tug and barge unit (ATB) that initially runs along Florida's east coast providing LNG bunkering solutions to NorthStar Midstream's customers.

The barge will be 340 feet long overall, with a 66-foot beam and a depth of 32 feet, 10 inches. It will be fitted with four 1,350-cubic-meter IMO Type C tanks. It will be ABS classed and utilize a cargo handling system designed and developed by Wärtsilä Gas Solutions.

Polaris New Energy will source LNG from JAX LNG, a state-of-the-art LNG production facility in Jacksonville, created through a partnership between NorthStar and Pivotal LNG.

Elakha:
Repowering a Valued Research Vessel

By Alan Haig-Brown

Cummins

Ocean science is in high demand by scientists studying ocean acidification, wave energy, seabed composition, changing water temperatures, fish populations and dozens of other research projects. The Oregon State University (OSU) has a proud history in the field. The wide variety of research project require a variety of vessels.

One boat that has made large contributions to research is the 54- by 16.5-foot Elakha which was built in 2001 at Rozema Boat Works of Mount Vernon, Wash. Showing design influences of a typical forward house west coast style fishing boat, the Elakha's after deck is set up for retrieving data from the ocean, although some fish research is also possible. The university works with a variety of organization to pursue research. The boat has enabled marine studies. Work has ranged widely including benthic ecology, oceanography, marine mammal studies, ornithology, climatology, fluid dynamics, marine ecology, and estuary ecology. Some of the most common types of work for the Elakha include dive operations, acoustic studies, glider deployment and recovery, box coring, profiler deployment and recovery, plankton and other tows, crab pot deployment and recovery and CTD casts.

As the boat approached its 20th year of operation, the team at OSU had to consider the best mid-life upgrade. The existing 600 hp CAT 3176 had given good service and they considered a rebuild. Writing about the selection process, the Elakha's master, Captain Jeff Lawrence, describes the process very well:

"…As part of this evaluation we contacted Scott Graff at Curry Marine. In just a few short days Scott came up with a great package for our project that checked every box on our needs list. We decided to go with a new tier 3 Cummins QSM 11 610hp engine A ZF360A 2.44:1 marine gear and Glendinning ECS controls.

"On February 28, 2020 the R/V Elakha made her way up the Yaquina river to the Port of Toledo Boat Yard at Toledo Oregon to be hauled out and the re-power begun. After a week's time the old engine and gears were out, and we started to fit the new equipment to the boat. The process of transitioning from the older Cat to a new Cummins there was plenty of fabrication that had to be done before the new QSM11 engine and the ZF gears could be installed. With the skillful hands of the yard's mechanics, David Stoker and Ted Mandell, things came together nicely. Among the major changes for which we had to account during our transition from a CAT engine to a Cummins were the motor mount locations and the line-up from the engine to the transmission. These adjustments were supervised and instituted by David Stoker for the most part, with assistance from Captain Jeff Lawrence.

"Almost immediately we faced a serious obstacle, the outbreak of COVID-19 at the start of our planned shipyard time period. Shortly after delivering the Elakha to the Toledo shipyard, the COVID-19 pandemic was in full bloom compounding the health hazard with federal and state reactions and safety guidelines. Logistics were severely hamstrung, personnel/vendors were infinitely more difficult to find and line up, and operations in general came to a trudging crawl. The pandemic added approximately 10 weeks to our estimated timeline for completing the repower. It is a testament to the determination of Toledo shipyard, Curry marine, and OSU Ship Operations that the project was completed at all. Throughout the developing pandemic, progress did win the day.

"After the new engine and gears were installed, new Racor's,

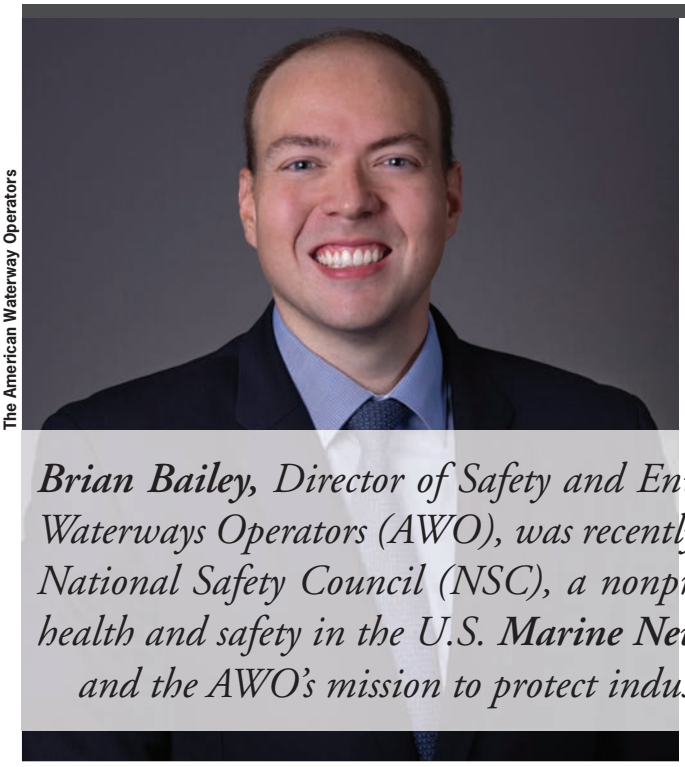
fuel lines, raw water-cooling systems, muffler and exhaust all went in. In addition to these upgrades, new Glendinning ECS controls were installed as well during this time, as well as significant re-wiring from the engine to the engine brain-box, and up to the controls in the wheelhouse. With a good amount of assistance from Scott Hatfield from the shipyard, the Elakha crew removed all the old wiring for the CAT engine and ran new wiring for the Cummins engine.

