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Contents

Marine News September 2025 • Volume 36 Number 9

Features

- 8 Insights: Eddie Belk, USACE**
Edward (Eddie) Belk retired from USACE after 38 years of service.
By Tracy Zea, President/CEO, Waterways Council, Inc.
- 20 Hybrid Patrol Boats**
Interest in hybrid patrol boats is growing as boat builders demonstrate their many benefits.
By Wendy Laursen
- 28 Maritime Dominance Begins with U.S. Ship Repair and Conversion**
Ship & boat repair & conversion is central to rebuilding the U.S. maritime industrial base.
By Bob Kunkel
- 34 Ferries Fast-Track Clean Propulsion**
Cleaner ops centered on reduced greenhouse gas and particulate emissions have seen wide adaption in the passenger transport space.
By Barry Parker



- 4 Editor's Note**
- 6 Authors**
- 10 Training**
Using Mistakes as Training Gold
By Heather Combs, CEO, Ripple
- 12 Washington Watch**
U.S. Reciprocal Tariffs & Inbound Supply Chains
By Jonathan Todd & Phil Nester, Benesch Law

- 16 Digitalization**
Barge OS: Real-Time Visibility, Predictive Intelligence to Barge Logistics
By Celia Konowe
- 18 Fuel Transition**
8 Steps for Ports to Upgrade from Diesel to Propane
By Jim Bunsey, PERC

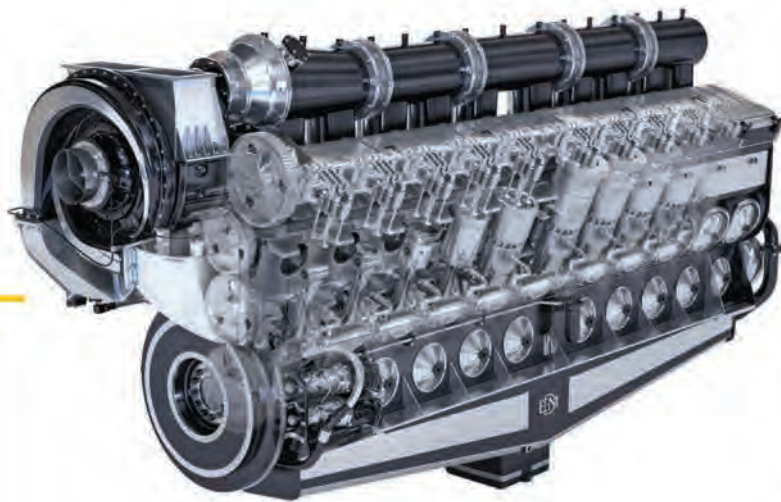
- 24 Repair**
Fire to Full Power: Restoring Dutra's TSHD Stuyvesant
By Greg Trauthwein
- 40 Vessels**
- 45 Products**
- 46 Classified Advertising**
- 48 Advertisers Index**



On the Cover

Ship & boat repair and conversion is a central plank in rebuilding the U.S. maritime industrial infrastructure, as mandated by the Trump Administration. Pictured is Bayonne Dry Dock in Bayonne, NJ.

(Cover photo courtesy Bayonne Dry Dock)



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Editor's Note



Greg Trauthwein, Editor,
trauthwein@marinelink.com

Since the Trump administration retook the helm in January 2025, there has been much talk about the revitalization of the U.S. maritime and industrial sectors. While there have been a string headline-making deals which have seen shipyards from around the world come to the U.S. shores to ink deals with U.S. ship and boat builders in the quest to get a piece of the U.S. Navy or the Arctic Icebreaker fleet rebuilds, medium and small yards – the heart of the U.S. maritime sectors – have mostly seen nothing to date.

Critically, much of the spotlight has eluded a core component of any country's maritime infrastructure: **Ship & Boat Repair and Conversion**. This month **Bob Kunkel** takes on the topic in typical Bob Kunkel fashion: informed, experienced, straight to the point with BS to the side. I certainly don't want to steal Kunkel's thunder, which starts on page 28, but his message can be neatly summarized in two of the sentences he writes:

- *The quickest way to reestablish our manufacturing base and accomplish the White House goals is understanding the importance of our repair yard capacity.*
- *All are fixated on new construction for all of the wrong reasons. Yet most of us in shipbuilding understand the majority of top-tier foreign yards in South Korea, Japan and China started as repair yards.*

Turning to the newbuild side, an exciting and growing prospect for new business and innovation continues to be the ferry/passenger vessel market. While it's safe to say that 'emission reduction' is not a national political imperative today, there are rapidly advancing hybrid and all-electric technologies globally that are being deployed in the U.S. newbuild market, too, and increasingly diesel/hybrid, all-electric and even hydrogen – and the ferry market is the tip of the spear.

Regular *Marine News* contributor **Barry Parker** examines, starting on page 34, a raft of new projects where all of the above and then some are being built into the ferry fleets of today, many driven by individual organizations and municipalities that continue to prioritize performance and the environment. While Parker brings the emerging tech to the fore, he does so under the context of the finance behind it. Admittedly many of the new projects come with financial triggers and support, and though 'hybrid' and 'all-electric' grab the headlines, diesel powered and fueled still do the vast majority of the work. But the tide is changing.

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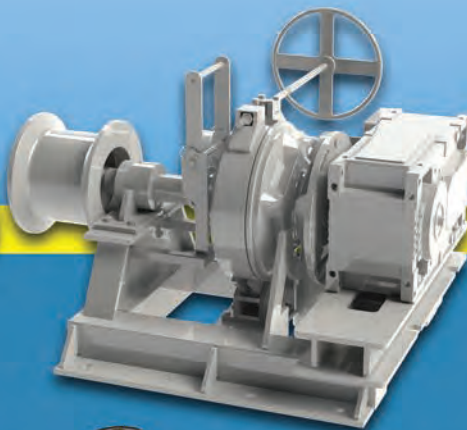
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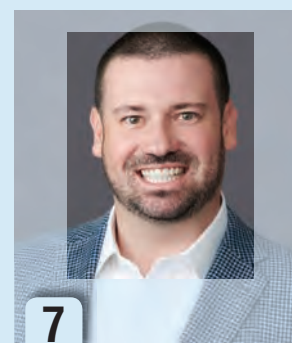
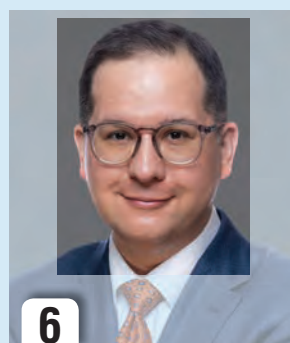
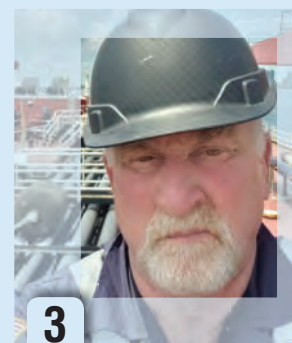


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Insights

Waterways Council Inc.

