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Volume 31 • Number 12

Marine News

DECEMBER 2020

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On the Cover

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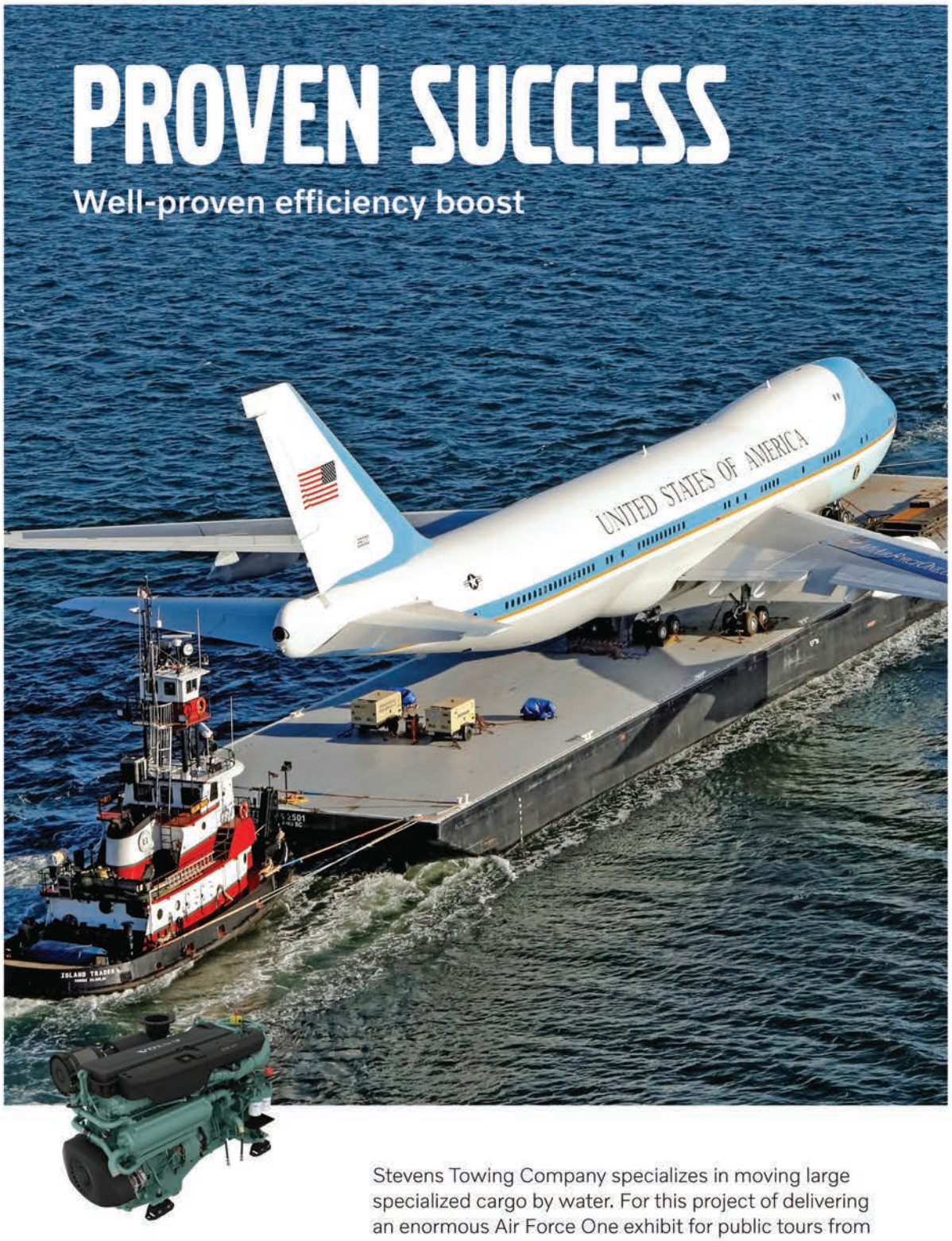

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EDITOR'S NOTE

The conclusion of any year always gives opportunity for reflection. I've been thinking about the year that's now almost gone and taking stock of where goals have been met, where they've been missed and where improvements are most needed in 2021. This time, both personally and professionally, I'm sifting through a bag that's far more mixed than usual. What a year it's been.

Of course, a lot happened in 2020 that was unexpected, and to say this year has been unique or challenging would be a colossal understatement. For many, goals have evolved or evaporated altogether as we've all had to adjust at home and at work (what's the difference these days, right?) to keep the engines running. At New Wave Media, we're proud to continue delivering our brand of print and online media to the commercial maritime industry, and we've been busy working on exciting new projects for the year ahead. Stay tuned!

Clearly, this industry has kept busy too. The pandemic has not stopped new and innovative vessels from being built and commissioned. This year end edition looks at some of the best, starting with a pair of groundbreaking all-electric tour boats that operate 100% emissions-free. *Marine News'* Top Boats of 2020 highlights powerful tugs and towboats, pioneering crew transfer vessels and ATBs, capable patrol and pilot boats, an icebreaking ferry and a very large dredger—a broad display of the finest the U.S. workboat sector has to offer.

As always, thank you for reading. See you in 2021.

Eric Haun, Editor, haun@marinelink.com

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MarTID 2020 Training Practices Report

The survey for the Maritime Training Insights Database (MarTID) 2020 Training Practices Report concluded just as COVID-19 began to spread globally, so its findings do not reflect some of the major shifts that have occurred as result of the pandemic. However, highlighted are a number of ongoing trends that have only become more widespread over the course of this strange and eventful year.

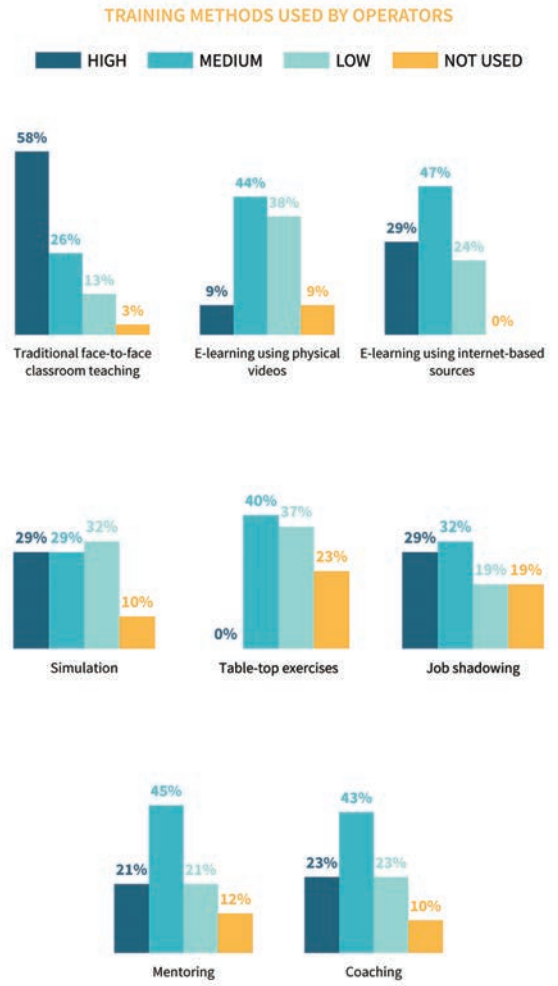
Maritime training budgets rise—again

Training budgets have been rising for vessel operators, and the trend is expected to continue into the future. The vast majority (84%) spent less than 10% of their operating budget on training, with roughly two-thirds spending between 2% and 10%. Compared to the previous surveys, the reported training budgets are trending upward. Nearly 60% of operators have seen an increase in their training budget over the previous year. Looking at maritime education and training institutions (METI), an average of two thirds of a METIs' overall operating budget is spent on training activities and equipment, an increase of 14.5% over the 2019 MarTID survey, where the average was slightly over half at 53.3%.

In-person vs. online

At the time of this year's MarTID survey, 84% of operators reported the use face-to-face in classroom. Even before the pandemic shifted meetings, conferences and training to virtual platforms, the tide was already changing, as this year's report found that 16% have reduced face-to-face training over the last year, and 23% expect to use less of it in the coming year. In contrast, in regards to internet-based e-learning, 65% of respondents indicated increased usage over the last 12 months, and 84% anticipate increased usage over the coming 12 months. And with the arrival of COVID-19, it can be assumed that the 2021 report will show even higher numbers.

The most common training method experienced by seafarers is the traditional, in-person classroom, as only 14% of seafarers indicate they no longer experience this method. Not far behind are e-learning and simulation, with roughly 45%-50% of responding seafarers reporting having encounter either a high or medium amount of simulation or e-learning in their training. Job shadowing, mentoring and coaching were the least encountered training methods.



"Many participants in this survey have noticed an increase in online training and expect this increase to continue," wrote Capt. John Lloyd, CEO, The Nautical Institute, in the MarTID 2020 report foreword. "There is a high level of confidence this methodology meets the industry needs and provides cost-effective solutions. For those paying their own way – the saving benefit is especially important."

The MarTID 2020 survey also asked seafarers to list training they would like to freely engage in, with relation to their career. The most common response was simulation, with more than 18% of respondents citing increased simulator training. Following that, ship handling and practical on-the-job training were the next most commonly mentioned training initiative, with 8% of respondents mentioning them.

The 2020 MarTID report, published by The World Maritime University, New Wave Media and Marine Learning Systems, is available here:
http://magazines.marinelink.com/NWM/Others/MarTID2020/

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Cheer the Year!

As we head toward the end of a very chaotic and COVID-filled 2020 and try to reflect on the positives, the inland waterways had a pretty good year overall. Waterways Council, Inc. (WCI), whose members depend on a modern, efficient inland waterways system, offers this look back, with hopes ahead for the passage of a Water Resources Development Act (WRDA) 2020 with our construction cost-share adjustment priority in the lame duck session of Congress.

A disappointing FY21 budget request

In February, the Trump Administration released its Fiscal Year 2021 (FY21) budget that proposed a 22% cut to the U.S. Army Corps of Engineers' Civil Works budget to $5.967 billion, representing a $1.7 billion cut from the previous fiscal year's (FY20) level enacted by Congress.

Beyond the reduction to the Corps' budget, most disappointing in the budget was a request for $0 from the Inland Waterways Trust Fund (IWTF) for construction of inland waterways lock projects. The FY20 Administration budget requested $111 million for the Lower Mon project near Pittsburgh, of which $55.5 million came from the IWTF that is funded through a diesel fuel tax on commercial operators, with the other half provided by General Revenues. Later, Congress would appropriate more than three times that amount—$336.76 million—to fund four IWTF-funded projects in the FY20 Energy & Water Development (E&WD) appropriations bill. This enabled efficient funding for four projects currently under construction: Kentucky Lock (Ohio River), Chickamauga Lock (Tennessee River), and funding to completion for the Lower Mon Project (Monongahela River) and Olmsted Locks and Dam (Ohio River). So back to the FY21 request of $0 for construction means that the two remaining priority projects would have to stop construction, workers sent home, the timeline to complete the projects would increase.

Also disappointing, the FY21 budget also proposed to an additional user fee to supplement existing revenue from the $0.29-per-gallon diesel fuel tax paid by commercial operators, plus 10% of the cost of Operations and Maintenance (O&M), which has always been a fully Federal responsibility. The Administration noted this new fee would raise $1.8 billion over a decade.

A welcome Corps FY20 work plan

Yet, also on February 10, the Corps of Engineers released its FY20 work plan that allocated funds provided in the FY20 E&WD Appropriations bill for the Civil Works mission, and that news was extremely positive.

FY20 funding from the Construction account was $336.76 million—representing full and efficient funding from the IWTF—was allocated to the Olmsted Locks and Dam project ($63 million) to complete the project; the Lower Mon project ($111 million) to complete the project; the Chickamauga Lock project ($101.7 million); and the Kentucky Lock project ($61.06 million).

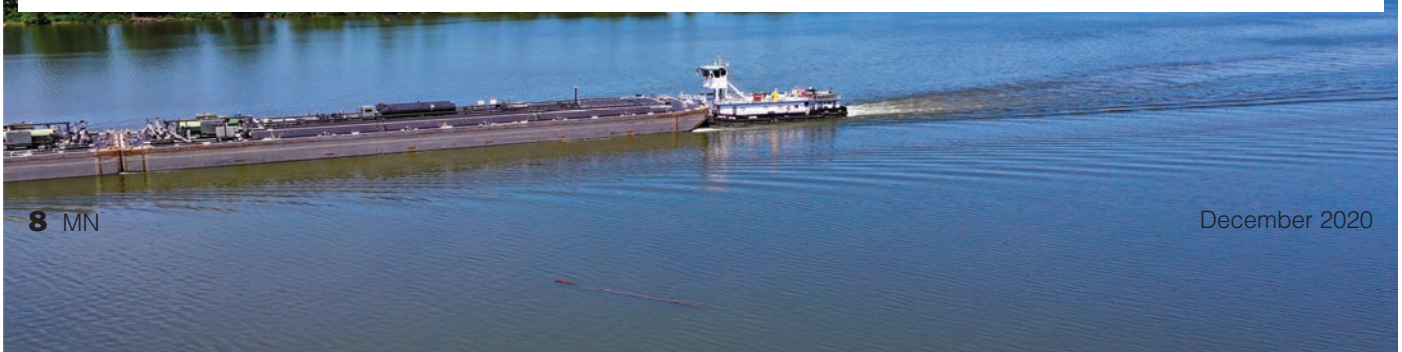
In other good news, $85.35 million was slated to initiate the deepening of the Mississippi River Ship Channel to 50 feet to facilitate Post-Panamax ships in the Gulf, which has just begun over the last month.