"Along with this new wiring, the Elakha received some dash control upgrades as well in the form of a more modern engine monitoring system with a more comprehensive assortment of readouts and information for the main engine. After everything the installations were complete The Elakha happily splashed back into the Yaquina river and we arranged for a test run.

The Curry Marine mechanics, Scout Hockema, Scott Houck and Matt Orr arrived at the yard and we fired up the new engine. As expected, it fired right up and ran smooth. We ran the engine at the dock all day without incident. With a few minor adjustments we were ready for sea trials. Our plan was to run down to Newport and back the next day. Sea trials went remarkably well, the vessel performance was excellent and significantly surpassed our expectations. With a newly repowered vessel, significant upgrades and COVID-19 mitigation procedures firmly in place, we were ready to go back to work just in time to kick off the busy summer season.

"For the past six months we have stayed busy even within the mitigating parameters of the ongoing pandemic, and the new restrictive operational practices we have developed to keep all users and crew safe. The new engine and gears are running smother, quitter, cleaner and more fuel efficient than ever before. The new Cummins engine provides our operations with more available power and speed, while also increasing fuel economy, which is certainly not a common combination. It's a real comfort being offshore in adverse conditions to have the reliability and power that you know you need to get home safely.

"Captain Lawrence, and our whole team are grateful to Oregon State University and specifically our College of Earth, Ocean and Atmospheric Sciences for their continued support and financial commitment to the Elakha and her mission of safe science at sea. We are indebted to all of the scientists who advocate for our vessel and our mission. Finally, we sincerely appreciate Scott Graff and his team at Curry Marine for their hours, experience and efforts that they put into this major project and also to Toledo Boat Yard for the great work on the install."



The American Waterway Operators

In Focus: Workboat Safety

By Eric Haun

__Brian Bailey,__ Director of Safety and Environmental Stewardship for the American Waterways Operators (AWO), was recently named a 2020 Rising Star of Safety by the National Safety Council (NSC), a nonprofit public service organization promoting health and safety in the U.S. __Marine News__ spoke with Bailey about workboat safety and the AWO's mission to protect industry workers, assets and the environment.

Please tell us a bit about yourself and your role at AWO.

I've been with The American Waterways Operators as its Director of Safety & Environmental Stewardship since 2016, and lead continuous improvement efforts to promote safety, security and environmental stewardship the tugboat, towboat and barge industry. Specifically, I administer members' compliance with AWO's requirement that carrier members maintain third-party audited compliance with a safety management system (SMS), specifically the U.S. Coast Guard-accepted Responsible Carrier Program; the Safety Statistics Reporting Program, a safety data point collection repository; and, the activities of the association's safety committees and subsidiary groups including the Tankering & Barge Operations Subcommittee. I have more than 10 years specializing in the successful leadership and management of organizations and programs. I'm originally from the Baltimore metropolitan area and am a graduate of the University of Maryland, Baltimore County.

Why is it important for industry stakeholders to come together on safety issues? And best case scenario, what can be achieved through discussions such as those arranged by AWO and other groups?

I believe in safety evangelism. And, the importance of convening the broader towing industry community to learn about and engage on safety issues is more critical than ever. Each and every employee in the towing industry knows safety is important. They all want to work in a safe and healthy atmosphere. Each and every AWO member company believes it is their responsibility to look after employees – whether they're shoreside or afloat. Real change can happen when we sit down together and brainstorm, attempting to develop real, tangible safety solutions to make sure that everyone returns home from work the same way they left.

To give an example, the Tankering & Barge Operations Subcommittee, a subsidiary of the Interregion and Coastal Safety Committees, has identified the need for safe and reliable means of access/egress at the vessel-to-facility interface. The group noted the lack of regulations addressing access/egress between ship and shore leads to a haphazard system that puts individuals at risk of injury or even death. They brought together a large group of stakeholders, did some data collecting, reviewed the most commonly used systems for access/egress, delved into examples of safety risks that tankermen and others encounter, designed a work process to mitigate these risks, and lastly provided recommendations to close access/egress safety gaps over time. All this was published in a memo entitled "Mitigating Access/Egress Risks at the Vessel-to-Facility Interface."

Other than COVID-19 issues that have dominated safety talk this year, what do you see as the top safety issues frequently discussed among AWO members?

Fall overboard prevention continues to be a top issue and safety priority. And, as an industry, we must do all we can to fully understand and promote the contributors to falls over-

board, which can sometimes lead to fatalities, the human factors that play a role, and the preventative measures that can be taken by the company and the mariner to reduce that mariner's risk exposure. AWO, in reviewing its U.S. Coast Guard and AWO Safety Partnership data in February 2019, noticed that nearly half of the towing vessel crew fatalities since 2010 resulted from falls overboard incidents, despite a 2012 Quality Action Team report on Reducing Fall-Overboard Crew Fatalities produced by the Partnership. In response, AWO constituted the Permanent Subcommittee on Operational Crew Fatalities to continue studying this issue of the industry's operational crew fatalities, including individual incidents and causal factors, paying particular attention to the problem of falls overboard incidents. One of the best ways to prevent incidences such as falls is an effective and robust culture of safety. To AWO this means that companies must utilize an effective safety management system which reduces the risk of incidents, injuries and fatalities through ongoing data-driven measurements designed through continuous improvement in safety performance. Safety is everyone's responsibility, and safety culture must include components such as visible, felt leadership; effective training; open, transparent communication; employee engagement; and training. However, even the best safety culture isn't 100% fool and fail proof.