Eddie Belk: Retiring, “Embracing the Journey,” and Recalling His Service to the Nation’s Inland Waterways

By Tracy Zea, President/CEO, Waterways Council, Inc.

Mr. Edward (Eddie) Belk

retired from the U.S. Army Corps of Engineers (USACE) on July 31, 2025, after 38 years of service, most recently as the Corps’ Director of Civil Works, the highest civilian position within the federal agency.

While Waterways Council, Inc. (WCI) advocates, with its 175 member companies and organizations, for a modern, efficient, well-maintained system of inland waterways and ports, it does so side-by-side with the Corps of Engineers. And among the Corps representatives WCI has worked with over the last 22 years, Eddie Belk has been a statesman, a problem solver who always sought solutions rather than “no” answers, and an industry partner who clearly understood that the Corps working with industry produces better results than either going it alone. He has

said that the Corps cannot be successful without sponsors and partners, which are “force multipliers.” And while success and accomplishments are important, Eddie is someone who values people and relationships even more.

He began his career in the private sector at engineering firms but always wanted to work on the Mississippi River, something he thought of as a “dream job.” He began with the Corps as a temporary mid-level government GS-9 position on a hydrographic survey crew on the Mississippi.

In that first position with the Corps, Eddie said he learned to embrace flexibility, adaptability and to be open to new ideas, advice he would later give to other Corps employees. He very much “embraced the journey,” and looked to the possibilities each new position and role within the Corps offered him.

In fact, his tours with the Army/Corps of Engineers in



© Waterways Council, Inc.

***Eddie Belk** (left) stands with Waterways Council, Inc.’s Chairman **Jeff Webb** at WCI’s 2024 Annual Waterways Symposium held in San Antonio, TX, where Mr. Belk was a speaker.*

Insights

Waterways Council Inc.

Iraq taught him to “not sweat the small stuff.” On his first tour, on the jet to Kuwait flying into a war zone, Eddie recalled this is what he signed up for and was called to do. Overcoming fear, not letting others down, refusing to fail, embracing commitment and follow-through gave him the grit he needed to hurdle the challenges.

Eddie’s view of the Corps as a complex water resources organization encompasses his many past roles, most recently informing a national perspective from Corps’ headquarters in Washington, DC in addition to a division or district view. He said his interactions with Congress and the Administration, no matter who was serving in the White House, had been very positive because those in office appreciate and respect what the Corps does for the country. He noted the Corps’ workload is at record, unprecedented levels, managing its eight mission lines for Civil Works: Navigation; Flood and Storm Damage Reduction; Aquatic Ecosystem Restoration; Hydropower; Recreation; Regulatory Permitting; Environmental Enhancement; and providing support to other federal agencies, state and local governments, and private entities on a variety of water resources-related issues.

In addition to these core mission areas, the Corps provides a vital role in emergency response, particularly for natural disasters.

Referring to the Corps’ work as a “Silent Servant,” first coined by Deputy Commanding General for Civil and Emergency Operations Maj. Gen. Michael Walsh, Eddie acknowledges that despite America being a maritime nation, many people are unaware of what the Corps does. The U.S. maritime industry – its ports, waterways, and harbors – facilitates interaction with the world economically, and the Corps’ navigation work is front and center to that activity.

Its flood risk management is ever-critical given climate variability and more than 50% of the U.S. population living near a coast. Finding ways to harmonize and add value to ecosystem restoration has been key to the Corps, he said, and given that 25% of U.S. hydropower is produced by dams for growing urban centers raises the bar for the Corps’ work on that mission line.

He cited 260 million visitors to U.S. recreation sites over the last few years has generated more dollars than entry to Walt Disney World, so recreation drives the economic engine in addition to providing relaxation.

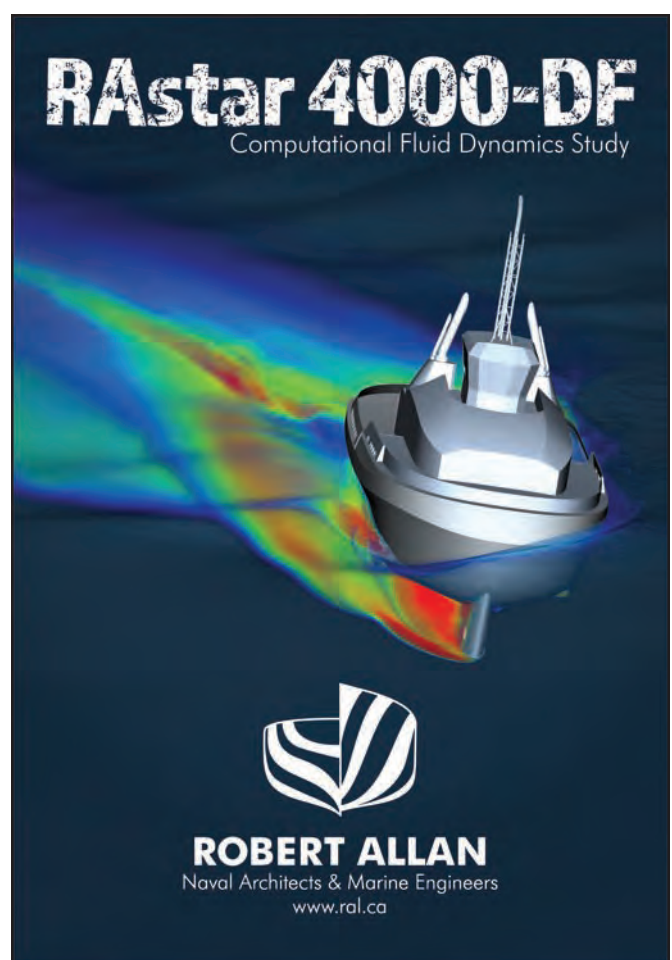
In his retirement, he plans to return to his home state of Mississippi, where his wife, oldest daughter and two grand-

kids are. He wants to travel and continue to work, whether it is to “hang out a shingle at an engineering firm or become a Walmart greeter, I am not a rocking chair guy,” he said.

As the Corps this year celebrates its 250th anniversary of service to this country, leaving the Corps is bittersweet for Eddie. His advice for anyone joining the Corps today is to stay humble, be kind, put people first and make time for them, choose people over things, be a positive force inside the organization, and uplift others to be enthusiastic and pursue opportunities.

Wise words from the wisest of men. We thank you, Eddie Belk, for your service to the Corps and to Waterways Council and its members, and for your stalwart commitment to always finding solutions.

**Some details drawn from the Corps’ July 11, 2025 Inside the Castle Episode 162 podcast interview with Mr. Belk.*



Training Tips for Ships

Learning from Mistakes



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“Well, now we know what not to do.”