The Corps' Investigations account allocated $6.05 million toward continuing PED for the Three Rivers Project in Arkansas, and $7.7 million to continue PED for the Upper Ohio River Navigation Study in Pennsylvania.

Another bright spot was the allocation of $4.5 million for the Navigation and Ecosystem Sustainability Program (NESP) on the Upper Mississippi River and Illinois Waterway System to continue PED ($3 million was provided for navigation and $1.5 million for the environmental restoration component of NESP). This is the first allocation of PED funds for NESP since 2012. NESP is a unique program with a dual function to ensure efficient navigation infrastructure and to protect the eco-habitat of the Upper Mississippi River System (UMRS).

House-passed robust FY21 appropriations

On the appropriations front, on July 31, the House of Representatives approved by a vote of 217-197 an FY21 minibus package that included funding for Energy and Water



By Tracy Zea

Development (E&WD) that funds the Corps, quintupling its Construction and tripling the overall Civil Works budget ($7.63) billion compared to the President's budget request.

The Corps' Investigations account funding was $151 million, equal to the FY20 enacted level and $48 million above the FY21 request.

The IWTF level was $90 million for a total of at least $180 million in funding for construction and major rehabilitation of inland waterways projects, with the final program level dependent on project-specific allocations to be made by the Corps.

Funding for Operations and Maintenance (O&M) was $3.84 billion, an increase of $48 million above FY20 and $1.8 billion above the Administration request.

The House bill provided the Corps an additional $17 billion in emergency funding to accelerate work on projects. Of the additional $17 billion, the Construction account received $10 billion to accelerate projects across all Corps mission areas, at least $3 billion of which is for inland waterways projects. The bill also provided an additional $5 billion in O&M emergency funding.

Senate releases appropriations bills

On November 10, the Senate Appropriations Committee released all 12 of its appropriations bills, including the FY21 Energy and Water Development, and Related Agencies bill that includes funding for the Corps.

Overall proposed FY21 funding for the Corps is $7.72 billion, $72 million above the FY20 enacted level and $1.76 billion above the budget request. The House-passed funding level was $7.63 billion.

Like the House bill, the Senate bill also provides for seven new study starts and seven new construction project starts, of which two are for navigation.

The Corps' Investigations account funding is $151 million, an increase of $48.51 million above the President's budget request.

Funding for the Construction account is $ $2.66 billion, an increase of $487.81 million above the President's budget request.

The IWTF funding level is $110 million, $20 million higher than the House bill. The cost-share for Chickamauga Lock was adjusted to 85% General Revenue Funding and 15% from the Inland Waterways Trust Fund (IWTF).

Funding for Operations and Maintenance (O&M) is $ 3.78 billion (the House-passed funding level was $3.84 billion), or an increase of $1.78 billion above the President's budget request.

$395 million was allocated for Mississippi River and Tributaries, an increase of $185 million above the president's budget request.

The bill also meets WRRDA 2014 spending targets for appropriations from the Harbor Maintenance Trust Fund.

On the FY21 Administration request to spend $0 from the IWTF and to levy an additional user fee on commercial operators, the E&WD bill states, "The Committee is disappointed and perplexed by the budget request's proposal to not spend any of the estimated deposits for fiscal year 2021 into the IWTF… the Committee recommends appropriations that make full use of all estimated revenues from the IWTF for ongoing construction projects."

The word is WRDA 2020

At press time still being negotiated with hopes it can pass in the lame duck session, includes WCI's top WRDA priority to adjust the cost-share for construction and major rehabilitation of inland waterways projects. The bill modifies the inland waterways project cost-share to 65% from the general fund of the Treasury/35% from Inland Waterways Trust Fund (from 50%/50%).

The House T&I Committee's WRDA bill includes the 65%/35% cost-share adjustment but with a seven-year sunset provision. Last May, the Senate Environment and Public Works Committee marked up and passed its WRDA bill, which included a permanent cost-share adjustment for construction and major rehabilitation projects at /65% General Revenue/35% IWTF with no sunset provision. Keeping WRDA on a biennial schedule is important.

WCI will report on the status of WRDA in its next column, and until then, we wish readers the happiest of holidays ahead and an even better 2021.

Tracy Zea is president & CEO of the Waterways Council Inc., a national organization that advocates for a modern, efficient and well-maintained inland waterways, including lock and dam infrastructure, and channel maintenance.

Wasted Words

Post-casualty Apologies Are 'Sorry' Excuses

Vessel collisions on America's busy inland waterways have been a fact of life for a very long time. With towboats, barges, ferries, oceangoing ships and recreational vessels all jockeying for position in limited space, collisions (and even more near misses) are inevitable.

Most of these incidents involving professional mariners do not lead to suspension and revocation (S&R) proceedings against the involved USCG licensed mariners, but, depending on the human and/or financial costs associated with the collision, some do.

In many of the more serious casualties, the direction of the proceedings is established very early on, usually when the first verbal statements by officers involved are provided to authorities responding to the accident scene.

The collision case reviewed below occurred several years ago, but this type of incident would likely evolve the same way if it occurred today.

The facts of the case are fairly common. The captain was piloting a towboat pushing a flotilla of barges downstream when he encountered an inbound tanker. The towboat's captain communicated with the state pilot aboard the tanker to arrange a port-to-port passing.

All was progressing well until about two minutes later when the towboat's captain contacted the pilot of the tanker informing him that his tow was breaking his range. The tanker's pilot asked if he needed to take any actions to allow for a safer pass and, after a brief hesitation, received a negative response. About a minute later, the towboat's flotilla swung into the path of the tanker which collided with several of the barges resulting in three of them sinking.

Consequently, it was alleged that the towboat's captain failed to properly communicate to the tanker's pilot that his tow had swung out too far into the path of the inbound ship, limiting the vessel's options to avoid the collision. That allegation and subsequent on scene interviews led the Coast Guard to bring charges against the towboat's captain for not taking all necessary actions to avoid the collision as required by Navigation Rule 8. The Coast Guard further proposed a 12-month outright suspension of the towboat captain's license in accordance with 46 USC 7703.

Not surprisingly, the towboat's owner did not agree with the Coast Guard's conclusion and license suspension proposal, claiming in its Answer and Counterclaim to the tanker owner's $3 million civil suit for damages that the ship's pilot "…violated one or more of the U.S. Inland Navigation Rules or other statutes or regulations involving marine safety or navigation thereby invoking the Pennsylvania Rule, requiring plaintiffs to prove that those faults could not have been the cause of the collision…"

While the two companies were litigating that case in civil court, the towboat's captain emerged as the key figure. The fact that the Coast Guard apparently agreed with the tanker company's position that the towboat's captain and his flotilla were responsible for the collision made a successful license defense not only crucial to his ability to keep his license and continue working for the next year, but also to his company's attempt to prevail in the $3 million civil action brought against it as a result of the collision.

By Randy O'Neill

The key question was: Why did Coast Guard investigators so quickly conclude that the collision was the fault of the towboat captain to the point that it immediately proposed a 12-month suspension?

The simple answer: The shaken captain repeatedly apologized for his actions.

Specifically, immediately following the collision, in an attempt to explain what happened to Coast Guard investigators, he waived his right to be represented by counsel and gave a lengthy and rambling verbal description of what had happened, interspersing his monologue with several expressions of regret for his role in the collision.

As a result, Coast Guard investigators interpreted his apologies as an admission of fault, leading to an immediate offer of a 12-month license suspension for the captain to consider. Consequently, by the time his license defense attorney was finally contacted, assigned and had the time to properly interview his client, the chatty captain had already talked himself and his company into a pretty tight spot.

Legal counsel turns the tide

While his verbal statement could not be retracted, he now worked closely with his insurer-assigned attorney to draft a less emotionally-charged CG-2692 Report in which his culpability for the collision was much less pronounced. Obviously, the contents of this Marine Casualty Report (2692) was seen as useful to his employer who now wanted him to provide a deposition to bolster its defense position in the $3,000,000 suit for damages brought by the tanker company. After receiving a 'hold harmless and indemnity agreement' from his company, the captain agreed to be deposed in the civil suit…. with his own maritime attorney in attendance.

While jointly considering whether or not to surrender his Master's license with the Coast Guard for a year, the towboat captain's attorney concurrently contested that 12-month license suspension in Administrative Court. And, as additional facts leading to the casualty began to emerge and shared responsibility for the collision became more apparent, his attorney and Coast Guard investigators began to discuss a much less severe sanction against his license in the form of a revised Settlement Agreement and Entry of Consent Order.

In that agreement, the 12-month license suspension was taken off the table and replaced with a one-month outright suspension followed by a six-month suspension remitted on a 12-month probationary period. In addition, it was agreed that the captain complete a Navigational RuIes refresher course during the one-month period of his suspension and send evidence of successful completion to the USCG's Investigating Officer. After a short deliberation and with the full support of his experienced maritime attorney, the towboat captain accepted the terms of the new agreement.

Exercise your right to counsel

In hindsight, the reduced penalty, or even something less severe, might have been the original sanction proposed by the Coast Guard had the towboat's captain not attempted to provide a "voluntary statement" to investigators before contacting and conferring with his insurer-provided defense counsel.

It cannot be overemphasized how important it is for inland river sector mariners to understand that post-casualty statements to investigators which may appear to be innocent—and perhaps even cathartic—can be interpreted completely differently by investigators leading to career-threatening consequences.

While this particular case ended with a relatively good outcome, the over $20,000 in defense costs incurred would have made it a very hollow victory for the hard-working professional mariner had he not had the forethought to protect himself and his career with a license insurance policy which fully paid all the legal costs to defend his license.

Until recently retiring, Randy O'Neill was a Senior Vice President for Lancer Insurance Company and Manager of its MOPS Marine License Insurance division. A regular columnist for Marine News magazine, he has authored many articles on the importance of USCG license defense and income protection for deck and engineering officers as well as federal and state pilots.

Metal Craft Marine

Rigid Inflatables:

Turn Up the Power

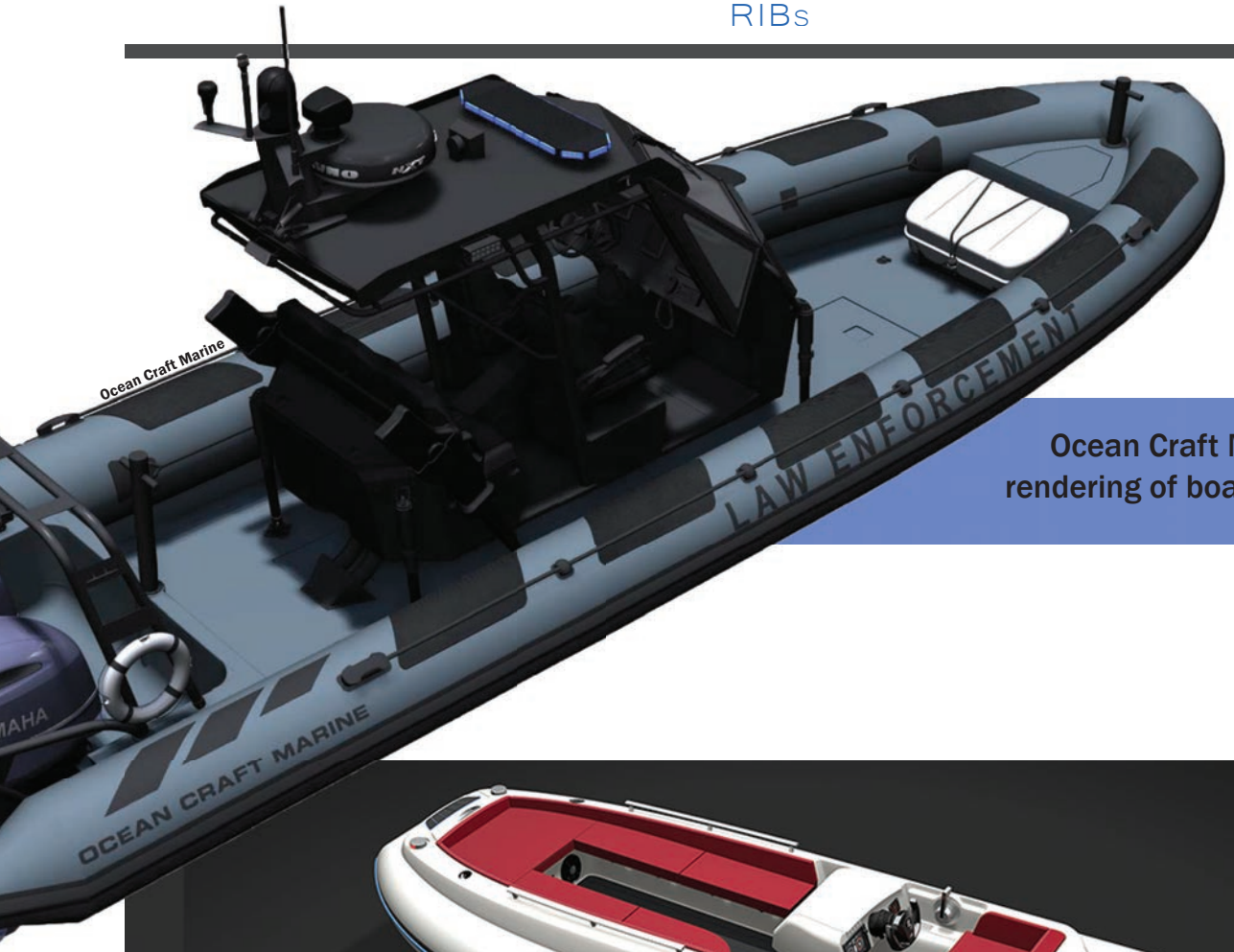
By Barry Parker

However readers might define "normal", 2020 has been anything but. But the business of rigid inflatable boats (RIB) has been going at full throttle.