Overall, how would you rate the industry's response to COVID-19 from a safety perspective?

While our industry, like all Americans, has been challenged by this global health crisis in profound ways, the domestic maritime supply chain has proven resilient in the face of COVID-19. The men and women of the

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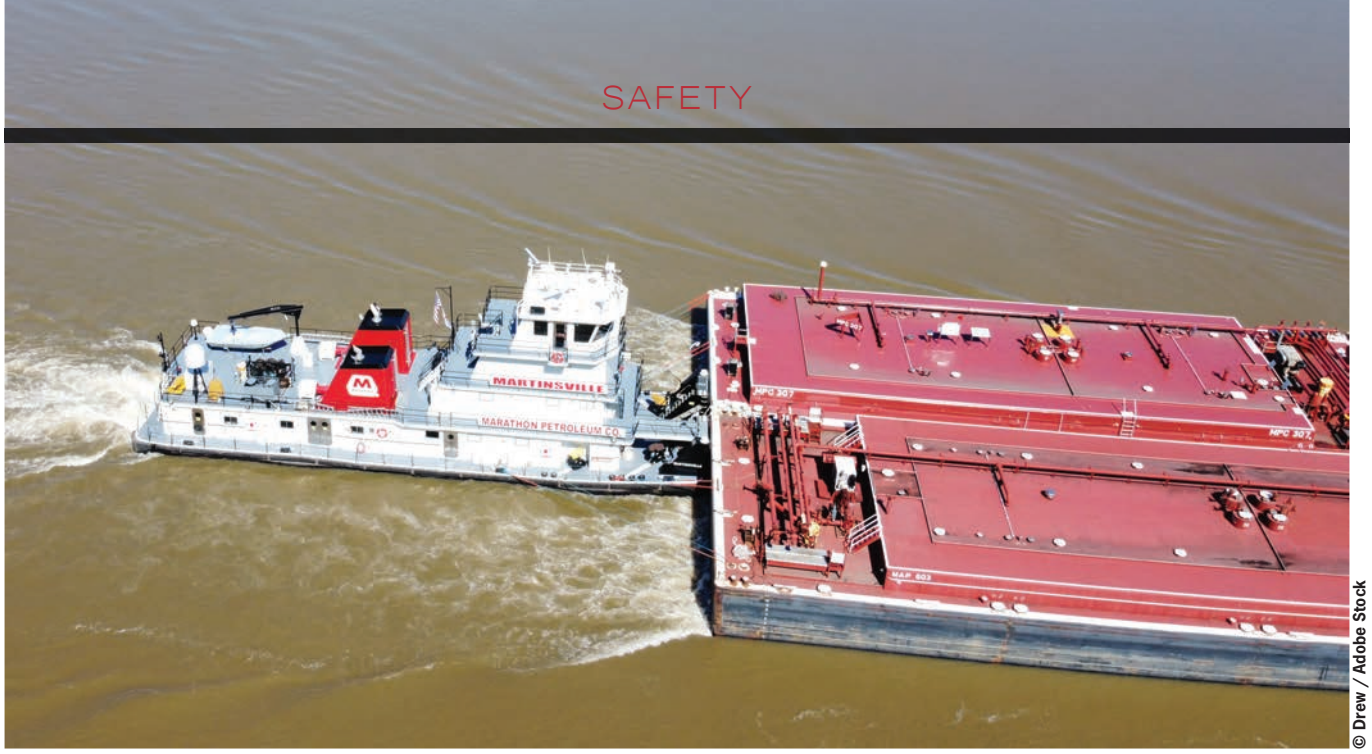

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tugboat, towboat and barge industry have played a key role in keeping our nation's economy afloat, remaining open for business and continuing to move essential cargoes. Tugboat, towboat and barge companies have been able to maintain business continuity in large part because employers recognized early on that mariners are the lynchpin of their operations and protecting crewmember health and safety is key to keeping vessels moving and commerce flowing. The industry's extensive experience with contingency planning, safety management systems and incident command structures has served it well in managing the health, safety and operational challenges posed by the pandemic. The result of these concerted and cooperative efforts has been to keep COVID-19 infections among the mariner workforce to a minimum – a win-win for health and safety and for the resilience of the maritime supply chain. To maintain this situation, it will be extremely important for employers, mariners and regulators to remain vigilant and not relax prematurely the prevention policies and social distancing procedures that have proven successful in keeping vessels largely virus-free.

From your point of view, what are some of the top ways Subchapter M has affected industry safety?

Subchapter M has incentivized more towing companies than ever before to implement safety management systems. The experience of AWO members with the Responsible Carrier Program, which was accepted by the Coast Guard under 46 CFR §138.225(b) as an existing safety management system, has demonstrated that implementing a safety management system has produced quantifiable benefits in the form of fewer vessel incidents and personal injuries. That is why AWO continues to believe that the implementation of a safety management system is in and of itself the best way to promote continuous compliance. The purpose of a safety management system is to drive continuous improvement in safety performance, and its pillars—which are reflected in the TSMS requirements of Subchapter M—include procedures for verifying vessel compliance, assessing performance, identifying and correcting non-conformities, and applying lessons learned. We can already see from the data compiled by the Coast Guard that towing vessels using the TSMS option have far fewer deficiencies and detentions that towing vessels using the Coast Guard option.


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Partners Developing Zero-emissions Fast Foil Ferry

Glosten

A group of public and private partners in Washington have come together to accelerate the design of a fast foil ferry to provide zero-emissions, high-speed passenger ferry service in the Evergreen State.