Fail Forward: Using Mistakes as Training Gold

By Heather Combs, CEO, Ripple Operations

In the maritime world,

mistakes can feel like anchors, heavy, embarrassing, and best left out of sight. The instinct to hide them is strong, especially in environments where reputation, pride, and hierarchy run deep. Yet mistakes, when handled correctly, are not liabilities. They are gold mines of insight, capable of transforming both safety and performance across an entire vessel.

The truth is, no matter how experienced the crew or how rigorous the procedures are, errors will happen. A line will be secured incorrectly. A checklist will be skipped under time pressure. A miscommunication will cause a delay. The danger lies not in the mistake itself, but in letting it slip quietly into the shadows. When mistakes go unexamined, they repeat, and in maritime operations,

repetition can escalate from minor mishap to major incidents in a heartbeat.

The shift begins with culture. If the prevailing atmosphere is one of punishment and blame, crew members will naturally protect themselves by concealing errors. This shields individuals but puts the vessel at greater risk. A safer, more effective approach is to foster an environment where mistakes are openly reported, examined without personal attacks, and converted into actionable training opportunities.

This does not mean lowering standards or treating errors casually. It means recognizing that the same human tendency to err is also the one that fuels innovation and improvement. In aviation, for example, debriefs after every flight, successful or not, are routine. Every misstep be-

Training Tips for Ships

Learning from Mistakes

comes a case study, and over time the data collected from those missteps has revolutionized flight safety. Maritime operations can benefit from adopting a similar mindset.

Turn mistakes into training gold:

- **Conduct Open, Structured Debriefs**

After any significant operation, whether a port arrival, cargo transfer, or emergency drill, set aside time to review what happened. Encourage all ranks to contribute observations, not just senior officers. Ask: What went right? What went wrong? And most importantly, what can we do differently next time?

- **Separate the Behavior from the Person**

Critique the action, not the individual. “The line was not secured” is a fact. “You are careless” is an accusation. Keeping feedback objective lowers defensiveness and keeps the focus on learning.

- **Document and Share Lessons Learned**

Maintain a log of operational lessons and circulate it among the crew. Over time this creates a living playbook of what not to do and what to do better, rooted in the vessel’s own history.

- **Simulate the Mistake**

If safe and practical, incorporate a past mistake into a drill scenario. For example, if a previous fire drill failed due to unclear communication, run the same drill again with an emphasis on concise, standard phrases. Seeing the corrected version in action reinforces the learning.

One of the most powerful aspects of failing forward is that it strengthens crew cohesion. When everyone knows that mistakes will be treated as opportunities for shared improvement rather than ammunition for blame, it builds trust. Trust fuels communication. And communication, as every mariner knows, is one of the strongest defenses against accidents at sea.

It is worth noting that this approach requires leadership courage. It is far easier to punish and move on than it is to analyze and adapt. But leaders who choose the harder path, who model vulnerability by admitting their own missteps, send a clear message that we are all here to learn, no

matter our rank.

Maritime training will always strive to prevent errors, but it should also embrace the reality that they will occur.

When they do, the worst outcome is to waste them. The best is to mine them for every insight they contain, strengthening the crew’s skills, sharpening their judgment, and tightening their teamwork.

Mistakes are an unavoidable part of the maritime industry. But a wasted mistake is a choice. By turning every error into a lesson, you aren’t just preparing your crew for the next voyage; you’re forging a culture of continuous improvement that will safeguard every voyage that follows.

Until next time, sail safely.



Tariffs

Washington Watch

U.S. Reciprocal Tariffs: The Effect on Inbound Supply Chains & Compliance

By **Jonathan Todd**, Vice Chair of the Transportation & Logistics Practice Group & **Phil Nester**, Senior Managing Associate with the Transportation & Logistics Practice Group, Benesch Law



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On July 31, 2025,

President Trump signed an Executive Order (“E.O.”) modifying reciprocal tariffs that became effective on August 7, 2025. Some aspects of the impact are well understood such as increased tariff burden on importers ranging from 10% to over 40%. Still, other aspects of the practical effect and its knock-on effects for shipping are relatively novel. Understanding these measures is essential for all import supply chain participants and their service providers as real impacts on transportation spend and compliance risk come in focus.

The In-Transit Exception

Central to the E.O. is the narrowly defined in-transit exception. Shipments that are loaded onto a vessel at the port of loading before August 7th, and that remain on that same vessel until U.S. entry before October 5, 2025, will bear the pre-existing 10% reciprocal tariff. One key fact that has emerged in recent months is now this relief is limited. Goods that are transferred or transshipped to a different vessel after departure from port of loading after August 7th, which includes feeder vessel service, do not fall under the exception. Such a break in the through movement on the origin vessel means the goods are subject to the full reciprocal tariff depending on the customs country of origin (“COO”).

Transshipment, Feeder Vessels, and Enforcement Risk

The E.O. gives the U.S. Customs and Border Protection (“CBP”) authority to impose an additional 40% tariff on goods it determines or suspects have been transshipped to circumvent the reciprocal tariffs. Transshipment in and of itself is not a problem – the issue is ILLEGAL TRANSSHIPPING that is conducted for the purpose of falsifying the COO on customs entry summaries. This heightens the compliance burden and risk for shippers, beneficial cargo owners (“BCOs”), as well as their agents, intermediaries, and carriers that rely on multi-leg-vessel routing or feeder vessel systems in their global supply chains. All facts

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Tariffs

Washington Watch

declared on shipping paperwork and in entry summaries must always be truthful. Merely routing goods through another country, say from China to Vietnam, DOES NOT change the customs COO (which here will remain China). There is an interesting potential for CBP to overreach in its enforcement due to lack of visibility into shipper sourcing, and conversely, the potential for shippers to raise new sensitivity about the routing of their shipments to avoid raising suspicion by CBP. Government enforcement will mean that 40% duties will apply against the value of the goods in addition to all other liquidated damages and civil penalties. On a bad set of facts those civil penalties can be as high as four times the value of the goods (or 400%).

Country of Origin

The COO remains key to assessing tariffs. Country-specific tariff rates under the E.O. require stringent COO determinations consistent with longstanding customs principles centered on where goods originate or undergo substantial transformation. The substantial transformation test is not the most straightforward of legal tests, but it is very important. Precision with COO declarations drives determinations of which tariff rate applies (outside of USMCA). Erroneously declaring COO is viewed by CBP as duty evasion. At a minimum, the consequence to the domestic U.S. importer will be payment of lost revenue (duties) to the U.S. government, plus interest. The net effect is that procurement, customs, and compliance teams must be on high alert with robust internal controls and operating procedures to avoid self-blinding or bearing supply chain interruption due to unscrupulous suppliers.

Port of Loading

The port of loading, and the date of loading, is significant under the E.O. for determinations of whether the higher duty rates are in effect. The port of loading is NOT significant for determination of COO. Also inland origin and destination movements of cargo by motor carriage, drayage, and rail prior to vessel loading or after discharge may serve commercial or operational

purposes, but they do not affect the COO determination for assessing tariffs. Rerouting cargo through different ports or trade lanes will not circumvent the tariffs, as eligibility for the in-transit exception is determined by the original port of loading and that date. Changes in trade lanes or port pairs after August 7th could nullify relief eligibility and thus trigger full tariff rates. The CBP's increasingly aggressive enforcement policy signals a low tolerance for tariff evasion efforts rather than legitimate commercial routing changes.