Matthew Velluto, Director of Business Development and Marketing at RIBCRAFT USA, based in Marblehead, Mass., described a business moving steadily ahead, though it's had to weave and bob at times during 2020. "We've been able to stay open throughout 2020, with no disruptions on our side," though he acknowledged hiccups further down in the company's supply chain. He explains that the business was deemed to be "essential". RIBCRAFT, which serves military, first responders and the leisure and yachting markets, produces only RIBs. Velluto said, "This enables us to specialize, we don't diversify the product line, as others do, but we diversify the markets that we serve." The company builds boats ranging from 15 to 41 feet, with rigid inflatables offering "incredible stability and ability to carry heavy loads," Velluto said, adding that "with the inflatable collar, it gives you a fendering system that let's you come up alongside boats…", this being applicable for multiple uses including being deployed off a Navy ship.

When asked about whether the market for RIBs was "recession-proof", Bob Clark, who is the contracts manager at MetalCraft Marine, with both U.S. and Canadian subsidiaries on the eastern fringes of Lake Ontario, told ***Marine News***, "It is hard to confirm that the RIB market is recession-proof. We have not had a real recession in a long time, but based on 2020, it does seem to be pandemic-proof." Clark pointed to the importance of incentives from multiple layers of the government, saying, "If there is no COVID support money rolled out to the municipalities and states, there may be a drop in sales in those areas," adding, "However, the federal government hasn't started with stimulus purchasing as yet." But business has continued. In late September, six months in to COVID-19 disruptions, MetalCraft Marine US delivered two high performance 34-foot boats to the Department of Natural Resources Police, in Mississippi. The boats, sporting triple Suzuki 300-horsepower outboard motors and capable of reaching speeds of 64 miles per hour, will be used in the state's bay areas along the coast, and out offshore, checking on compliance by commercial and sport fishing fleets.

Todd Salus, vice president, sales and marketing for Ocean Craft Marine, based in Annapolis, Md. described some concerns about business earlier in the year, but told ***Marine News***, "2020 is shaping up to be a banner year for us," adding that most of the professional business (law en-



Ocean Craft Marine - rendering of boat for NOAA

Zodiac - the eJet 450

Zodiac

forcement, government agencies and the like) sees budgets allocated well in advance, with solicitations "promulgated six months or even a year ago." He pointed out that the leisure segment, roughly 10% of the firm's business, has seen a pickup in sales of amphibious craft with COVID-related relocations of affluent city dwellers to waterfront homes. "Early in the year, we were worried," Salus explained, "but, happily, we are at a point now where we are struggling for our product to keep pace with our orderbook." In Maryland, he notes, "businesses supporting the military and law enforcement, as well as those producing conveyances" were exempt from shutdown requirements.

The industry has supported a customer base that has been facing its own unprecedented challenges. "These are challenging times for all of us, but especially for front liners like our first responders," said Bob Beck, director of sales and marketing for Lake Assault Boats, headquartered in Superior, Wis. "As a manufacturer supplying them with vital products and services, we feel fortunate to have excellent personnel and manufacturing resources along the shores of Lake Superior, combined with a first-class network of regional sales managers and dealer organizations. Our team is driven to deliver quality and long-term value in every craft, including Lake Assault's growing line of rig-

Lake Assault 24-footer for St. Croix County Sheriff's Department

Lake Assault Boats

id hull inflatable boats."

Versatility is also a key design consideration. Earlier in the year, RIBCRAFT announced that it had been awarded an estimated $43 million U.S. Navy deal, for as many as 48 11-meter boats designed for explosive ordinance disposal mine counter measures in both shallow and deepwater operations. According to the company, each vessel, with an overall length of 39 feet, will be equipped with twin Cummins QSB-6.7 473 HP diesel engines, twin HamiltonJet 292 water jets, and Shockwave shock mitigating seating for improved crew comfort in all conditions. The boats have special features in support of their mission. The designs offer the possibility for holding rubber raiding craft, or, alternatively, for handling unmanned underwater vehicles. RIBCRAFT added, "A critical operational requirement for these boats is that they must be transportable around the world by land, air or sea and be able to be readily deployed from a variety of U.S. Navy ship classes." The company had been providing 7-meter shipboard inflatables to the Navy since 2014.

The industry structure supports the learning curve, where series production builds reliability and lowers costs (compared to one-offs), while enabling customization around the basic design. Unlike the commercial world, buyers of inflatables have joined together in sourcing vessels. Lake Assault's Beck told ***Marine News***, "Moreover, through purchasing cooperatives such as GSA [U.S. General Services Administration] and HGAC [a coop arrangement in Texas], departments are able to more easily spec a custom craft that fits the needs of their organization."

Lake Assault's customers include the St. Croix County Sheriff's Department, bordering Minnesota, in western Wisconsin which has purchased the company's 24-foot craft. Deputy Chase DuRand, of the St. Croix County Sheriff's Office, said, in a Lake Assault website post, "Our stretch of the St. Croix River is a heavily used recreational area, with many cabin cruisers, houseboats and all types of pleasure craft while, further north, the National Park we cover is very popular with kayakers and other silent sports enthusiast." The boat features an overall height less than 13-feet 6-inches and a person and cargo capacity of 3,000 pounds, and is able to operate in as little as 21-inches of water for easier access to shallow areas, and it is fitted with a bow-to-beach access door and ladder located at the front "V" of the bow. According to DuRand, "The fold-down bow door will make deploying officers onto islands much more efficient…it's an idea we brought to Lake Assault and they were very willing to accommodate our request."

Though law enforcement and military are important RIB segments, boats are also deployed in diverse market tranches, including offshore energy. Ocean Craft Marine, describing deployments in the offshore oil and gas fields, noted, "Some of these boats are rigid hull inflatable boats (RHIBs) which are mainly used by the oil companies for daily offshore transport of personnel and equipment or for platform security-zone enforcement." The company stressed regulatory requirements for spark-free diesel propulsion in the sector, and urged buyers to consider outboard engines, along with deploying anti-slip coatings for crew safety. Salus also said that his company has its eyes on renewables: "We are looking at offshore wind; we've done

RIBCRAFT 5.85 for California Department of Fish and Wildlife

RIBCRAFT

work on projects involving tidal energy generation."

In all maritime businesses, the environment and sustainability generally are of paramount importance. Ocean Craft recently gained an award from an enforcement division within National Oceanic and Atmospheric Administration (NOAA). Salus said, "We are building boats for their Pacific Island Division, which is based in Honolulu. They have a maritime law enforcement branch that enforces restrictions regarding fishing, and also whaling." Following up on the earlier discussion of budgeting cycles, he told ***Marine News***, "That was budgeted probably around October of 2019."

In May, 2020, RIBCRAFT announced the delivery of two new RIBCRAFT 5.85s to California's Department of Fish and Wildlife, to a District covering all of Santa Barbara, Ventura, Los Angeles and San Diego counties, to be used for patrol and enforcement operations. The company explained that: "At just over 19 feet, these RIBs can be easily trailered and launched while still delivering excellent open water performance along the southern California coast." The company has also been awarded with an order for RIBCRAFT 5.85s that will be deployed from the department's patrol vessels.

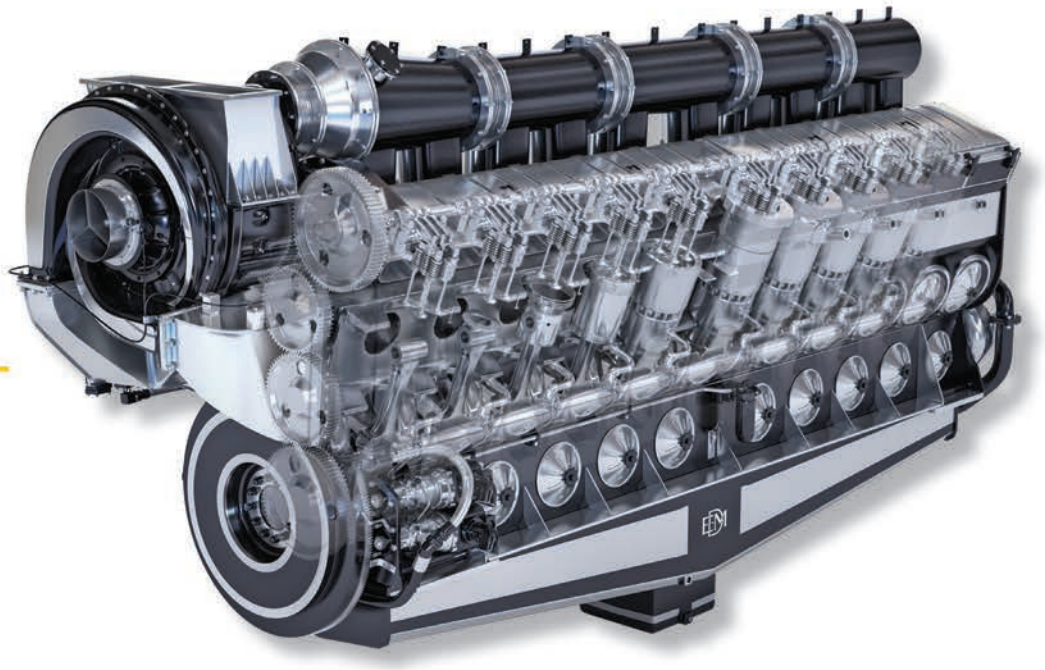
Customization is an integral part of the rigid inflatable sales process. RIBCRAFT's Velluto, elaborating on the California order, explains that his company "worked with the department to build a boat that meets their diverse operational requirements. Featuring a forward positioned center console with front bench seat, two side by side Shockwave suspension seats, heavy duty T-top with windscreen, and a complete Raymarine electronics package. The 19-foot RIB provides a comfortable platform for long patrols in both open and protected waters, while offering an open deck for officers and gear. Powered by a 115-horsepower Yamaha, this 5.85 will reach speeds in excess of 40 miles per hour while still providing unparalleled safety and unsurpassed performance."

Across the maritime spectrum, "alternative" fuels are getting a fresh look. Zodiac, with a long history, has now teamed up with engine maker Torqeedo, and is offering an electrically propelled boat, eJET 450, with a hydrojet. The 4.5-meter boat gets 90 minutes of range at 24 knots, or if slowed down to 5 knots, 8 hours.

Rigid inflatables have also found their way into the yachting or travel scene, acting as tenders for large boats, or as small boats in their own right. Brix Marine, formerly known as Armstrong Marine, based in Port Angeles, Wash., is among firms serving the RIB tender craft space, as well as tourism, patrol and rescue and even pilot customers. Elsewhere, inflatables from industry stalwart Zodiac might be found on a close-up whale watching cruise, besides their well-known place in harbor patrol missions. RIBCRAFT has a marketing focus on yacht clubs, which may be managing a sailing program for teenagers, or umpiring a prestigious race or regatta, while Ocean Craft Marine had pointed to the waterfront home segment.

Economic uncertainties will not disappear, but a continued uptick- and likely additional stimulus initiatives as the 2020 U.S. election dust clears, could present a backdrop for continued strength for RIBs.

Marine Systems, Inc.



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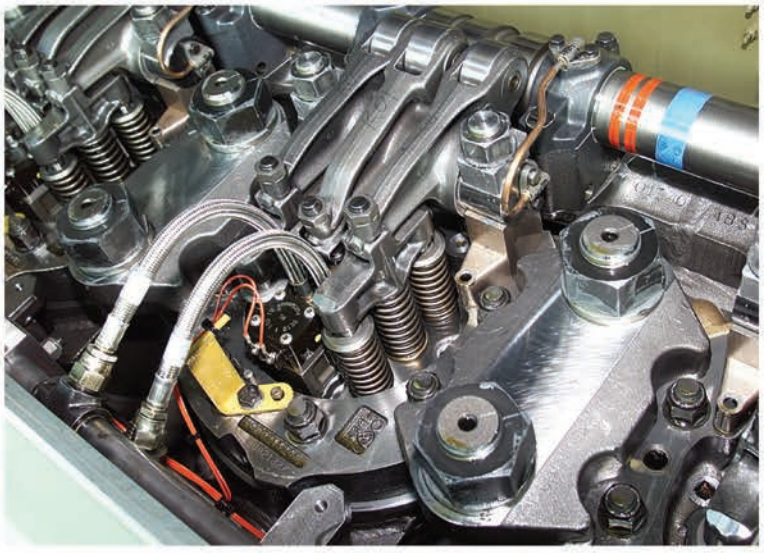

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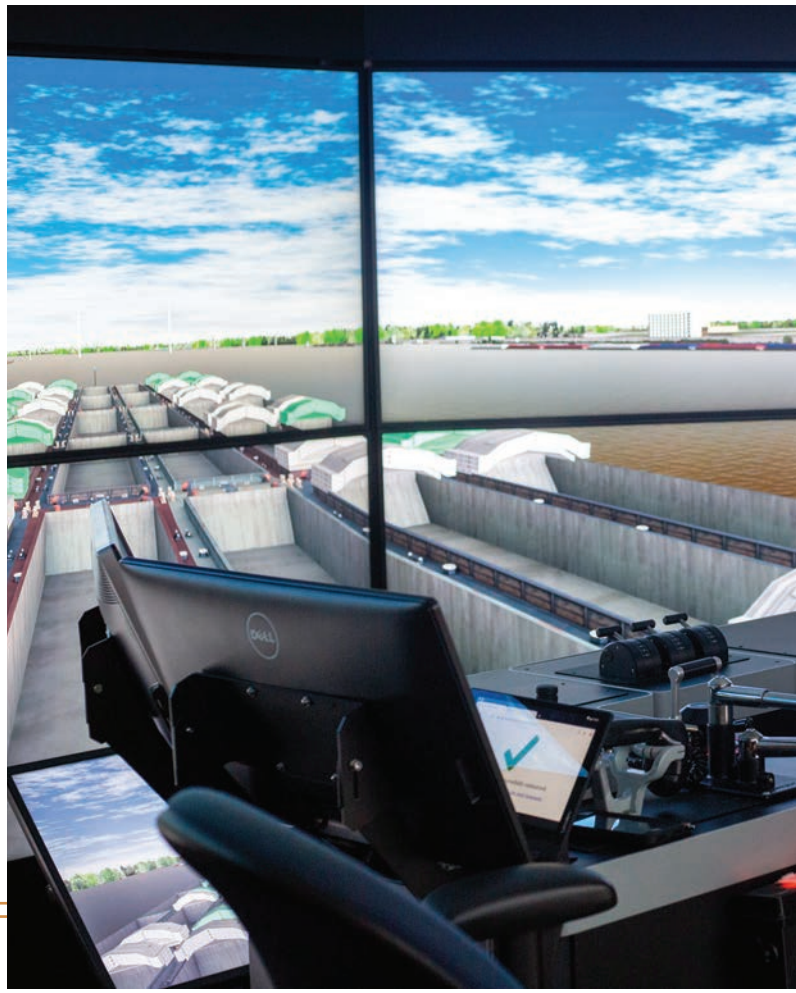


By Tom Ewing

In 2001, George Burkley, a maritime educator, wrote a look-ahead article for ***Maritime Reporter and Engineering News***, presenting the benefits and real-world payoffs from using simulators in maritime education. In the late 1990s, new tech and software advances were creating scenario programs that moved a student closer and closer to the realities demanded by, well, reality. "The future is here, and we are ready to simulate it," Burkley concluded.