Participants in the Joint Innovation Project include three Washington ports that have joined forces to support the effort: Port of Anacortes, Port of Bellingham and Port of Skagit. The vessel is under design by Glosten and Bieker Boats. Kitsap Transit has identified a potential route for its ferry operations and sponsored the team, which will receive funding from the U.S. Department of Transportation's Federal Transit Administration.

Leading this collaborative joint innovation project effort is Washington Maritime Blue, a strategic alliance formed to foster maritime innovation and sustainability in support of an inclusive blue economy, and DNV GL, a technical assurance firm providing independent advisory services to the maritime and energy industries. Additional project partners Skagit County and EDASC (Economic Development Alliance of Skagit County) share the maritime focus and joint goals of lower emissions, less road congestion and economic development opportunities.

The project aims to deliver not only the design for a zero-emission, high-speed passenger ferry for operation in the Puget Sound, but also the business model, which will include studies of route viability, shoreside infrastructure requirements, permitting and regulatory requirements, and economic and environmental impacts. The foil ferry will include options for fully electric propulsion or diesel-electric propulsion for extended range. The diesel-electric option could be two to three times more fuel efficient than conventional fast ferries and save 1,500 tons of carbon-dioxide annually. The project also will explore required infrastructure, environmental benefits and impacts, regulatory and permitting needs and possible routes and operators.

ECO to Build and Operate First Jones Act SOV

Edison Chouest Offshore

Offshore vessel operator Edison Chouest Offshore (ECO) will build and operate the first-ever U.S. flagged Jones Act compliant service operations vessel (SOV), used for offshore wind farm operation and maintenance works.

Edison Chouest Offshore, Ørsted and Eversource announced the execution of a long-term charter agreement for the provision of the SOV. The SOV, to be built at a combination of ECO's shipyards in Florida, Mississippi and Louisiana, will be engineered, constructed and operated by ECO as an integral part of the operation and maintenance of the Revolution Wind, South Fork Wind and Sunrise Wind offshore wind farms in the northeast U.S., which are dependent on obtaining the necessary federal permits from the Bureau of Ocean Energy Management (BOEM), the companies said in a statement.

The vessel will be more than 260 feet long and capable of housing 60 passengers. It will be equipped with passenger staterooms with private bathrooms, an exercise room, cinema/training room, internet café and multiple lounges.

The SOV will include a below deck warehouse to palletize storage for wind farm tools, components and supplies with step-less access to an elevator.

Furthermore, a daughter craft, with associated launch and recovery system and hydraulic height-compensating landing platform, will be installed for infield turbine repair operations. The vessel will operate on diesel-electric power that meets EPA Tier 4 emission standards and will feature a proprietary ECO variable frequency drive (VFD) to reduce greenhouse gas emissions.

Gladding-Hearn Delivers St. Lawrence Seaway Pilot Boat

Gladding-Hearn Shipbuilding, Duclos Corporation delivered a Chesapeake class pilot boat to the Seaway Pilots Inc. in Cape Vincent, N.Y. The Seaway pilots navigate ships in and out of the ports and harbors of the St. Lawrence Seaway between St. Regis, N.Y. and Port Weller on Lake Ontario.

With a length overall of 53.6', a beam of 17.8' and a draft of 4.8', the all-aluminum pilot boat features the Ray Hunt Designs deep-V hull. It is powered by twin keel-cooled Volvo Penta D16, EPA Tier 3-compliant diesel engines, each delivering 641Bhp at 1,800 rpm and a top speed of 23 knots. A Humphree interceptor trim-tab control system, with Automatic Trim Optimization is installed at the transom. Diesel capacity is 800 gallons, which shipyard officials said will provide a range of at least 300 miles at an economical speed of about 20 knots.

The engines turn five-blade NiBrAl propellers via ZF500-1-A gear boxes. The launch is equipped with a keel-cooled 12kW Northern Lights EPA Tier 3-compliant genset.

The wheelhouse, mounted to the flush deck amidships, features a center-line helm station, heated forward, side and roof windows, five Llebroc seats and a settee. It is

Gladding-Hearn Shipbuilding, Duclos Corporation

heated/cooled by a 32,000 Btu reverse-cycle air-conditioning system. The decks, handrails and cabin are heated by a 100,000 Btu diesel-fired hydronic heating system, augmented by main engine waste heat.

Outside of the wheelhouse are wide side decks, side and rear doors, and heated roof and boarding platforms on the roof. Because of season icing, the launch's bottom has extra-thick plating. At the transom are throttle and steering controls, and a winch-operated, fixed davit over stairs to a recessed platform for rescue operations.

Southwest Shipyard Delivers 250-foot Tank Barge


The Shearer Group, Inc.

Houston's Southwest Shipyard has delivered a 250' x 54' x 12'-6", 23,000 BBL tank barge that will primarily be used to deliver jet fuel to support the U.S. Navy assets.

The Shearer Group, Inc. (TSGI) said it was contracted by the builder to develop the barge design. The barge was designed to ABS Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways and applicable rules by the U.S. Coast Guard for barges Subchapter D & O products on rivers. It features six cargo tanks, two S6B3-429BPU Tier III Cargo Pump Engines, a reinforced ice framed bow, generator and HPU house, hydraulic cargo hose handling cranes, and an air conditioned tankermans shed.

Bay Shipbuilding Delivers Self-unloading Barge to VTB

Fincantieri Bay Shipbuilding has delivered a newly built self-unloading barge to VanEnkevort Tug & Barge for operation on the Great Lakes. The new barge, named Michigan Trader, measures 740 feet in length, 78 feet in beam, and 45 feet in depth. The barge has a 265-foot unloading boom and capacity for up to 37,000 long tons of cargo.