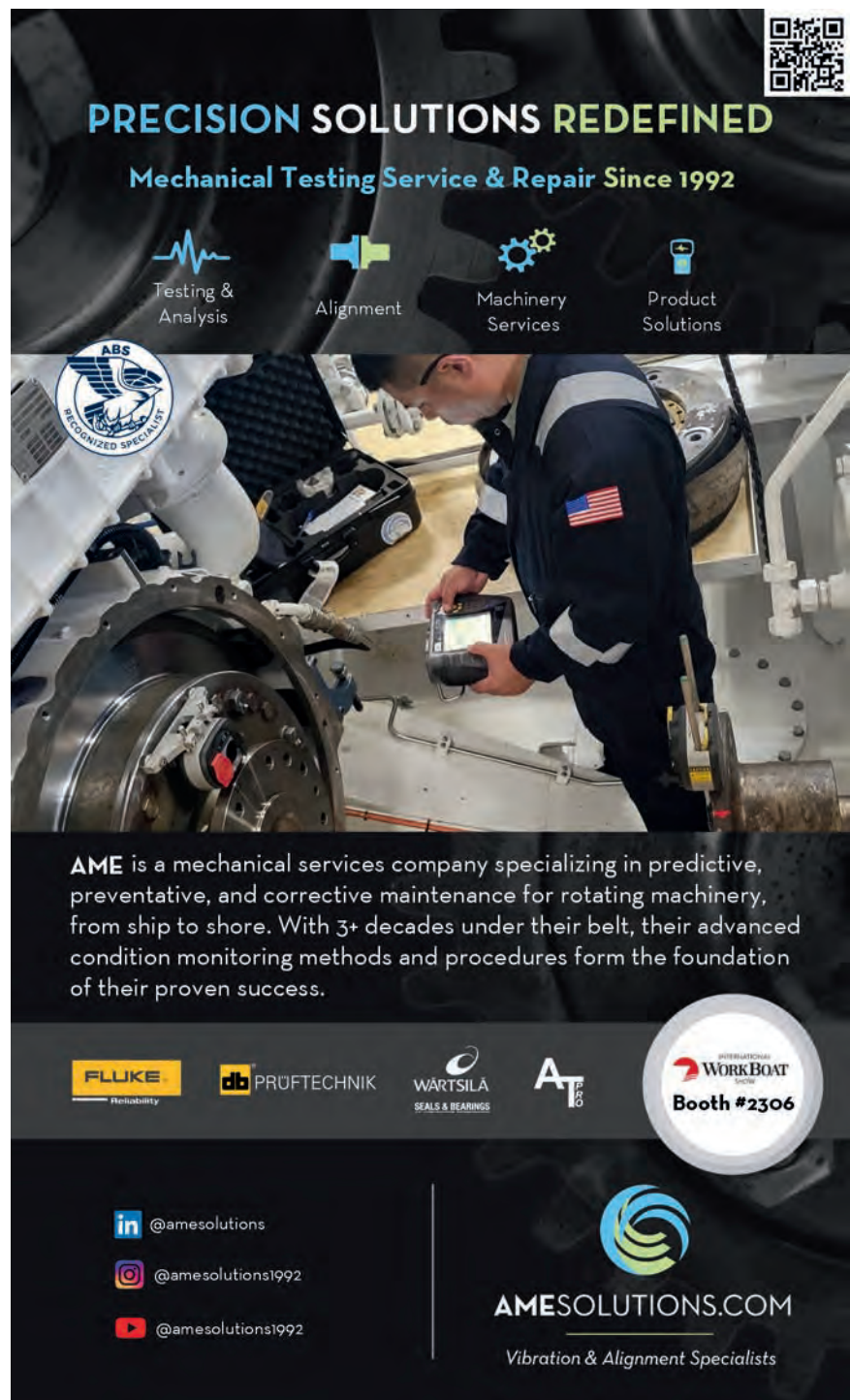
A quick example would be helpful. Even with CFS-to-CFS or CY-to-CY shipments the "On Board Departure Date" is defined by the date the cargo is physically loaded onto the vessel at the port of loading. Any movement by truck, rail, or smaller vessel prior to arrival at the port of loading is considered pre-carriage and does not affect the On Board Departure Date—even where a through bill of lading covers a door-to-door route. Under the reciprocal tariff framework, this date determination takes on greater significance because the On Board Departure Date at the port of loading is the operative trigger for whether the in-transit exception applies. Pre-carriage legs, regardless of whether they cross domestic or international borders, will not result in in-transit tariff relief if the actual vessel loading occurs after the effective date thresholds in the E.O. Determining whether a leg is pre-carriage depends on its sequence in the nodes of transportation movement, not on its geography. The physical vessel loading at the port of loading is the operative event such that all earlier movements should be treated as pre-carriage when assessing what tariff applies.

Strategic Recommendations

As CBP scrutiny continues to intensify, importers should maintain complete and accurate records that include COO documentation, vessel loading records, and proof of uninterrupted transit to withstand potential investigation or audits. Errors or omissions in customs filings will risk delays, seizure of goods, penalties, and increased enforcement scrutiny. To mitigate tariff exposure:

- Recognize the impact of any transshipment or vessel changes after August 7th.
- Implement rigorous COO validation processes and always avoid illegal transshipment.
- Closely manage inland movements at both origin and destination, as well as vessel logistics scheduling.
- Collaborate closely with shippers, customs brokers, logistics providers, and other carriers to ensure visibility to timings, accuracy of data, and compliance of supporting documents.

The impact of reciprocal tariffs on inland and ocean shipments, as well as multimodal legs, is beginning to be felt across the industry. Challenges extend far beyond supplier tender dates and buyer order planning. Today even basic metrics of whether MQCs will be met, the viability of rates, and whether contracted lanes remain essential to inbound ocean cargoes (regardless of steamship line capacity) are variables requiring close focus alongside basic customs compliance. All supply chain participants including shippers and BCOs must closely monitor regulatory and enforcement changes to develop strategies that align sourcing, pricing, and compliance with efficient supply chain management. Service providers of all types are of course part of that solution as the world comes to grips with the new reciprocal tariff regime.