Burkley is now executive director at the Maritime Pilots Institute in Covington, La. In a recent interview he recalled how 20 years ago simulator training might include an actual ship's engine order telegraph, to mimic an actual ship. "We don't do that anymore," Burkley laughed, "regarding automation, the simulators got ahead of the ships. Now the ships are catching up. Students know there is no handle for something, just a touch screen."

Today, training experts like Burkley reference yet another confluence of events driving the latest round of developments in simulator productivity and impact.

Some of these forces are familiar, crossing many sectors: snowballing advances in tech and software, marked reductions in computing costs, cloud-based developments and, of course, the fact that nowadays educators largely expect that they will work with a student population, and not just young students, that is electronically adept and facile, a group that expects technology to be integrated into every activity.

Cloud based computing is particularly significant, Burkley said. Twenty years ago, the distinguishing feature for a training facility was a FMSS (full mission ship simulator) on a motion platform in a huge room. Now, Berkley said, that instruction can likely be set up anywhere.

Observations and comments about simulators were part of an important discussion at a recent conference organized by the Marine Board of the National Academy of Sciences, titled the "Maritime Education, Training, Research & Innovation (METRI) Virtual Summit, Implications for Education, Workforce Development and Training." This was a partnership event that included the U.S. Maritime Ad-

Seamens' Church Institute

ministration, including Administrator Rear Admiral Mark Buzby, and top personnel from the maritime service academies, the maritime industry and federal agencies.

One break-out panel session, "Automation and Digital Leadership," focused on emerging technologies, future vessel operations, and innovative and collaborative education and training programs.

Simulators, of course, are invaluable for high-risk occupational training, allowing practice without consequences and efficient use of personnel and space. Challenges can be added in sequence. Critically these days, they allow remote learning.

With simulators, these are attributes that get better and better and at decreasing costs. Programs are built from increasingly rich and varied data, from Internet-of-Things (IOT) data, for example, also increasingly available from actual operations, providing the basis to transform a real vessel's real-world zeroes and ones into a simulator's presentation.

Despite these attributes, however, panelists expressed concern that opportunities are not being maximized, that a kind of status quo has set in and that simulators as a resource are working at just a good enough kind of level. That needs to change. Some suggestions follow.

Gregg Trunnell is senior business development consultant with MITAGS – the Maritime Institute of Technology and Graduate Studies, with facilities in Maryland and Washington. Location, though, is of diminishing value. Trunnell sees a move to cloud-based simulator resources, providing training that is customized to a customer's exact requirements, even to an exact vessel or set of operating conditions, and presented anywhere.

As he spoke to his virtual audience Trunnell pointed to six monitors set up in his home office. He was beta testing the concept of running three visual channels from home. "When the technology will allow multiple visual channels to be projected from the cloud, the possibilities are endless." stated Trunnell. Anglo Eastern Maritime Training Centre in Mumbai, is already starting to run Bridge Resource Management training all remotely. And he noted that his home-based equipment was on the old side – five years old. "The world is moving quickly to cloud based simulation, and we very much need to stay ahead of this technology," Trunnell said.

The biggest payoff: the huge expansion in the number of people who could access and take advantage of expert training. Instead of people having to travel to certain cities, to fixed-site facilities with inherent limits, cloud-based resources present as an almost limitless resource bounty.

Trunnell said this could happen even faster with organized cooperation among training providers. He said that providers – his organization, for example, as well as the maritime academies are not competitors; each draws customers and students from different maritime sectors: the military, for example, or harbor pilots, or cargo or passenger and cruise vessels. "Cooperation is critical," Trunnell commented. "If we do the minimum, not much will change. But if we pool our resources, we can get it right. We can train a better mariner."

Another big concern for Trunnell: the Coast Guard does not allow remote proctoring, although it does allow remote learning. "We won't take the big steps forward until the Coast Guard changes its position and allows remote proctoring," he predicted.

Captain Stephen J. Polk also participated on the leadership break-out panel. Polk is director of the Center for Maritime Education at The Seamen's Church Institute, based at the Houston facility. Polk suggested a thought provoking, outside-the-box kind of goal for simulator training – using a digital twin as a kind of ultimate learning tool.

Maritime Pilots Institute

"What if you could train on your own vessel?" Polk challenged the audience. His question was built on a number of realities. Recall that simulation can be increasingly, singularly tailored. Note the reference above to IOT, real-time data for modeling, reducing dependence on what Polk called static "cookie-cutter data." Another reality: at many maritime academies cadets, unfortunately, don't get full simulator training until their senior year.

At the Institute Polk recalled how his team provided training on a boat that hadn't yet been built. But it existed digitally, the twin of the vessel in the shipyard, under construction.

Polk referenced this project to make his suggestion: use a digital twin to similarly train maritime cadets. He further suggested that senior year is too late to start full ship simulator training. "Academies need to turn that around," he said. Simulator training should start much earlier, preparing a cadet, by junior year, to make a choice about a vessel to specialize in – e.g., ships and ocean cargo, military, oil and gas exploration, harbor tugs, or tugs and barges working in oceans, inland, or western rivers. He or she would then start training in that competency area, and on those vessel types, at the academy, via the simulated digital twin. (Vessel standardization would also need to increase to really take full advantage of this idea.)

Polk called on educators to "create a scenario where education and training are done while in school, graduating a person who already knows the vessel." He referenced many benefits – proving competence, impacting leadership, best practices regarding the vessel itself and, importantly, workforce retention. "To excel and improve," Polk said, "we need to do more. Turn schools on their heads."

Like Gregg Trunnell, Polk also suggested a shared, cooperative approach to advancing and maximizing simulator capabilities. "Our ability to access content from the cloud is

MITAGS

a win-win. Take every advantage," he advised the audience.

These new technological strengths raise an important, and maybe troubling, question: Can simulators alone completely train a captain or a pilot? Believe it or not – some say "yes," at least for certain vessel tasks. Still, robotic prowess is not leadership. During the NAS Summit, one tow-boat industry participant commented that yes, we need and want employees with strong tech skills. Then he added: "But we need people who know how to look up from a screen and look out the window."

George Burkley estimates that simulators can provide 20% of what it takes to be a captain. "Pilotage is a blend of art and science," Burkley commented. "You can do the science part in a simulator. On the job training reinforces the art part. The brain learns differently when there are consequences." A simulator can train for multiple options, but lessons usually present one condition at a time. "In real life, though," Burkley noted, "you have to have plan A, plan B and plan C. The real world is still out there."

Glen Paine is the Executive Director at MITAGS. He points out that advances in computer technology has made ship simulators a reliable tool for mariner assessments. MITAGS has developed a proprietary (Navigation Skills Assessment Program®) that uses simulation to assess mariner watchkeeping skills at the operational and management levels. Paine emphasizes that simulation is still "only one part of the complex training process for developing the next generation of mariners." "Hands-on' field experience is still absolutely critical."

Paine says the challenge for training providers is ensuring that "traditional seafarer sense" skills are integrated with the technology. At the end of the day, Paine points out, "a mariner must know when the technology is failing and what to do about it."

All images: Maid of the Mist

James V. Glynn and Nikola Tesla

By Eric Haun

Christopher Glynn had known for some time that he wanted to build all-electric vessels for his Niagara Falls tour boat company Maid of the Mist. In January 2018 he decided in earnest that he was going to make it happen.

But where to begin? Fully electric ferries had never been built in North America, so Maid of the Mist would be plying uncharted waters. Glynn, the company's president, said he and his team started by doing their research—a lot of research—and by hiring a team of consultants to help weigh their options.

Inspired by the world's first all-electric ferry, Norled's Ampere in Norway, Glynn knew his team could bring the innovative and emissions-free technology stateside. "We were very excited and intrigued by the opportunity," Glynn said. "We knew it wasn't going to be easy, but it could be done."

And so began the pioneering journey to design, build and commission America's first newbuild all-electric passenger vessels, **James V. Glynn** and **Nikola Tesla**. The first-of-their-kind vessels entered service in October, each with capacity to carry up to 600 passengers to experience one of North America's most well-known natural attractions. Notably, the vessels are all-electric, not hybrid, meaning there's none of the exhaust fumes, engine noise or vibrations associated with diesel engines, Glynn said.

In addition to their environmental credentials, the manner by which these vessels were built also makes them quite unique. The 90.5-foot aluminum catamaran vessels were designed by John Koopman, president of Propulsion Data Services, and constructed modularly at Burger Boat Company in Manitowoc, Wis. Each section was trucked to Niagara Falls where the modules were lowered by crane into the gorge and pieced together at Maid of the Mist's facility where they were also outfitted.

"It can't be overstated how difficult it was to get the boats assembled down in the gorge," Glynn said, adding that the U.S. Coast Guard approval process, which he described as "rigorous, and rightly so", posed additional challenges. Glynn said Micah Tucker of Tucker Yacht Design was instrumental in helping Maid of the Mist to navigate this hurdle and other aspects of the project.

Each vessel receives power from a pair of Spear Power Systems lithium-ion battery packs providing 316 kWh total capacity divided across two catamaran hulls. The battery banks power vertically mounted Ramme electric motors that drive Veth azimuthing L-drives and Naiad Dynamics bow thrusters. ABB engineered the electric power management system

Maid of the Mist president Christopher Glynn

and supplied critical components, including manual Cavotec ship-to-shore battery charging connection that can replenish the batteries in seven minutes during the disembarkation and boarding period between voyages. ABB also supplied a scope of electric, digital and connected solutions including switchboards, drives and the integrated control system, in addition to a remote diagnostic system for monitoring and predictive maintenance.

Ed Schwarz, ABB's vice president of sales, newbuilds, said the operational profile of the Maid of the Mist vessels—frequent and relatively short trips and docking times—is particularly well suited for all-electric propulsion. "We were able to fit enough battery power and have a completely redundant system that freed the vessels from having to have engines on board," he explained.

The vessels, which run trips that are typically about 20 minutes long, are charged using locally produced hydroelectricity, ensuring that the energy cycle for the operation of the Maid of the Mist ferries is entirely emissions-free. "It's an ideal state that's not always possible, but when it is, it's really a home run," Schwarz said.

The vessels draw additional benefits from the thrusters, said Tim Batten, vice president, sales at Veth's parent company, Twin Disc: "Having azimuth thrusters allows the Maid of the Mist vessels to have great maneuverability so that the captain can get passengers close to the sights of Niagara Falls."