David Groh, president of VanEnkevort Tug & Barge, said Michigan Trader will be the fourth self-unloading barge in the company's Great Lakes fleet. The barge will be the 10th in the VTB fleet, with services on the Great Lakes, Mississippi River and Gulf of Mexico.

Fincantieri Bay Shipbuilding's vice president and general manager, Todd Thayse, noted that the Sturgeon Bay, Wis. has always provided repair services to VTB and built the hull for its first new tug the Joyce VanEnkevort.

Fincantieri Bay Shipbuilding

Utilizing materials and parts from suppliers across the Midwest, the project's supply chain includes local suppliers such as Broadwind Heavy Industries of Manitowoc, Wis. which built the Michigan Trader's 265-foot boom. Northern Machine & Repair Inc. provided its hatch covers, and Marine Travelift in Sturgeon Bay, Wis. manufactured the cargo hatch crane along with many more local parts and services.

First Upgraded 47 MLB Delivered to USCG

Birdon America

The U.S. Coast Guard accepted the first upgraded 47-foot Motor Lifeboat (47 MLB) as part of the MLB Service Life Extension Program (SLEP). The first article vessel will undergo a four-month operational assessment at the National Motor Lifeboat School in Ilwaco, Wash.

The 47 MLB is the Coast Guard's standard lifeboat, designed to weather hurricane force winds and heavy seas, capable of surviving winds up to 60 knots, breaking surf up to 20 feet and impacts up to three Gs. And, if the boat should capsize, it self-rights with all equipment remaining fully functional.

Current in-service MLBs are approaching the end of their original 25-year service life. In August 2019 the Coast Guard awarded Birdon America a $190 million contract to extend the 47 MLBs for an additional 20 years. The West Coast SLEP activities are being performed at All American Marine, and work for vessels on the other side of the country will take place at an East Coast shipyard from 2022. Birdon designed the 47C configuration of the 47 MLB for performance, crew safety and ergonomics and fuel economy. The systems are designed to reduce total ownership cost and improve reliability and maintainability. Powered by twin diesel engines and a standard v-drive/shaft/propeller propulsion system configuration, the 47C meets Coast Guard technical requirements and exceeds requirements in the areas of fuel economy and noise. The boat is fitted with new consoles, navigation systems, fire suppression systems, crew seating, lighting, power generation and electrical system components.

Marine News 2021 Editorial Calendar

January 2021

Passenger Vessels

- Dredging
- Electric & Hybrid Vessels & Propulsion
- Health, Safety & Sanitization
- MaritimeEquipment.com Safety & Sanitization Resource Guide

Event Distribution:
PVA Maritrends:
Feb 6-9, Portland, OR

E-Magazine Edition: Offshore Wind Workboats

March 2021

Pushboats, Tugs & Barges

- Maritime Training & Education: Classroom, Simulation, Online
- Shipbuilding Report
- Coatings & Corrosion Control
- Spotlight: Q1 Inland Waterways Report
- MaritimeEquipment.com Coatings Resource Guide

Event Distribution:
AWO Spring Convention
Apr 13-15 Washington, DC
NACE Corrosion
Apr 18-21 Salt Lake City, UT

April 2021

Offshore Energy

- Water Treatment
- Marine Cranes
- Ship Autonomy / AI
- Marine Electronics: Communication & Controls
- MaritimeEquipment.com Water Treatment Resource Guide

Event Distribution:
CMA Shipping 2021
May 2021 - Stamford, CT

May 2021

Dredging

- Barges
- Material Handling Equipment
- Rope & Cordage
- Spotlight: Q2 Inland Waterways Report
- MaritimeEquipment.com Material Handling Resource Guide

Event Distribution:
Inland Marine Expo
June 2021 - St. Louis, MO
Seawork
June 15 - 17 - Southampton, UK

June 2021

Combat & Patrol Craft

- Multi-mission Workboats
- Patrol Craft Propulsion : Inboard, Outboard and Water Jets
- Marine Lighting
- Workboat Communications
- MaritimeEquipment.com Marine Lighting Resource Guide

July 2021

Propulsion Technology

- Autonomous Vessels
- Workboat Engines
- Fuels & Lubricants
- Workboat Conversion
- MaritimeEquipment.com Marine Propulsion Resource Guide

Event Distribution:
Clean Waterways
September 13-15 - Louisville, KY

E-Magazine Edition: Inland Waterways: Operations, Expansion & Dredging

September 2021

Shipbuilding & Repair

- Naval Architecture
- Shipyard Tools & Equipment
- HVAC and Ventilation
- Q3 Inland Waterways Report
- MaritimeEquipment.com Shipyard Resource Guide

Event Distribution:
SNAME Expo
October 2021 - Houston, TX

October 2021

MN100

- Offshore Wind
- Pipes, Pumps and Valves
- Maritime Training
- MaritimeEquipment.com Pipes, Pumps and Valves Resource Guide

Event Distribution:
SHIPPING Insight
October 2021 Stamford, CT, USA

November 2021

Great Workboats of 2021

- Tugs and Push Boats
- Power & Propulsion
- Deck Machinery
- Spotlight: Q4 Inland Waterways Report
- MaritimeEquipment.com Deck Machinery Resource Guide

Event Distribution:
Clean Gulf: December 2021
Workboat Show: December 2021

E-Magazine Edition: Patrol, Escort & Fast Craft Operations

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Theriot

Degodny

Beegle

Allan

Schwarz

Marti

Theriot Takes the Helm at Southwest Shipyard

Scott Theriot has been named president and CEO of Southwest Shipyard L.P., effective August 12. He takes over from Read Boles who has served as interim president and CEO since February, following the passing of the shipyard's previous president and CEO Martin DeCamp. Boles has returned to his advisory role on the company's board of directors.