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Digitalization

OpenTug CEO Jason Aristides

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Real-Time Visibility, Predictive Intelligence to O&G Barge Logistics

*The tow and barge industry is a conservative industry built on a traditional way of doing things. But times are changing, and the need for digital solutions to help track and verify cargoes – particularly in the high-value energy market – is becoming mandatory. The upside: gains in operational efficiency are real and measurable too, for both the transportation company and the shipper, as **Jason Aristides**, Founder and CEO, OpenTug, discusses in a recent interview.*

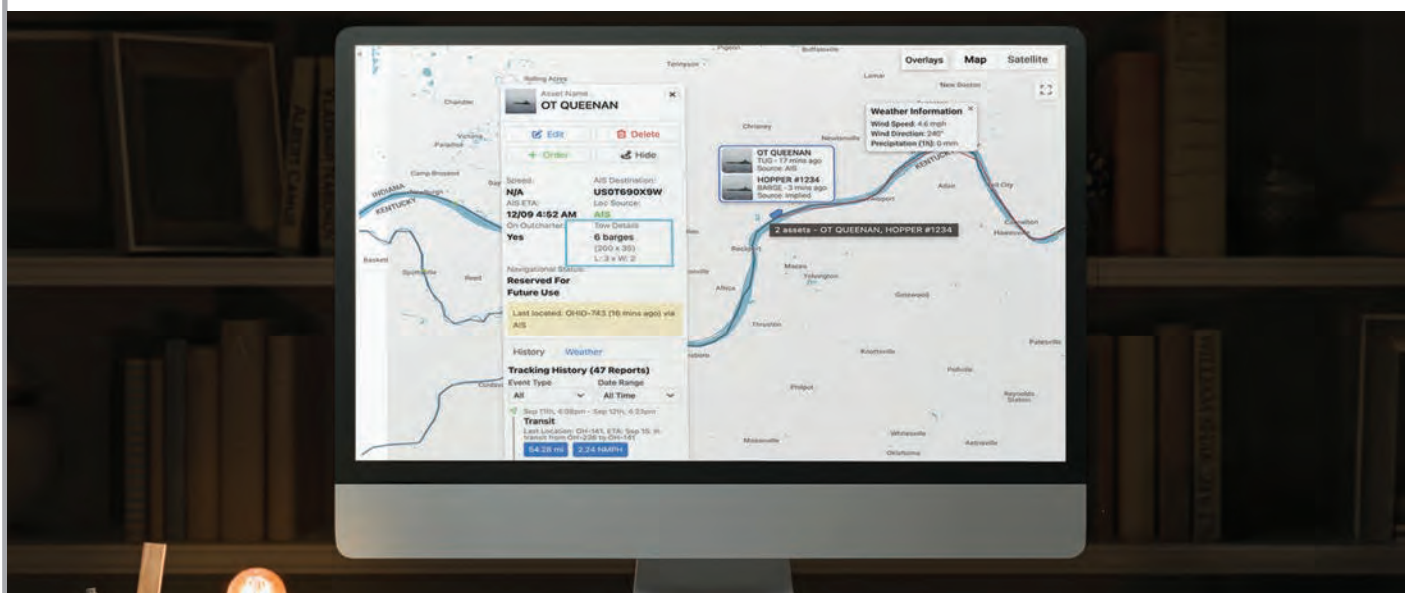
In the competitive world of offshore energy logistics, where the value of a single shipment can stretch into the tens of millions, efficiency, transparency, and predictability are paramount. Jason Aristides, founder and CEO of OpenTug, believes the barge sector, long hampered by manual processes and limited data visibility, is overdue for a digital revolution.

Founded out of Aristides' firsthand experience at Foss Maritime, OpenTug began as a marketplace platform for barge transport before pivoting into a full-scale software-

as-a-service (SaaS) provider. Its flagship solution, BargeOS, now serves as an operating system for barge logistics, enabling companies to quote, schedule, track, and reconcile barge voyages in a single digital platform.

Mind the [Visibility] Gap

Unlike tugboats, barges in the U.S. are not covered by AIS requirements, making it difficult for shippers to know where their cargo is in real time. For the oil and gas sector — where high-value liquid cargo demands absolute preci-



All images courtesy OpenTug

Digitalization

OpenTug CEO Jason Aristides



"With recent investment from maritime-focused backers, OpenTug is doubling down on AI-driven document processing, live tracking infrastructure, and collaborative tools designed to bridge operators, shippers and terminals."

– Jason Aristides, founder and CEO of OpenTug

Watch the full interview with **Jason Aristides**, on **Offshore Engineer TV**:



sion — this information gap can cause costly idle time and disrupt downstream operations.

OpenTug is filling that gap with a multi-pronged approach. The company tracks over 3,500 active barges each month, deploying GPS devices to deliver live location data, integrating voyage orders and traffic updates via AI, and consolidating this information into a single source of truth. For oil and gas operators, that means real-time ETA updates, operational alerts, and a verified record of voyage activity — all critical for safety compliance, contract accuracy, and optimizing fleet utilization.

Case Studies in Efficiency

One Gulf Coast carrier previously spent hours pricing voyages for customers, factoring in unpredictable river conditions, water levels, and lock delays. OpenTug's automated quoting engine, part of BargeOS, turned that into an instant process, improving margin accuracy and helping close deals faster.

For a major oil and gas shipper, the challenge was coordinating multiple stakeholders who needed to know when barges would be ready for loading. By integrating GPS tracking, voyage management systems, and automated email data capture, OpenTug created a real-time operational dashboard. The result: less time spent chasing updates, more time making proactive decisions that cut idle days and boosted throughput.

With recent investment from maritime-focused backers, OpenTug is doubling down on AI-driven document processing, live tracking infrastructure, and collaborative tools designed to bridge operators, shippers, and terminals. Aristides' vision is clear — make barge transport as accessible and predictable as road or rail, and in doing so, unlock its potential to move more cargo at lower cost without the need for new vessel construction.

For oil and gas players seeking to tighten control over high-value barge shipments, BargeOS is designed to be more than a logistics tool: if deployed it can provide a competitive advantage in a sector where timing, cost certainty, and asset efficiency directly impact the bottom line.



Fuel Transition

Propane

8 Steps for Ports to Upgrade from Diesel to Propane

A step-by-step guide for port operators looking to upgrade their equipment to propane.

By Jim Bunsey, Propane Education & Research Council (PERC)

With uncertainty around tariffs

and the overall economy putting stress on bottom lines and operations, many ports are looking at adopting propane-powered equipment, such as terminal tractors and forklifts. Propane can not only help reduce fuel costs compared to diesel, but it also helps reduce harmful nitrogen oxide (NOx) and particulate matter (PM) emissions while maintaining operational uptime and efficiency.

Understandably, the thought of moving an entire or even just part of a fleet to a new energy source can be daunting. But by delaying updates to equipment, it could mean losing out on valuable savings and efficiencies. Although making the switch to propane won't happen overnight, it's easier than you might think. This guide will walk port operators through the eight steps they should follow to make a successful, seamless upgrade to propane.

Step 1: Define Your Goals

Start by establishing clear objectives — these might be environmental, social, and governance (ESG) objectives related to reducing greenhouse gas emissions or improving local air quality. Other objectives could focus on lowering fuel and maintenance costs or just improving equipment performance, reliability, and uptime. By defining clear goals up front, it not only helps guide the direction of the transition process but also helps you track the success and ROI of your investments over time.