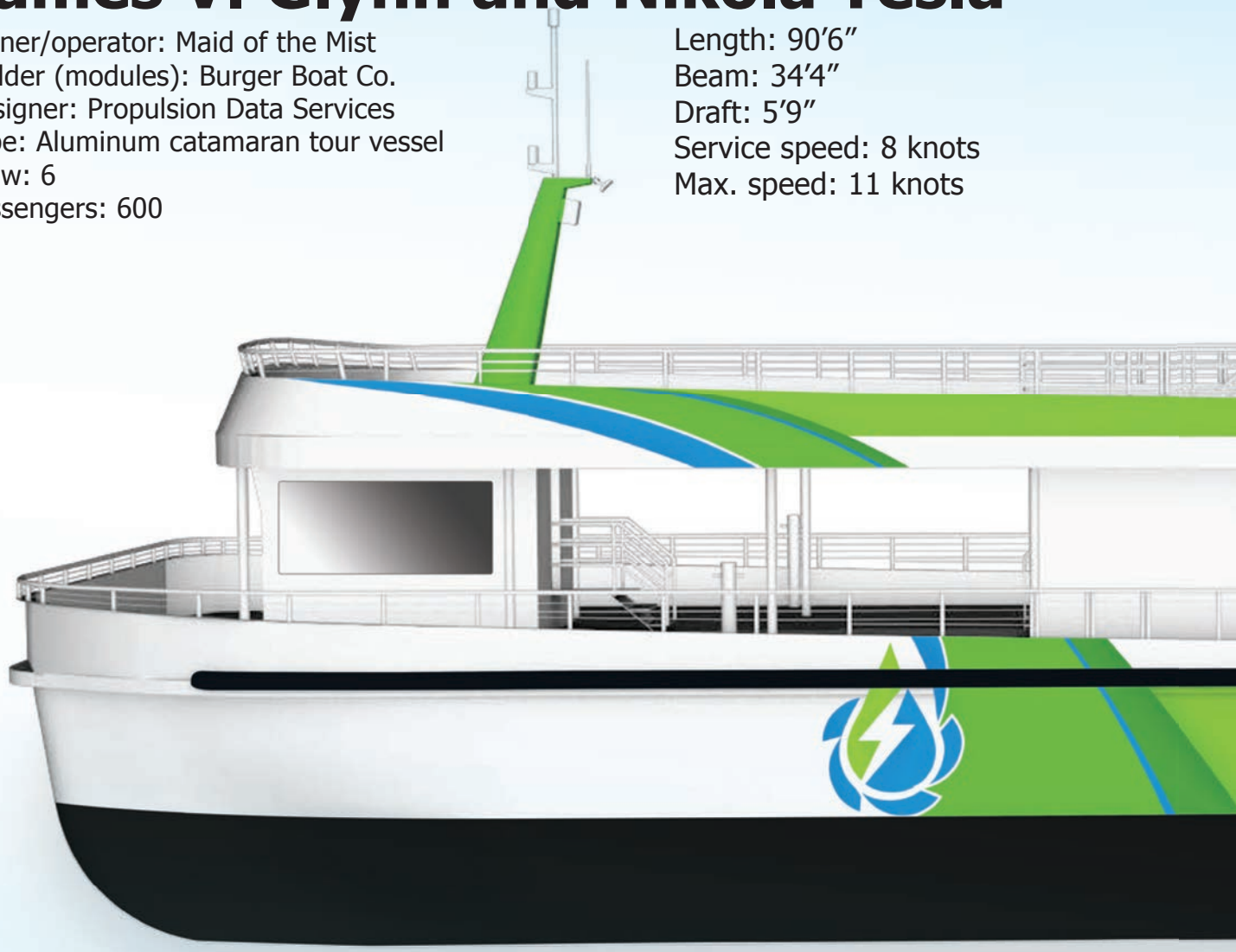
Batten said the L-drives also increase efficiency, help to save onboard space and give passengers a more exclusive experience to take in the sounds of the towering falls. "Both thrusters are completely isolated from the aluminum hull with a resilient mounted thruster suspension in order to reduce noise and vibration transferred to the hull. The prime movers are permanent magnet motors connected directly to the azimuth thrusters, and L-drives are a good fit for this application because it has one less gear set than a Z-drive, so it is more efficient due to lower gear transmission losses," he said.

Outfitting the Modern

James V. Glynn and Nikola Tesla

Owner/operator: Maid of the Mist
Builder (modules): Burger Boat Co.
Designer: Propulsion Data Services
Type: Aluminum catamaran tour vessel
Crew: 6
Passengers: 600

Length: 90'6"
Beam: 34'4"
Draft: 5'9"
Service speed: 8 knots
Max. speed: 11 knots



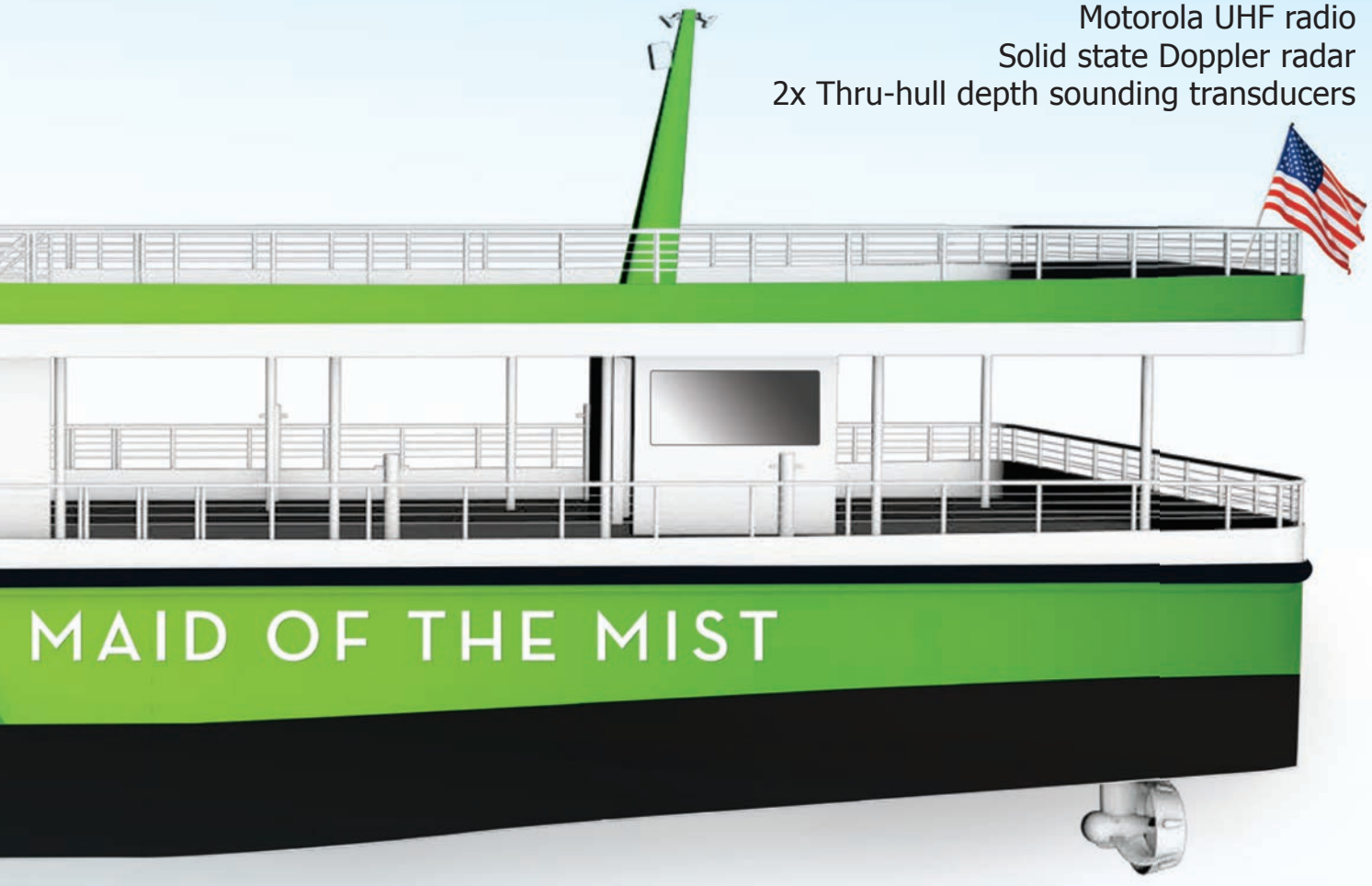
Propulsion

Electric propulsion motors: 2x Ramme Electric Machines, 200 kW
Batteries: 2x Spear Power Systems lithium-ion batteries, 158 kW
Thrusters: 2x Veth VL-200E azimuth L-drives
Bow thrusters: 2x 60 kW Naiad Dynamics Model 20 Right Angle Thrusters

All-electric Tour Boat

Capacities
Potable water: 105 gal
Gray water: 105 gal

Navigation/Comms
Furuno Navnet TZTouch 15" display
Motorola VHF radio
Motorola UHF radio
Solid state Doppler radar
2x Thru-hull depth sounding transducers



Other key equipment
Furuno Navnet TZTouch 15" display
ABB EP Industrial Solutions low voltage distribution system
Ship-to-shore connection: Cavotec SA
Transformers: Transfor SA

General MacArthur

Callan Marine

U.S. dredging contractors have been adding tonnage in a big way. This Spring, Callan Marine added a significant piece to the U.S. fleet with its new Jones Act cutterhead suction dredge (CSD) General MacArthur. Upon delivery in May, the new dredge and its accompanying idler barge entered service in Texas, heading to work on several projects before transiting to Corpus Christi for the second phase of a deepening and widening project there.

The newest and largest dredger in Callan Marine's fleet, the 32-inch **General MacArthur** represents the next generation of dredging technology and crew comfort, "a complete game-changer for the dredging industry," according to Maxie McGuire, President of Callan Marine. "We saw a market that could use a large sophisticated dredge, so we designed the MacArthur, which is 100% diesel electric, 24,000 horsepower, and loaded with automation making her a difference-maker in the large dredge market, specifically for capital work, beach/marsh renourishment, and offshore borrow area situations."

General MacArthur was built in two shipyards. The hull and superstructure construction, housing and assembly took place at C&C Marine and Repair in Belle Chasse, La. The SPI/Mobile Pulley Works shipyard in Mobile, Ala., provided the dredging equipment, including the cutter ladder, A-frame, suction and discharge pipeline, gate valves, submerged dredge pump, two onboard dredge pumps, a five- and a six-blade cutter, Christmas tree, anchor boom system and spud carrier installation. Mobile Pulley Works also provided ball joints and pontoon tanks for the submerged and floating discharge pipeline.

Support vessels and equipment built to serve the new dredge include an anchor barge, idler barge and a large complement of dredge pipeline. In April, Callan Marine launched its new idler barge built in Sterling Shipyard, Port Neches, Texas. Its spud-carriage equipment was then installed at Mobile Pulley Works in Alabama. The idler barge's dimensions are 180 feet by 54 by 13 and will be connected to the stern of the General MacArthur when dredging in sheltered water. The idler barge is equipped with a spud-carriage and spuds which allow the dredge MacArthur to step over the dredge area as it excavates the

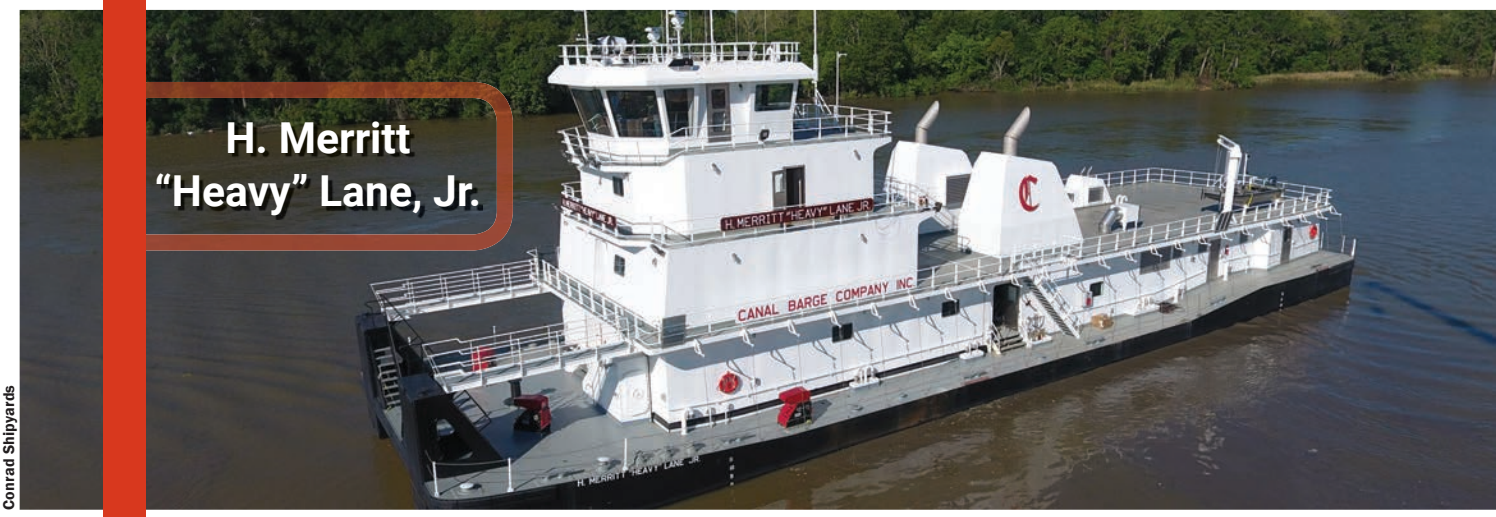
seabed's material. The total stroke of the spud-carriage is 25 feet, the spuds have a length of 110 feet, with weight of 90,000 pounds each.

The General MacArthur is 290 feet long, and with the 180-foot idler barge attached, the dredge has a maximum swing radius of 530 feet. The beam is 72 feet, with a depth 16 feet and 7-foot draft. The digging depth is 97 feet with a suction diameter of 34 inches and a discharge diameter 32 inches. The vessel is equipped with three CAT-MAK diesel electric engines that provide 24,000 horsepower.

Production automation and monitoring systems link to the project and corporate offices, along with Hypack/DredgePack survey software and the Corps of Engineers' Dredge Quality Management (DQM) system.

Scarlett Rose Furlong

C&C Marine and Repair



H. Merritt "Heavy" Lane, Jr.

Conrad Shipyards

Stephanie Pasentine

Metal Shark

This year saw a number of new and noteworthy towboats enter service on America's inland waterways. Among those in the leading class of newbuilds is Hines Furlong Line's 6,600-horsepower triple-screw towboat **Scarlett Rose Furlong**, delivered in November from C&C Marine and Repair in Belle Chasse, La.