Tidewater Names Degodny VP and CCO

Tidewater Transportation and Terminals recently added Aaron Degodny as its new vice president and chief commercial officer. Degodny was formerly president and chief operating officer at Rand Logistics, Inc.

Great Lakes Dredge & Dock Moves Its HQ

Great Lakes Dredge & Dock Co. is moving its corporate headquarters to Houston, positioning the nation's largest dredging services provider nearer to major regional projects and opportunities. The firm will also open regional offices in Jacksonville, Fla., and Staten Island, N.Y.

Marcon International Founder Beegle Retires

Marcon International, Inc. founder and president Robert Beegle retired effective October 1. Ownership and management of the company was taken over by the company's employees. John Braden, Martin Coombe and Brian Peterson will continue as brokers, while also serving as president and board members, respectively. Patricia Hernandez, formerly business manager, was appointed vice president, treasurer, COO and corporate secretary.

Gibbs & Cox to Open Houston Office

Naval architecture and marine engineering firm Gibbs & Cox is expanding its services into Houston with the aim to generate revenue in non-naval markets, develop and sell new products and/or services to non-traditional clients and contribute to existing programs.

SNAME Honors Rob Allan

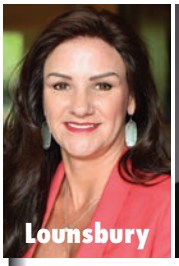
Robert Allan Ltd. announced that its executive chairman, Robert G. "Rob" Allan, has been made an Honorary Member by the Society of Naval Architects and Marine Engineers (SNAME), making him one of only 50 living individuals to enjoy this privilege.

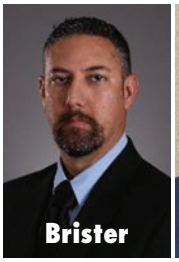
USMMA Honors ABB's Schwarz

Edward Schwarz, vice president for ABB Marine and Ports, received the United States Merchant Marine Academy's Rear Admiral Lauren S. McCready Award as the 51st recipient.

Interferry

Baldwin





Harvey Gulf Subsea Solutions

Ulstein Names Marti as CEO

Cathrine Kristiseter Marti, CFO of shipbuilder Ulstein, has been promoted to replace long-serving CEO Gunvor Ulstein, who has decided to step down.

Interferry Names New Chair and Board Member

Ferry industry trade group Interferry announced Brittany Ferries CEO Christophe Mathieu as the new chair of its board of directors. New board member Supapan Pichaironarongsongkram chairs the Bangkok-based Supatra Group and its Chao Phraya Express Boat and Chao Phraya Tourist Boat subsidiaries.

Baldwin Joins LIG Marine Managers

LIG Marine Managers, a commercial marine and longshore MGA in the U.S. and Lloyd's broker, announced that veteran marine insurance executive Ken Baldwin has joined the company as vice president of marine.

Harvey Gulf Subsea Solutions Adds Staff

Harvey Gulf Subsea Solutions said it has appointed LaDawn Lounsbury to its business development team. In addition, Brad Brister has joined the company as project manager and Mark Scott as lead engineer.

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

New LARS for Unmanned Craft

SOLUSV, a new launch and recovery system (LARS) for unmanned craft has been proved in testing off Norway's West Coast. Designed as a cost-effective and compact equipment fit for an unmanned surface vehicle (USV) and useable with existing davits, the DNV GL-approved SOLUSV uses standard H. Henriksen hooks but deploys a unique spring-loaded rope drum mounted on the USV, tuned for easy connection to the fall rope via a special soft link. The low weight and compact handling system is easy to operate and offers a plug and play solution.

FCwave Fuel Cell

Ballard Power Systems has launched what it says is the fuel cell industry's first module designed for primary propulsion power in marine vessels such as passenger and car ferries, river push boats and fishing boats, as well as stationary electrical power to support hotel and auxiliary loads on cruise ships and other vessels while docked at port (also known as 'cold ironing'). The FCwave fuel cell product is a 200-kilowatt (kW) modular unit that can be scaled in series up to the multi-megawatt (MW) power level.

CanPower ESS

Two of the main hurdles facing shipowners wishing to install energy storage systems (ESS) are the physical footprints and the complexity of installation. Sterling PBES says its CanPower microgrid ESS system aims to solve both concerns by using a self-contained unit, designed to easily and inexpensively be located on the top deck or other exterior location of any vessel, alongside intelligent design to streamline installations. CanPower is designed to add energy storage to virtually any vessel, for newbuilds and retrofits, without the need for complex design and build times.

Automated Vacuum Mooring

A next generation automated vacuum mooring solution from Cavotec is designed to reduce fuel consumption and increase port productivity by simplifying and accelerating the mooring process. The Swiss-headquartered manufacturer of connection and electrification solutions for the maritime industry launched its MoorMaster NxG with the goal to "revolutionize the way ships enter and leave ports," enabling ships to dock in as little as 30 seconds. The system comes with patented active control technology and uses a proprietary software algorithm to eliminate vessel motion while also increasing system lifetime.

C700

Intellian's new C700 Iridium Certus maritime terminal can deliver out-of-the-box uplink speeds of 352kbps and downlink speeds of 704kbps by default, with equally impressive low-elevation-angle RF efficiency thanks to its unique 12-patch phased array antenna technology. It will support three high-quality, low-latency phone lines simultaneously; and as a solid-state antenna with no moving parts inside, the C700 is especially robust, requiring no scheduled maintenance over its lifetime.