Step 2: Take an Inventory of Your Diesel Fleet

Your next step is to take a full inventory of your current diesel-powered equipment, making sure to note details like equipment type, age, usage patterns, fuel consumption, maintenance records, and emissions profiles. This assessment gives you a baseline to help identify which pieces of



PERC

Fuel Transition

Propane

equipment are the best candidates to replace or convert to propane over the short, medium, and long term. Typically, your oldest equipment, equipment with the most mileage, equipment with a history of maintenance issues, and/or equipment with the worst fuel efficiency or emissions will be your first candidates for replacement.

Step 3: Partner with PERC and a Local Propane Supplier

Both the Propane Education & Research Council (PERC) and your local propane supplier are great resources to utilize during the planning and rollout of your propane equipment. These partners can help you throughout the decision-making process, from evaluating the best technologies to fit your needs to working with original equipment manufacturers (OEMs). To find a supplier in your area and start the conversation, visit propane.com/where-to-buy.

Step 4: Evaluate New Propane Equipment

Next, it's time to start looking at what propane equipment options are out there from various OEMs, such as the latest in low NOx terminal tractors and forklifts. Pay close attention to factors such as load capacity, duty cycle, refueling time, and emissions requirements when evaluating equipment. Beyond traditional propane-powered material handling equipment, your propane supplier and OEMs can guide you through the other ways propane can power operations at the port. For example, propane-powered generators can provide shore power to docked ships and supplement the existing electric grid — protecting your operation from potential power outages.

Step 5: Plan Fueling Infrastructure with Your Propane Supplier

A common question port operators ask is how to handle refueling. Your local propane supplier can help you explore the various options, from installing a private station with onsite tanks and refueling dispensers to setting up a customized mobile propane delivery schedule via bobtail or cylinder exchange program. Your supplier can also assist you with permitting, compliance, and fuel supply contracts. Not only do these fuel agreements help you plan fuel budgets for the year, but in some cases, propane suppliers may provide the infrastructure at little to no cost in exchange for a fuel contract.

Step 6: Acquire Equipment and Install Refueling Systems

With refueling infrastructure planning in place and equipment selected, you can start to proceed with installation and procurement. To integrate into your operation with minimal disruption, consider a phased approach beginning with vehicles most in need of replacement.

Step 7: Train Your Workforce

Preparing and training your equipment operators, maintenance personnel, and safety teams is crucial for a successful transition. Fortunately, some OEMs will provide maintenance and service training to get you started. First and foremost, teams should be thoroughly educated on the safe handling of propane and propane equipment, including proper refueling procedures, leak detection and routine inspections, and emergency response. Ongoing training will help maintain safety and compliance standards. You can then train on the operation of specific pieces of equipment, though most operators will find significant overlap between the function of propane equipment and previous diesel equipment.

Step 8: Track Progress Towards Goals

As your transition progresses, keep track of performance metrics in relation to your original financial, operational, and sustainability goals. Monitor average emissions reductions as well as fuel and maintenance costs savings over time. This data will not only be needed for both regulatory and internal stakeholder reporting but will help guide your future operational decisions over the long term.

A Worthwhile Move to Propane

Making the switch from diesel to propane is a process that can take a few months, but it's easier than many port operators might assume. It's also a smart, scalable way for ports to make meaningful long-term reductions to emissions and operating costs without giving up performance of efficient operations. To learn more about how propane can make a difference at ports or to learn how to start making the upgrade for your operation, visit propane.com/material-handling-for-ports.

HYBRID PATROL BOATS OFFER MORE THAN EMISSIONS SAVINGS



Interest in hybrid government and patrol boats is growing as boat builders demonstrate their many benefits.

By Wendy Laursen

Feature

Hybrid Vessels

Launched last year at Seawork, Sweden-based Marell Boats says its M17 Patrol was the star of the show with its hybrid powertrain from Scania and propulsion system by Marine Jet Power.

Like others in the patrol boat market, Project Manager Mario Celegin is seeing increasing interest in hybrid patrol boats. There's a lot of reasons why: near-silent patrolling in electric mode, emissions-free operation in and out of harbor, lower fuel consumption at cruising speed, the ability to boost with electric power during acceleration and increased top speed during intercept operations. "Our M17 Hybrid boat increases the top speed from 45 to 50+ knots when the electric boost is engaged."

The duration of the battery capacity is some 6-8 hours at speeds of 6-7 knots, says Celegin. There's no need for support generators. With the installed battery capacity, the boat can be silent at stand-still and have most consumers running (including cooker, HVAC, lighting, navigation and coms) for some 30-40 hours without recharge.

It's not just Europe taking notice. In May, the King County Sheriff's Office Marine Division in the U.S. selected Moose Boats to build a new, custom diesel electric hybrid patrol boat. The vessel will be powered by two Volvo Penta D11-625HP diesel engines integrated with in-line twin Dan Foss electric motors. King County Sheriff's Office was able to purchase this vessel by utilizing Government Service Agency discounted pricing with a grant made possible by Washington State's Climate Com-

mitment Act funding.

The project will involve close collaboration with Hamilton Jet, Volvo Penta and Corvus Energy which will provide the energy storage system that will enable the vessel to run solely under electric propulsion for up to two hours at 5 knots. Integrated diesel drive engines will act to replenish batteries, and electric motor boost will enhance upper end speed performance.

All American Marine has secured a contract to build a 63-foot hybrid catamaran for the Orange County Sanitation District. The Teknicraft- designed vessel will support ocean sampling and scientific research and will feature a hybrid propulsion system powered by Cummins QSB 6.7 engines paired with ABB's Series Hybrid technology. This enables it to meet California's zero-emissions standards, providing 30% of its operational power through a 588kW BorgWarner energy storage system.

British manufacturer Ribcraft has released its new Ribcraft Hybrid Patrol RHIB, one of the first of its kind in the world to feature new technology which switches seamlessly between an electric motor and a diesel engine. The high-performance RIB is powered by twin Volvo Penta D4-270A diesel engines, paired up with twin Transfluid hybrid module HM560.

The hybrid system architecture incorporates a clutch and transmission that enables the vessel to operate in electric-only mode for silent, emission free running, in engine-only mode that provides propulsion and battery charging



Alternatives Energies built eight hybrid patrol vessels it built for the French Navy back in 2020.

Alternatives Energies



Marell Boats' M17 Patrol features a hybrid powertrain from Scania and propulsion system by Marine Jet Power.

Marell Boats

Feature

Hybrid Vessels

or in a combination booster mode with the battery-driven electric motor and diesel engine both driving the shaft for maximum thrust for maneuvering.

“Interest across the Indo-Pacific is growing, particularly from agencies focused on green fleet transition, near-shore law enforcement, and operations in environmentally protected zones,” says Adelina Florescu, Managing Director Ribcraft Australia & APAC. “We’ve now in a position to quote and spec from our Melbourne office, and we set up a manufacturing partnership with Edencraft in Geelong, hence we are capable of delivering sovereign-built hybrid platforms at scale.”