Designed by CT Marine based in Portland, Maine, Scarlett Rose Furlong measures 170 by 50 feet, with the pilot house eyeline measuring at 39 feet, 3 inches.

The vessel includes three Cummins QSK60-M main engines, provided by Cummins Mid-South, that are paired with three Reintjes WAF 1173 H/V reduction gears, provided by Karl Senner, LLC. The service power is provided by three Cummins QSM11-DM, 275 kW generators, and the conventional steering system HPU was provided by EMI Marine. The towboat is outfitted with three 100-inch diameter stainless-steel fixed pitch propellers, provided by Sound Propeller Systems, Inc, and features double steering rudders.

"We wanted the durability of a conventional vessel with both stellar northbound and southbound performance," Hines Furlong line president Kent Furlong told ***Marine News***. "At the same time, we fully acknowledge the superior maneuverability that Z-drives offer. With all of this in mind, we are convinced that this conventional, kort nozzled setup with the double steering rudder arrangement gets us the best of both worlds."

The first in a series of thee sister vessels on order at C&C marine, Scarlett Rose Furlong has accommodations totaling 12 beds (11 crew, plus one guest), and the vessel's design includes a floating, spring mounted superstructure for additional crew comfort.

"These vessels, along with the others we are building, represent a significant capital investment. Moreover, adding brand new, large vessels like this to our fleet make a statement to our existing and future mariners," Furlong said. "Building the boat is just the start of the process. These vessels represent our continued investment in our steersman program and our ability to promote from within the organization and recruit from the outside. Without a professional crew and the right shoreside team towboats are just a hunk of steel."

Another noteworthy vessel packing similar power numbers is Canal Barge's 6,000-horsepower **H. Merritt "Heavy" Lane, Jr.**, handed over from Conrad Shipyard's Amelia, La. facility in April. The new towboat, which measures 166 feet by 49 by 12 and is powered by EPA Tier IV-compliant Electro-Motive Diesel (EMD) engines, is the flagship of Canal Barge Company's growing towboat fleet, according to company president and CEO, H. Merritt Lane, III.

"We believe that the Heavy is the first high-horsepower boat on the U.S. Inland Waterways to utilize an EPA Tier IV engine package," said Ron Zornes, CBC's Director of Corporate Operations, adding that the need to add high-horsepower tonnage was a driver behind ordering the newbuild. "There are a limited number of higher-horsepower inland towboats of a young enough age that are available for acquisition, so in this case we believe that there was a strong business case to build new for the future."

The inland towboat H. Merritt "Heavy" Lane, Jr. will work the Lower Mississippi River system primarily, and has the flexibility and versatility to move liquid and dry cargos according to business need, Zornes said.

According to the shipbuilder, the vessel design is based on a proven concept that has been enhanced to modern standards through advanced engineering analysis targeting improved efficiency, crew accommodations and noise reduction.

Designed by naval architects MiNO Marine, the Heavy Lane has a unique hull form to ensure adequate water flow to the propellers in all operating conditions. The design allows the transfer of full power through the propellers, minimizing propeller vibrations transferred to the hull due to unsteady water flow. The design also reduces the potential for flow-induced vibration, ensuring greater crew comfort and reduced noise.

For even greater crew comfort, the superstructure is divided into two sections, one floating and one fixed, and all living accommodations are located in the floating section which sits atop air bellow vibration isolators designed to minimize noise and vibration transmission from the operating machinery. Floating floors in the joiner work reduce vibration as well.

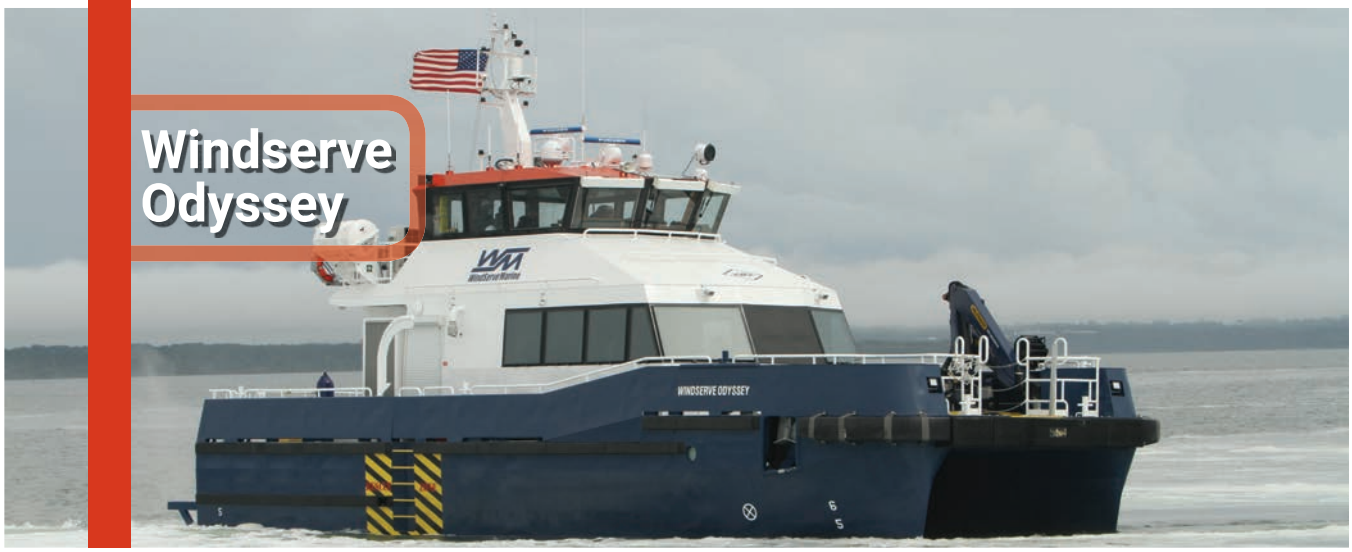
In May, Metal Shark announced its Bayou La Batre, Ala. shipyard has delivered its first newbuild, a 120 by 35 foot river towboat for Florida Marine Transporters, Inc. (FMT) of Mandeville, La. The four-decked, welded-steel towboat **Stephanie Pasentine**, which bears the distinction of being Louisiana-based Metal Shark's first-ever steel newbuild and also its first inland towboat, was designed by John W. Gilbert Associates, Inc.

The vessel's twin Cat 3512C marine diesel engines deliver 2,011 horsepower each at 1,600 revolutions per minute and turn 100 by 69 inch stainless steel propellers through Twin Disc model MGX5600DR reverse reduction gears with a 6.56:1 ratio. Sleeping accommodations and facilities have been provided for a nine-person crew.

The new towboat is the first delivery in a three-vessel contract with FMT announced in late 2018, signaling Metal Shark's entry into the inland commercial sector following its acquisition of the assets of Horizon Shipbuilding earlier that year. With the purchase, Metal Shark, best known as a builder of welded aluminum vessels, assumed ownership of a fully developed 35-acre Alabama shipyard and began to expand into steel shipbuilding.

Atlantic Wind Transfers

Atlantic Endeavor



WindServe Marine

Windserve Odyssey

The future is bright for America's offshore wind industry, with a number of projects slated to sprout up along the U.S. East Coast in the years ahead. Necessary to support operations at these wind farms will be a new fleet of crew transfer vessels (CTV), two of which entered the water in 2020.

After taking delivery of the first ever Jones Act CTV in 2016, Atlantic Wind Transfers returned to Blount Boats for its second, **Atlantic Endeavor**, recently launched at the venerable Warren, R.I. shipyard. This new Chartwell 24 CTV, designed by Chartwell Marine in the U.K., will be heading to the Coastal Virginia Offshore Wind (CVOW) project for Dominion Energy to support the two Siemens Gamesa turbines 27-miles off Virginia Beach. AWT, based in Quonset Point, R.I., has a long-term O&M CTV contract with Dominion Energy for CVOW project support, and Atlantic Endeavor will be based out of Virginia's Hampton Roads region.

The 64.9-foot aluminum catamaran, powered by MAN engines that drive HamiltonJet waterjets, is capable of service speeds of 22-24 knots and a top speed of 29 knots. It will be manned by a crew of two or three, and it has capacity to carry up to 24 wind farm personnel.

The other CTV to join the Jones Act fleet this year is WindServe Marine's **WindServe Odyssey**, built by Reinauer Group sister company Senesco Marine in North Kingstown, R.I. The newbuild will support Ørsted 's U.S. offshore wind projects along the U.S. East Coast. After sea trials at Ørsted's Block Island Wind Farm earlier this year, the CTV travel from Rhode Island to Virginia to join the closeout of construction and commissioning of the CVOW project. However, the vessel has been built specifically for Ørsted's and Eversource's Revolution Wind project located off the southern New England coast, expected to be commissioned in 2023.

The 64.9-foot aluminum catamaran, designed by BMT Group, is capable of 25 knots service speeds and a top speed around 28 knots. WindServe Odyssey is powered by four 800-horsepower Scania engines four paired with HamiltonJet waterjets. It is manned by a crew of two, with capacity to carry up to 20 wind farm personnel.

McAllister Towing

Eileen McAlister

Eastern Shipbuilding Group

C.D. White

As the ships that call U.S. ports continue to grow larger, the U.S. tugboat fleet will need to keep pace. Higher-horsepower, sturdier and more capable vessels are being designed and built to handle the challenge.

In April, McAllister Towing took delivery of the 6,770-horsepower shipdocking tug **Eileen McAllister**, built for work in Port Everglades, Fla. The 34th tractor tug in McAllister's fleet, the 93- by 38-foot Eileen McAllister was built by Washburn & Doughty in Maine. It is powered by 3516E Tier IV Caterpillar engines with twin Schottel SRP 490 Z-drives and Markey winches, achieving more than 84 metric tons during bollard pull certification.

Captain Chuck Runnion, McAllister Towing of Port Everglades' Vice President and General Manager, said, "The Eileen McAllister was constructed specifically to meet the needs of handling the ever-increasing size of vessels calling into Port Everglades. This tug, along with the Tate McAllister, will be able to safely handle these ships and even larger ones with exceptional control and power."

This year, Eastern Shipbuilding in Panama City, Fla., delivered not one, but two 80-foot, 5,100-horsepower Z-drive tugs for Bisso Offshore, a division of E.N. Bisso & Son of New Orleans, La. The first of these vessels, **C.D. White**, was delivered in January, followed by **A. Thomas Higgins** in August. The two new Robert Allan Ltd.-designed RApport 2400 ship-handling tugs have been customized by the designer, the builder and owner to provide specific operational features including a high bollard pull forward and aft, enhanced maneuverability and escort performance, better fuel economy, crew comfort, safety under the new USCG Sub-M requirements and reduced emissions meeting the new EPA Tier 4 emissions regulations.

Each tug is equipped with two LA CAT, Caterpillar 3512E Tier 4 EPA/IMO III marine propulsion diesel engines, delivering 2,550 horsepower at 1,800 revolutions per minute, driving Kongsberg/Rolls Royce US205 P20 Z-drives. Each vessel also features a pair of Kennedy Engines Co. John Deere 4045AFM85 Tier 3 EPA certified auxiliary diesel gensets rated to 99 kilowatts at 1,800 revolutions per minute, as well as Markey Machinery winches.

Q-LNG Transport

Q-Ocean Service & Q-LNG 4000

Q-LNG Transport's new articulated tug barge unit (ATB) is the first of its kind. The barge **Q-LNG 4000** and tug **Q-Ocean Service**, both built by Halter Marine in Pascagoula, Miss., form the first ever liquefied natural gas (LNG) ATB built in the U.S.

The Jensen Maritime-designed tug is 128 by 42 feet with a molded depth of 21 feet. It will operate while fitted in the stern notch of the 324- by 64-foot, 4,000-cubic-meter-capacity barge designed by Waller Marine. The barge has a molded depth of 32.5 feet. Both vessels' detail design was done by Halter Marine under mutual agreements.

The ATB is the first to attain a DPS-1+ notation from ABS. This rigorous review allows the vessel to operate without additional support in close proximity of other vessels, adding flexibility to deliver LNG fuel in open water and other conditions that would be otherwise inaccessible. Shane Guidry, principle owner of Q-LNG, said, "We believe this vessel's DPS-1+ notation raises the bar in safety, efficienc, and compatibility in the LNG bunkering market." he added, "This is a moment in maritime history we are proud to be part of."

Shell has signed a long-term charter for Q-LNG 4000, which will operate out of Port Canaveral, Fla. Initial clients for the new vessel will be Carnival Cruise Line's two new dual-fuel ships and two dual-fuel Siem Car Carrier ships under charter to the Volkswagen Group to transport vehicles from Europe to North America.

Bollinger Shipyards

Aveogan & Oliver Leavitt

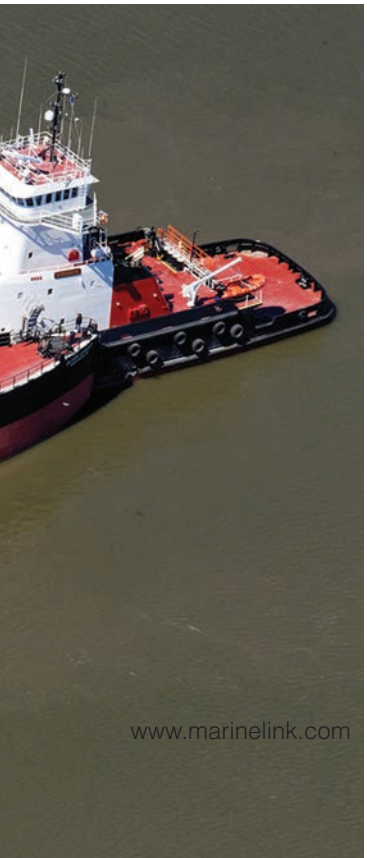
In April, Crowley Fuels took delivery of its new Alaska Class 100,000-barrel, articulated tug and barge (ATB), which will be used to transport petroleum products for the Alaska market, from Bollinger Shipyards. The barge **Oliver Leavitt** and tug **Aveogan** pairing form the first ATB in Crowley's fleet dedicated to the Alaska market. Crowley will operate the 483-foot ATB under long-term charter for Alaska-based Petro Star Inc., a wholly owned subsidiary of Arctic Slope Regional Corporation.