LogCentral

OneOcean's LogCentral is a digital tool with an intuitive, clearly laid-out user interface that aims to make recording, managing and distributing vessel logbook data easy for onboard personnel. Accommodating all daily operational information including waste disposal, sludge generation and ballast operations, as well as enabling all air and water emissions to be precisely recorded. This facilitates and proves compliance with MARPOL regulations for pollution prevention and control. LogCentral also adheres to the IMO's Marine Environment Protection Committee (MEPC) standards which recently came into force.

FleetManager 4.0

C-MAP calls FleetManager 4.0 its "most impressive web-based fleet management solution to date". A decade from the launch of the first ever FleetManager, this new version incorporates an all-new, lightning-fast interface, full integration of Microsoft Power BI, universal browser compatibility and new weather data overlays. All this along with the existing powerful fleet tracking, reporting, and analysis features on which shoreside managers trust and depend.

Norton Vortex File Belts

Saint-Gobain Abrasives introduced its new Norton Vortex Rapid Prep Non-Woven File Belts, which offer users an easier way to obtain superior finishes when working with tight, intricate and complex parts. A unique high-performance ceramic blend of grain cuts like a coarser grit size and delivers faster cuts, while producing finishes similar to a finer grit abrasive on a wide range of metals. The proprietary Norton Clean Bond resin system ensures a smear-free, crisp-clean finish, improving productivity and reducing cost.

Digital Tank Gauge

PSM describes its new digital tank gauging system (DTGS) as a fully integrated package of instrumentation providing a comprehensive, simple to install and scalable tank gauging solution for small vessels of all classes, consisting of APT1000 Level Transmitters, RFM Connection Modules and a VPM 4300 Display Panel. The central VPM display communicates to all connected APT1000 level transmitters to obtain accurate real-time data and processes this to provide a comprehensive display of the status of all tanks. Multiple displays can be added, and the status information can be serially communicated to other onboard systems, loading computers or alarm monitoring systems, the manufacturer says.

Stronghold

Stronghold by PSG launched an all-in-one tool tether kits for use by workers at height, available covering more than 15 different common industry trades. The kits feature tethers that connect tools to wrists, belts and other anchors, to eliminate drop hazards. Coils, bungees and swiveling tethers that prevent tangles while handling tools while working, no matter which tool attachment is used, are featured in the kits. Other kit items include drill boots, tape measure sleeves, webbing with D-rings, tether cinch loops, vibrant orange tool tether attachment tape, antivibration tool tether shackles, wire core swivel screw gates, synching wrist straps and PPE caddy glove holders.

Monitor Display Arm

Southco's AV D32 Dynamic Mounting Arm (C Series) is a horizontally mounted display positioning solution that allows for vertical adjustment of screens and monitors in applications too constrained for larger height adjustable arms. The C Series allows a monitor to be easily tilted and rotated, swivels at the base of the assembly and can be lowered 60 degrees from the fully extended position for optimal display viewing. The AV C Series features high weight capability, supporting heavy monitors of up to 28 pounds and accommodating a wide range of display sizes.

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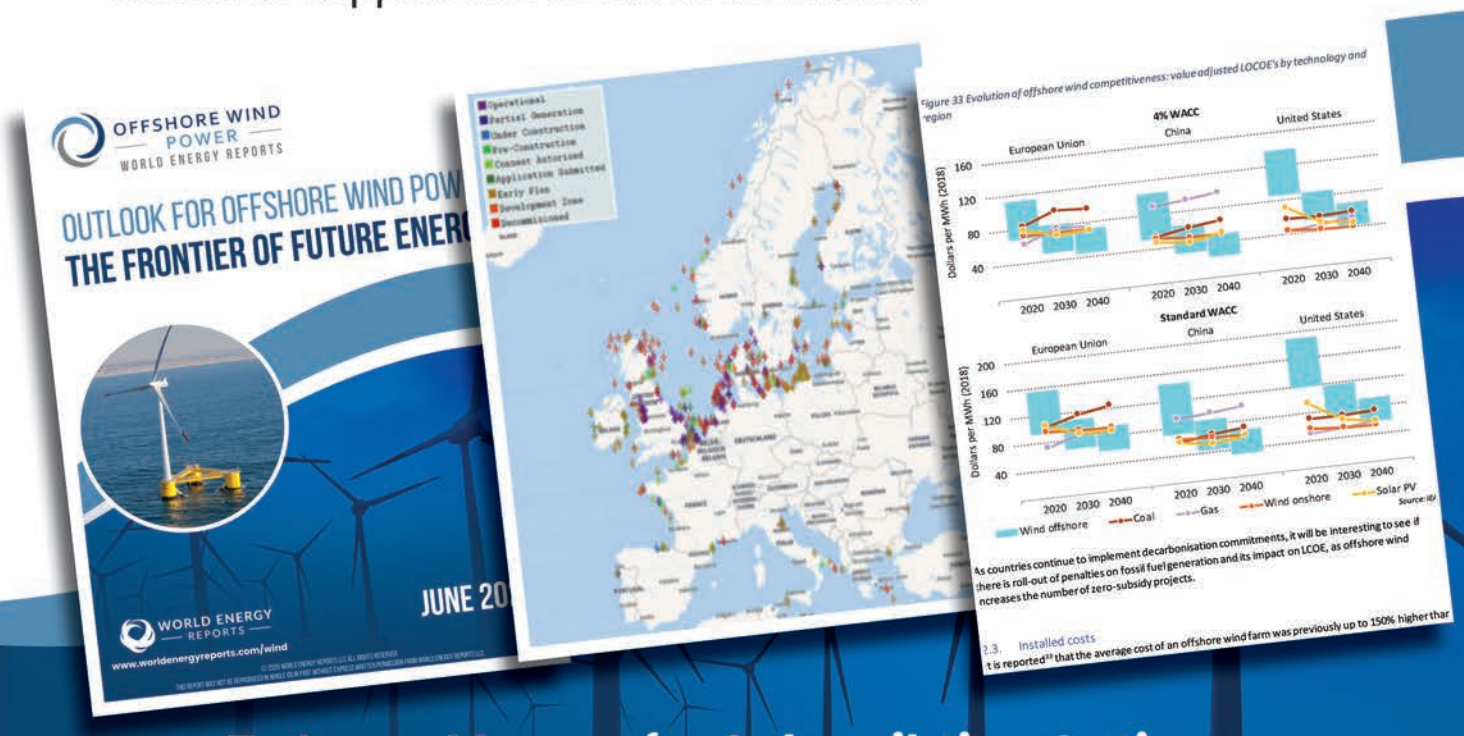