Electric equipment company Molabo of Germany highlights the safety of the power system in a recently-delivered fire-fighting and rescue boat built by the Finnish shipyard Kewatec. The vessel features a hybrid waterjet propulsion system utilizing two 50kW Molabo electric motors and a Molabo 48-volt drive that it says offers significant safety advantages compared to conventional high-voltage systems. The safe-to-touch electric drive system does not require specialized high-voltage trained personnel to install, repair or maintain the system, and it reduces risk to crew members, emergency personnel and the public while maintaining fast and efficient operational performance. The DOEN Waterjets jetdrives further enhance safety by eliminating the in-water hazard of the propeller for safer rescue and retrieval operations.

In May, the King County Sheriff's Office Marine Division in the U.S. selected Moose Boats to build a new, custom diesel electric hybrid patrol boat.



Moose Boats

French boat builder Alternatives Energies says the series of eight hybrid patrol vessels it built for the French Navy back in 2020 use battery power up to 80% of the time. Among the benefits are the reduction in odor and noise for the crew. Conventional power allows for a speed of 10 knots with diesel-powered generators, and the low-speed, zero-emission operating mode uses batteries that can be recharged at dockside or at sea. The vessels have a serial hybrid configuration: 2x150kW motors, 2x150kW gensets and 164kW battery pack.

Singapore was also an early adopter of hybrid power with the MPA Guardian, a 35m hybrid-electric aluminum catamaran patrol boat that has been operating for the Maritime and Port Authority (MPA) in Singapore in 2022. The vessel has a top speed of 27 knots and is designed for patrolling activities, search and rescue, oil spill response, drone operations and salvage support.

MPA Guardian was intended to be a technology demonstrator for the MPA, and vessel designer BMT says vessels such as this are critical to proving that the technologies are now mature enough to provide real world benefit to operators.

Understanding the operating profile of the vessel is key to determining energy storage and propulsion requirements, says Steven Lee, Chief Naval Architect at BMT. BMT works closely with battery suppliers to determine the most appropriate battery type, chemistry and optimum op-

The MPA Guardian, a 35m hybrid-electric aluminum catamaran patrol boat, has been operating for the Maritime and Port Authority (MPA) in Singapore in 2022.



BMT

erating conditions so that the battery lifespan is maximized. Charging rates, charging frequency, depth of discharge and end-of life capacity are all important considerations in achieving the optimum energy storage solution. Virtual prototyping and simulations provide further insight to match energy storage against mission profiles.

“Integrating hybrid capability into a vessel propulsion system is not without its challenges,” says Lee. “Space must be reserved for electric machines, couplings, batteries, switchgear and controls. Weight is a significant factor which influences the vessel size to optimize vessel efficiencies and minimize propulsion power demands. There are a multitude of options when it comes to hybrid integration, so with carefully considered design, this equipment can be integrated onto almost any vessel. Ultimately, each vessel has different requirements; therefore, a custom approach is always needed to ensure the integration is successful for the builder, operator and crew.”

Electric equipment company Molabo of Germany supplied the power system for a recently-delivered fire-fighting and rescue boat built by the Finnish shipyard Kewatec.



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All images courtesy McCullough Engineering Services

From **Fire** to Full Power:



HOW MES HELPED RESTORE DUTRA'S TSHD *STUYVESANT*

*Following a fire onboard the Dutra Group's trailing suction hopper dredge Stuyvesant in late 2024, the mission was clear: get the dredge fixed and back in service as quickly as possible. Enter **Devin Smith**, VP of Commercial Programs, and his team at McCullough Engineering (MES), who were able to assemble a team, assess the damage, formulate a plan and work together with BAE Jacksonville and Dutra to put his valuable asset back to work by mid-2025.*

By Greg Trauthwein

When the TSHD Stuyvesant suffered an engine room fire on November 2, 2024, the scale of the damage raised immediate concerns about whether the vessel could be returned to service quickly, or at all. Owned and operated by The Dutra Group, Stuyvesant is a key asset in the U.S. dredging fleet. Losing her for an extended period would have left a significant gap in capacity. Less than eight months later, on June 20, 2025, the dredge completed sea trials and rejoined the fleet. The rapid turnaround was the result of an intense, collaborative restoration effort led by McCullough Engineering Services (MES), working alongside Dutra, BAE Systems Jacksonville and a network of subcontractors.

A Fire, Then a Call

The fire, traced to a mechanical issue, ripped through the engine room and machinery control room (MCR), destroying the main switchboard, motor controllers, monitoring systems, and melting thousands of feet of cabling. “Once Dutra’s port engineer and fleet manager saw the extent of the damage, they made the first call to Shane McCullough [the founder of MES]” recalls Devin Smith, Vice President of Commercial Programs, MES. “They knew this wasn’t something they could piece back together on their own. They needed us on board.”

For MES, a 28-person firm based in the U.S. with both government and commercial contracts, the challenge was daunting but aligned with its core strengths. The company was tasked not with a narrow technical scope, but with a broad mandate: “get the Stuyvesant safely and reliably back to work.”

Scope of the Damage and Scale of the Project

Founded in 1999, MES has built a reputation for providing full lifecycle support for ship automation, power, and control systems. But as Smith notes, the Stuyvesant project was a different order of magnitude.

“This job was five, ten, maybe fifteen times the scale of our typical project,” he says. “We had to draw resources from both our government and commercial teams and supplement with trusted subcontractors. It was all hands on deck.”

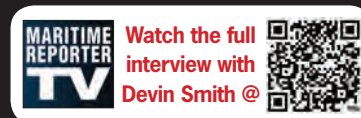
Among the milestones achieved were:

- Installation of a new ABS/USCG-certified switchboard and main engine control system.
- Complete rebuild of the MCR and control consoles.



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**– Devin Smith, VP of
Commercial Programs,
McCullough Engineering (MES)**



- Redesign of the dredge generator AVR system and motor control centers.
- Relocation of variable frequency drives (VFDs) for safer operation.
- Removal, replacement, and testing of damaged cabling—estimated at more than 17.5 miles of cable.
- Commissioning of the electric plant, main engines, and machinery control system.
- Installation of a new fire detection system to prevent history from repeating itself.

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Ship Repair

The Challenges

The first major obstacle came quickly: supply chain lead times. Some critical components carried manufacturer estimates of six months or longer, an unacceptable delay given the tight project window. MES had to leverage its supplier relationships, explore alternate vendors, and, in some cases, engineer custom solutions to stay on schedule.

Once equipment was secured, the next hurdle was manpower.

The amount of cabling, integration, and commissioning

required far exceeded what MES alone could provide. The solution was an innovative blend of resources: MES engineers, Dutra's own shoreside electricians flown in from California, the Stuyvesant's crew, and local subcontractors all pitched in.