The ATB was constructed at the Bollinger Marine Fabricators facility in Amelia, La., with on-site construction management by Crowley Shipping, whose subsidiary Jensen Maritime designed the ATB to meet Ice Class and Polar Code requirements. This includes increased structural framing and shell plating and extended zero discharge endurance. The double-hulled design also features a barge form factor to achieve high-cargo capacity on minimal draft.

The 7,000-horsepower tug has twin azimuthing drives and an Intercon C-series coupling system with a first-of-its-kind lightering helmet. The tug is fitted with two GE 8L250 main engines that meet EPA Tier 4 emissions standards. The generators on the tug and barge meet EPA Tier 3 and IMO Tier II emissions standards.

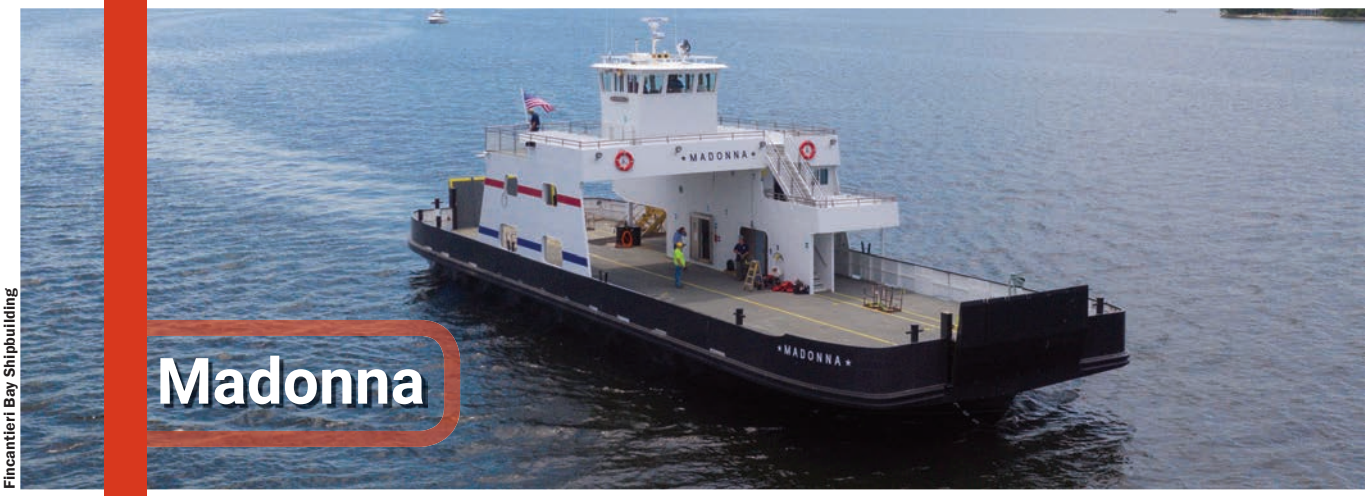
In addition, the ATB features a patent-pending closed loop, freshwater ballast system whereby the tug's ballast will be transferred to-and-from a retention tank on the barge to account for fuel burn. The design has been approved by the USCG and will eliminate the need to discharge tug ballast water into the sea.

The 128- by 42- by 21-foot tug is equipped with a fire monitor and foam proportioner, providing off-ship firefighting capabilities to the barge. The 400- by 85- by 32-foot barge is also outfitted with spill response gear and a hydraulic boom reel with 2,000 linear feet of inflatable boom to support spill response efforts. The vessel was built with enhanced features to benefit the crew, including 45-degree sloped staircases, interior sound deadening and dedicated heads in each cabin.



Captain Murchison

All American Marine



Madonna

Fincantieri Bay Shipbuilding

Seaway Pilot V

Gladding-Hearn Shipbuilding

Among the most capable vesels delivered this year is an aluminum catamaran built by All American Marine, Inc. (AAM) to patrol Texas state and federal waters for the law enforcement division of Texas Parks and Wildlife Department (TPWD).

The 80- by 27-foot **Captain Murchison** features twin CAT C18 ACERT D Engines, with HamiltonJet HM 521 waterjets and is built to USCG Subchapter T standards. It is also the first vessel in North America to feature HamiltonJet's innovative Advanced Vessel Control (AVX) system, which includes both a station keeping and a JETanchor positioning system. Additional vessel features include a DJI Mavic Drone integrated to the helm displays, as well as a FLIR M400 XR high-resolution thermal imaging video with tracking to assist with patrol duties in the Gulf of Mexico.

The state-of-the-art hydrofoil assisted vessel, from Teknicraft Design, combines innovative design features critical to modern maritime law enforcement. One such feature is the inclusion of Teknicraft 's Rapid RHIB launching system integrated into the stern of the vessel to increase safety and reduce the time and manpower required to deploy the vessels' rigid hull inflatable boat (RHIB). Notably, it will allow for deployment and retrieval in under 1 minute. The RHIB is a 20-foot Willard with a 170-horsepower Volvo diesel engine, and also features HamiltonJet propulsion.

This new vessel fills a vital role in the enforcement of environmental and patrolling responsibilities.

TPWD is responsible for patrolling state waters of Texas, out to 9 nautical miles in the Gulf of Mexico. However, TPWD and Texas Game Wardens also patrol an additional 200 nautical miles into exclusive economic zones through a joint enforcement agreement with the National Oceanic and Atmospheric Agency (NOAA).

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In June, Fincantieri Bay Shipbuilding delivered a new, year-round passenger/vehicle ferry for service to the Washington Island community across the Death's Door Passage between the Bay of Green Bay and Lake Michigan. At 124 feet in length, 40 feet in beam and 9 feet in draft, and with capacity for up to 28 vehicles and 150 passengers, **Madonna** is the largest vessel in the Washington Island Ferry fleet, allowing crews to operate a spacious second ferry with year-round capabilities. This newest ferry design incorporates ice capabilities in addition to adding significant vehicle capacity.

"With a similar design to the Arni J. Richter, which Fincantieri Bay Shipbuilding built for us in 2003, the Madonna allows us to run a second, year-round ferry with icebreaking capabilities," said Washington Island Ferry Line President Hoyt Purinton.

by Twin CAT-C32 main engines provide 1,600 maximum horsepower while its stainless propellers and shafts (and stout framing) make it ice-capable. Outdoor, upper deck seating and an indoor, climate-controlled cabin are available to passengers, along with restrooms on two decks. Bow and stern ramps with wide gates allow for easy vehicle loading. The Madonna also has an overhead of 15 feet, sufficient to transport high-clearance specialty equipment and large oversized loads as needed.

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In August, Gladding-Hearn Shipbuilding, Duclos Corporation delivered **Seaway Pilot V**, 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 feet, a beam of 17.8 feet and a draft of 4.8 feet, 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 12-kilowatt Northern Lights EPA Tier 3-compliant genset.

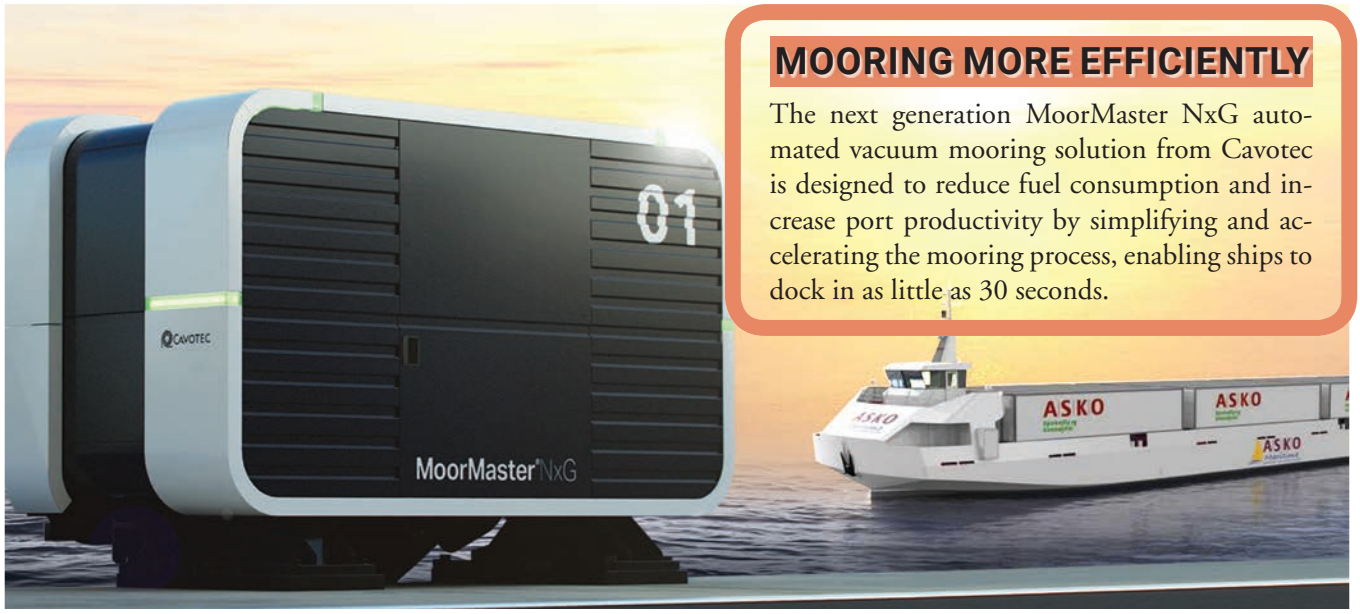
The wheelhouse, mounted to the flush deck amidships, features a center-line helm station, heated forward, side and roof windows, five Llebroc seats and a settee. It is heated/cooled by a 32,000 Btu reverse-cycle air-conditioning system. The decks, handrails and cabin are heated by a 100,000 Btu diesel-fired 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.

Cavotec

MICROGRID IN A BOX

As the maritime industry searches for the means to meet ever tightening emissions regulations, battery power sits at the center of future paths to decarbonization. Sterling PBES' new containerized energy storage solution (ESS) is designed to deliver a simpler electrification solution. The self-contained CanPower ESS is an all-encompassing 'Microgrid in a Box' that promises to add energy storage to virtually any vessel, without the need for complex design and build times.

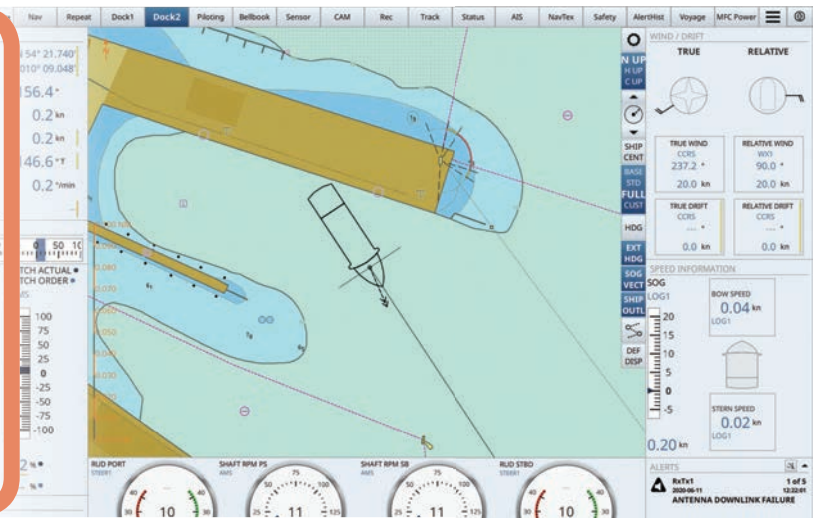


MOORING MORE EFFICIENTLY

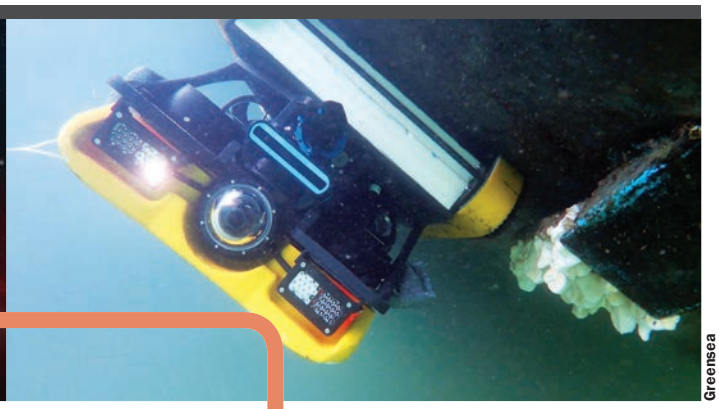
The next generation MoorMaster NxG automated vacuum mooring solution from Cavotec is designed to reduce fuel consumption and increase port productivity by simplifying and accelerating the mooring process, enabling ships to dock in as little as 30 seconds.

DOCKING WIDGETS

Raytheon Anschütz introduced a new Docking Display as an optional feature for the Conning NX navigational ship software that provides navigators an overview of ship data at a glance and a chart window to facilitate docking. It is designed using Conning NX "widgets", which can be adapted and combined as needed. The result is better situational awareness of the ship, its condition and influencing parameters during the docking maneuver.