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b. Legitimate Paid and/or Requested Distribution (By mail and outside the mail)	(1)	Outside County Paid/Requested Mail Subscriptions stated on PS Form 3541. (Include direct written request from recipient, telemarketing, and Internet requests from recipient, paid subscriptions including nominal rate subscriptions, employer requests, advertiser's proof copies, and exchange copies.)	10879	9900
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d. Non-requested Distribution (By mail and outside the mail)	(1)	Outside County Nonrequested Copies Stated on PS Form 3541 (include sample copies, requests over 3 years old, requests induced by a premium, bulk sales and requests including association requests, names obtained from business directories, lists, and other sources)	0	0
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e. Total Nonrequested Distribution (Sum of 15d (1), (2), (3) and (4))			407	40
f. Total Distribution (Sum of 15c and e) ▶			11489	9993
g. Copies not Distributed (See Instructions to Publishers #4, (page #3)) ▶			352	7
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i. Percent Paid and/or Requested Circulation (15c divided by 15f times 100) ▶			97%	100%

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17. Publication of Statement of Ownership for a Requester Publication is required and will be printed in the November 2020 issue of this publication.

18. Signature and Title of Editor, Publisher, Business Manager, or Owner: Kathleen Hickey
Date: 9/30/2020

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

FIRST OFFICER

Military Sealift Command
Salary: $81,241, Full Time, Government Employee
Category:
Shipboard Officer / Personnel / Crew
Job Location: 6353 Center Drive building 8, Suite 202 Norfolk, VA, 23502 USA
Contact:
Email: civmar@marinersupport.com
Work Phone : 866-562-7672.

Description:
The First Officer is a Civil Service Mariner (CIVMAR) employed by the Navy to serve the Military Sealift Command (MSC) onboard naval auxiliaries and hybrid-manned warships worldwide, in peace and war. MSC exists to support the joint warfighter across the full spectrum of military operations. MSC provides on-time logistics, strategic sealift, as well as specialized missions anywhere in the world, in contested or uncontested environments.

As the Deck Department Head, the First Officer is responsible for the safe, effective, and efficient management and supervision of deck department employees. Ensures sound fiscal management and adherence to budget guidelines by deck department employees. Has a thorough knowledge of the CMPI and DHAMS. Serves as the ships' safety officer, training officer, damage control officer, vessel security officer, oil spill coordinator and (may be) gas free engineer. On ships without a Master, the OIC/Chief Mate is the Officer in Charge (OIC) of the entire CIVMAR contingent onboard regardless the disparity between formal pay rate designators.

As second in command of the ship, is directly accountable to the Master for all matters pertaining to management, operation, care, safety, and physical condition of deck department operations and keeps the Master informed in those areas. Keeps abreast of all ship's business matters and acts on behalf of the Master when he/she is not available. Maintains a functional understanding of ship's mission, operations, command relationships, and operational reports. Acts as a Command Duty officer (CDO) in charge of the Shipboard Reaction Force (SRF) and fire parties on ships so organized. Performs emergency duties as assigned by the Master and reflected on the Station Bill.

Responsible for the proper planning, loading, stowage and discharge of cargo and maintenance of the ship in a safe and stable condition. Prior to sailing, inspects the ship to ascertain there are no structural defects and that hatches, side ports, cargo gear, cargo and equipment are secured properly. Using Ship Automated Maintenance Management (SAMM) prepares and submits deck department repair list. Submits a list of Voyage Repair Requests (VRR's) to the Chief Engineer for maintenance and repair of deck related items that are beyond the capabilities of ship's force and require outside industrial assistance.

Ensures equitable distribution of overtime; ensures subordinates maintain proper hygiene, grooming and uniform standards; exercises disciplinary control over subordinates and initiates disciplinary actions IAW CMPI 750; recognizes and rewards subordinates' work-accomplishments and achievements using the awards program; conducts career counseling, arranges training, monitors personnel career progressions, and encourages upgrading of licenses and documents; and prepares MAP/Promotion Evaluation Reports as required.

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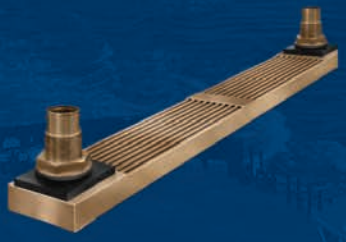

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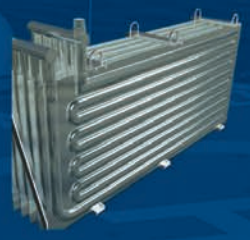

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