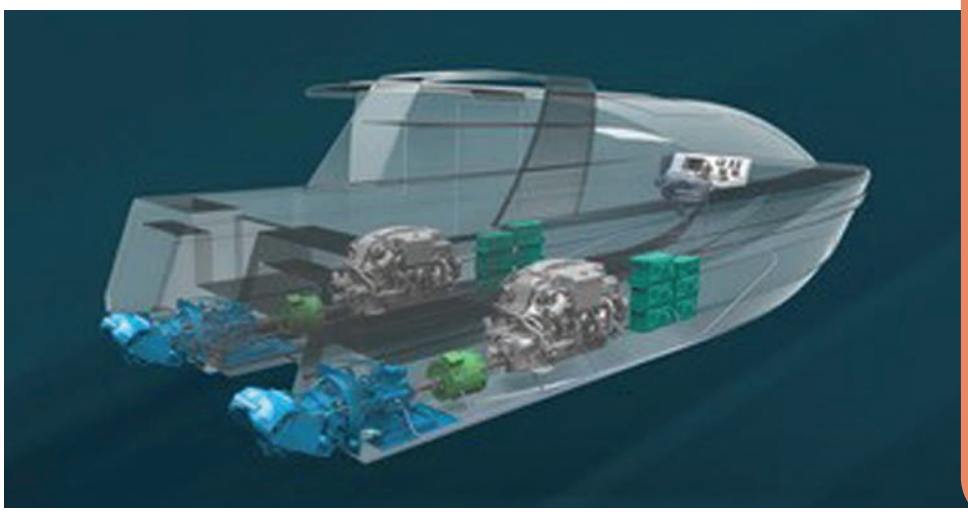
Jotun



Greensea

HULL CRAWLERS

When it comes to ship efficiency and emissions reduction, the next frontier is devising better means to keep hulls clean from biofouling between dry dockings. Send in the robots. Jotun, working with technology partners Kongsberg, Semcon, DNV GL, Telenor, as well as shipping companies Wallenius Wilhelmsen, Berge Bulk and Maersk, launched the HullSkater magnetic crawler to provide condition monitoring, inspection and cleaning. Separately, Greensea has introduced a new hull crawler that attaches a ROV to a ship hull without magnetics, allowing the operator to "drive" the ROV and payloads over the hull for similar services. Initial hull crawlers are designed to work exclusively with the VideoRay Mission Specialist Defender ROV.



HamiltonJet

ELECTRIC ADVANTAGES, DIESEL CAPABILITIES

The Electro-Hybrid Drive (EHX) system from waterjet propulsion specialist HamiltonJet offers all the advantages of electric drive with the full capabilities of diesel. The electric motors, power electronics and control system are seamlessly integrated with the waterjets, engines, gearboxes or clutches, and the control system manages the hybrid energy flow between engines, batteries and motors, while charging and discharging the batteries as required. There's an automatic setting, plus a manual setting delivering four different modes of operation: diesel only, electric only, charging or electric boost.

RIVER RADAR

Alphatron Marine's next generation river radar, the JMR-611, characterizes itself by an excellent suppression of wave action on wide water. In addition, this radar uses an aerodynamic scanner and an associated modified motor, making the radar suitable for even the most extreme weather conditions.

US COAST GUARD SURF BOATS: Service Life Extension

By Alan Haig-Brown

Since the days of wooden hulls and human power, lifeboat crews have put to sea through dangerous surf to save the lives of their fellow seamen. The first engine powered boats allowed decks and cabins that afforded a greater level of safety. When the U.S. Coast Guard developed its 47-foot surf boat in the late 1990s, a whole new standard for lifeboats was set.

Designated 47-foot MLB, these all-aluminum craft demonstrated spectacular performance. Capable of handling 60-knots winds, 20-foot breaking surf, and impacts up to three Gs the boats carry four crew and up to 30 passengers.

The ultimate expression of the 47 MLB's indominable nature is its ability to self-right if overturned. Not only will the boat turn right-side-up, it will do so with both main engines running and ready to drive the boat ahead. Meeting this demand is a tall order for any engine that would hope to qualify for the repower and upgrade, but Cummins met that challenge. After extensive testing, a pair of US-built, 6-cylinder, Cummins QSC8.3-M engines were chosen for the repower as part of the MLB Service Life Extension Program (SLEP). These EPA3-rated engines have four valves per cylinder and produce 530 BHP each at 2,600 RPM. They replace the original 435-hp Detroit 6V92TA mains. The new engines exceed the contracted requirements in terms of noise reduction and fuel economy.

The current in-service MLBs were built from 1997 to 2003 and are now approaching the end of their original 25-year service life, so in August 2019 the Coast Guard awarded Birdon America a $190 million contract to perform the SLEP for its 47 MLB fleet. The firm-fixed price, indefinite delivery, indefinite quantity contract is for the design, development, testing and upgrade/build of USCG MLBs over a period of five years with an option for an additional five years.

In the summer of 2020, Birdon America delivered the first of the upgraded 47 MLBs which was accepted by the U.S. Coast Guard. It had passed or exceeded all the U.S. Coast Guard requirements under the contract. Birdon will now proceed with the service life extension of over 100 of these vessels built between 1997 and 2003. Work on the first boat was completed at the All-American Marine yard in Bellingham, Wash. Other west coast boats will follow. The 47 MLBs on the east coast will be upgraded at an east coast yard beginning in 2022.

Birdon America

Birdon America

Matthew Seymour, Cummins Application Engineer working on one the new QSC8.3 engines.

Cummins

Out-casting and Outlasting the Competition

A captain claims victory at the end of a popular high-stakes fishing competition thanks to help from a new electronic boat control system.

When the Summer to Fall bluefin tuna season ends in Gloucester, Mass., it's only just beginning in North Carolina's Outer Banks. It's in these rough waters that commercial fishermen compete on the TV show, "Wicked Tuna: Outer Banks." A spin-off of the original "Wicked Tuna," this series has run on National Geographic since 2014 and recently completed its seventh season on air in September 2020.

Fishing for bluefin tuna comes with unique challenges. Weighing up to half a ton, these fish are difficult to reel in. In addition, commercial fishermen face a short fishing season, a declining tuna population and strict government catch quotas. With these limitations, the fishermen can't afford to take to the seas with substandard equipment.

No one knew this better than Tyler McLaughlin, captain of the 45-foot boat, the PinWheel. Featured on the original, Gloucester-based "Wicked Tuna" series, the captain has recently claimed victory on "Outer Banks." This win wouldn't have been possible without new electronic boat controls from Emerson, a specialist in automation technologies, enabling McLaughlin to successfully adapt to the fishing style of the south.

North versus south fishing challenges

Compared to tuna fishing in Gloucester, America's oldest seaport and home of the original "Wicked Tuna" series, tuna fishing in the Outer Banks can throw even the most seasoned fisherman for a loop. Gloucester fishermen are accustomed to anchoring themselves in one spot and waiting for the tuna to come to them. Because there are so many tuna in the area, fishermen don't have to waste valuable fuel pursuing them.

But in the Outer Banks, it's a different story. For one, the weather is more unpredictable, promising rougher seas. In addition, fishermen who are more accustomed to the rod-and-reel technique favored in the north must engage in trolling, a fishing technique that involves dragging baited fishing lines behind the boat through the water. The boats must always stay in motion, which keeps the bait "swimming" as naturally as possible.

Due to this technique, the most successful boats on "Outer Banks" incorporate special proportional hydraulic valves on their gearbox called trolling valves. These valves transfer the engine's power to the propeller behind the boat, allowing the fishermen to slow the boat's speed. When first tackling the waves of the Outer Banks, McLaughlin's PinWheel didn't have these trolling capabilities, as the boat was originally intended for northern fishing. If he wanted success in the southern waters, something would have to change.

First the Falcon, now the PinWheel

As luck would have it, the Manager of Business Development Marine at Emerson, Steve Vincent, was a fan of the "Wicked Tuna" series. Vincent recognized the need for the Outer Banks fishermen to be able to maneuver their vessels quickly from different locations on their boat, especially when reeling in a large, half-ton tuna.

Vincent first approached McLaughlin's fellow "Wicked Tuna" contestant, Dave Marciano, and together upgraded the mechanical control system on Maricano's boat, the Falcon. McLaughlin witnessed the ways this upgrade made Marciano a more formidable competitor on the show, and

Photos: Emerson

FV Pinwheel, a 45-foot Donelle custom boat, following the successful installation and commissioning of the Marex OS III controls.

was eager to make the same modifications to the PinWheel.

Vincent, who works in the marine technology division at AVENTICS, an Emerson company that manufactures electronic and pneumatic components for the marine industry, suggested equipping McLaughlin's PinWheel with the Marex OS III—the same system used on Marciano's boat. An electronic control system for pitch propellers, jet propulsion and reversing gear systems, the Marex OS III is easy to integrate, accommodates up to six control stations and eliminates the extra force required to manually operate control heads between stations.

Trolling to Victory With the Marex OS III

In addition to its flexible design, ease of use and modular system architecture, the Marex OS III includes advanced features that have improved the PinWheel's maneuverability. As a single-engine boat with two control stations, it has given McLaughlin the freedom to control his vessel from the helm or stern.

In addition, the PinWheel now has trolling capabilities. The system's trolling valve, which is an adjustable device incorporated into the boat's hydraulic system, regulates the pressure between zero and full operating pressure. This feature reduces the propeller speed at a given engine speed, enabling McLaughlin to achieve lower speeds than what is possible for normal gear engagement. As a result of this new capability, McLaughlin can now drag his bait slowly through the water while also maneuvering the boat in and out of the harbor with ease.

Upgrading the PinWheel with the Marex OS III system has brought McLaughlin up to speed with many of the other vessels featured in "Wicked Tuna: Outer Banks." It has also had a positive impact on his performance during the show—ultimately helping him reel in his victory.

"This new system has allowed me to maneuver the PinWheel quickly and efficiently and also slow the boat down for trolling—all of which has helped me catch more fish," McLaughlin says. "This marks the first time in the show's history a northern boat has successfully competed against southern boats and won. I couldn't be more proud."

In-Mar Solutions: Wynn Marine Type C & Type D, Heavy Duty Straight Line Wipers

Wynn Type C (internal motor) and Type D (external motor) Straight Line Wipers offer the most advanced design of linear action window wiping systems for marine and other specialized applications. Optimum window coverage can be achieved and enhanced by utilizing a twin-bladed or dual-arm/blade design.

www.inmarsolutions.com

VC20 Vessel Control System

Featuring simplified electrical management and significant functional improvements, the next generation YANMAR VC20 Vessel Control System integrates with YANMAR's complete line up of common rail engine series, transmissions, controls and displays. The VC20 has been developed for single, twin and triple engine installations. The new system offers dedicated control modes for all YANMAR control system functions including YANMAR joystick controls: JC10A for sterndrive applications and JC20A for inboard applications featuring the unique VETUS extended run Bow Thruster or VETUS BOW PRO Thruster.

IntelliSite

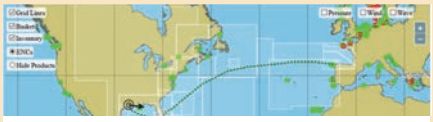
Kidde Fire Systems launched its new IntelliSite remote monitoring system, a first-of-its-kind remote monitoring solution for gaseous fire suppression systems. The IntelliSite system allows users to monitor the status of a portfolio of fire control units in real time across multiple locations via computer, tablet or smartphone. Using secure cellular connectivity, control unit status along with the status of all associated detection devices and supervised suppression systems is at the user's fingertips, providing information-based decision-making.

Wave MiniBOSS

A new version of the Wave MiniBOSS IMO separator offers faster flow rate, providing 0.5m³/hr across all models providing more flexibility. All models are available for DC or AC power. The Series II Wave MiniBOSS Oily Water Separator (OWS) is a neatly designed bulkhead mounted system. The sophisticated filter technology removes all trace of pollutants down to the 15 ppm IMO worldwide standard. Additionally, the system can be supplied to clean bilge water to 5 ppm if a vessel is operating in a sensitive or Particularly Protected Sea Area (PPSA) as certified by the IMO.

Sea Skipper

Australian Pump has developed the Sea Skipper range of high pressure, seawater compatible fire pumps, featuring a new high pressure 3" pump powered by a Yanmar 10hp electric start diesel engine. The pump can deliver 150 liters of water per minute at 80 meters head (105 psi), and it can also be used as a salvage pump with flows of up to 450 lpm at 20 meters head. The machine's compatibility to saltwater is a simple solution. Impellers and volutes are manufactured from bronze, whilst the body of the pump and other key components are marine grade aluminum, coated with a seawater resistant epoxy coating both inside and out.



MyRA

ChartWorld announced the latest round of updates to its digital routing service, My Route Appraisal (MyRA). MyRA provides both vessels and onshore personnel with a proposed ECDIS-ready voyage plan. The plan is based on a route network, port databases, bathymetry from ENCs, weather forecasts and the relevant ship model. The MyRA version 1.4 release rolled out in October 2020 includes the following improvements: further simplification of the install process; advanced routing algorithm, considering vessel air draft for voyage calculations; and New Data Services for weather routing by NAPA and Environmental Voyage Overview by EMH.

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
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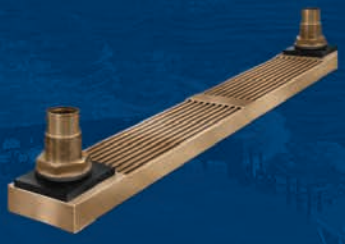

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