"Everyone had to stretch," Smith says. "Dutra's electricians, who were used to working on big crane systems, suddenly found themselves working on PLCs and sensors. They learned on the fly and did a fantastic job. Our team, too ... if someone needed to pull cable, hang lights, or pitch in on cleanup, we just rolled up our sleeves." [Devin Smith



The damage to the TSHD Stuyvesant, before (above) and after (below & right).



Feature Ship Repair

personally was pulled in to paint some brackets as the project came to a close, and he jokes that he's not the neatest painter: at the conclusion of the project, the chief engineer said "'Look, if there's anything, we definitely cannot have Devin painting anymore!"]

The project became a case study in collaboration. MES coordinated insurance liaison, ABS and Coast Guard compliance, and day-to-day project management. BAE Systems Jacksonville provided shipyard infrastructure. Dutra's team supplied deep knowledge of the vessel and manpower that bridged critical gaps.

"This was not just about technical execution," says Smith. "It was about leadership and problem-solving. Every day, new challenges arose—tight deadlines, complex tie-ins with auxiliary systems, troubleshooting across multiple disciplines. Our job was to guide the team through those hurdles and keep momentum moving forward."

A Broader Perspective

The Stuyvesant's return is more than a single vessel success story. For Dutra, it means restoring a critical dredging asset to service months earlier than many expected. For MES, it demonstrates the company's ability to scale up, flex its workforce, and deliver under extraordinary pressure.

Smith also points to the human dimension: "Projects like this show what's possible when owners, shipyards, engineering firms, and crews align around a common goal. It wasn't easy, but everyone pulled together. That's why we were able to hand the ship back in less than eight months."

For MES, the project underscores

its role as a trusted partner in both government and commercial markets. "We're not the biggest company in the world," Smith reflects, "but we bring agility, deep technical expertise, and a one-stop shop mentality that clients value. The Stuyvesant project proves that when it counts, we can deliver at scale."

As for the vessel, she's back at work dredging U.S. waterways, carrying the scars of a fire but also the imprint of a rapid, coordinated recovery effort. For the maritime industry, the story stands as a reminder of both the vulnerability of complex assets and the resilience of the teams that keep them operational.



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*Restoring U.S. Maritime
Dominance Begins with*

SHIP REPAIR & CONVERSION

By Bob Kunkel



Dating back to the year 1786, Thomas Jefferson wrote to a member of the Continental Congress on the importance of free press keeping government in check. He was quoted as saying if he had a choice between “*a government without newspapers or newspapers without a government, I should not hesitate a moment to choose the latter.*”

The basis of the statement being that the government is the opinion of the people. It is not in the current U.S. shipping reporting.

The first “newspaper” shipbuilding announcements consisted of new legislation capable of delivering us back to our former maritime dominance. Before that legislation reached the Senate floor, the next series of reports announced the first U.S.-built LNG vessel in 45 years at Hanwha, followed by the largest container ship under U.S. flag, built 2013 in Daewoo, South Korea entering the MSP and finally \$6.2 billion dollars to support the maintenance of the MarAd RRF fleet. A second report indicates the \$6.2 billion has been awarded to seven companies with 10-year commitments.

The “U.S.-built” LNG carrier will meet its own problems going down the road as government defines “U.S.-built”. The largest U.S. flag containership reflag has nothing to do with returning U.S. shipbuilding to dominance. Those examples aside, the Secretary of Transportation’s announcement of \$6.2 billion to maintain and repair the idle RRF fleet opens a new discussion. Is the funding an understanding of where the problem with U.S. shipbuilding & repair actually stands? Or are we reading newspapers without government.

Focus on the Supply Chain

The problem is not our shipyards or the capable labor it employs. It is the U.S. supply chain. It is not a question that we can build ships. It is a collection of problems that rise from material costs and availability, a system based upon “just-in-time inventory” and a requirement in many programs for 100% American made. All of these components work towards extended material delays, the lack of U.S. manufactured goods to meet the demand and an unreliable logistics chain supporting new construction.

We have been swimming in that swamp for a long time trying to keep our heads above the water.

The quickest way to reestablish our manufacturing base

and accomplish the White House goals is understanding the importance of our repair yard capacity.

U.S. ship repair and maintenance defines sustainability and supply. It also maintains a skilled workforce. Whether it be a return to commercial service or the Navy’s battlefield at sea, the ability to return an asset back into the market on schedule and ready to serve is the first secret to success.

Not one piece of legislation, media report or EO report addresses maintenance and repair in the U.S. shipyards. All are fixated on new construction for all of the wrong reasons. Yet most of us in shipbuilding understand the majority of top tier foreign yards in South Korea, Japan and China started as repair yards.

Ship Repair ‘101’

Beyond that statement understand that most of the U.S. yards that combined new construction and repair, understand that repair pays the bills and is profitable. New construction is not. And there are simple reasons why. If you understand shipbuilding.

A vessel entering a repair yard has a history. A full set of design and production drawings, reviewed and approved by Class, the USCG or NAVSEA identifying all of the technical data necessary to repair, rebuild or modify the vessel prior to entering the repair facility. The repair and maintenance time period is defined by the USCG and ABS. It provides the manager time to research his supply chain and determine whether the vessel is maintenance sustainable. If not – modifications to the repair specification and vessel need to be made and in some cases foreign material supply required.

In U.S. new construction we do not follow those procedures. Most of the programs enter into construction without a Class reviewed or completed design. Few if any reach production drawings prior to contract. This is one of the major reasons for “change orders” and schedule delays. This problem also exists with Navy construction. During past decades of the 1970s and ‘80s, the Navy produced its own designs and the delays and cost overruns were not as frequent. The leading task was the ship. The Navy reduced its “in-house” naval architecture and engineering staff from roughly 1,200 to 300 post-Soviet cold war and turned to chasing new technologies and weaponry as a result of “shock & awe” in Desert Storm. This change in direction has also affected the Navy’s maintenance capability.

Feature

Ship Repair

It is no different in global shipbuilding. The foreign yards produce their own designs and with that easily follow through with production and they understand their own standards. The U.S. yards rely on designs provided by outside sources and in our antiquated competitive process, your guess is as good as mine and who will eventually build. The Far East yards employ their own naval architects – hundreds. And with that the risk of “change order” or delivery delays are mitigated. It is a proven design.

Make no mistake about it, with the cost of new construction in the United States, our repair capability to complete replacement of outdated machinery, large steel renewals and upgraded coatings will work to achieve existing tonnage life extension periods well beyond the vessel's next drydock. This is the transition period needed during the next decade to rebuild our shipyard capacity for new construction.

\$6.2B and the RRF

The Secretary of Transportation has given us the opportunity to support and rebuild our repair capacity and \$6.2 billion US dollars has been provided to make it work if it is done correctly within the MarAd RRF program. Yes, \$6.2 billion U.S. dollars within a program of vessels that are idle and wait orders to serve.

The average age of the RRF fleet is fifty-one (51) years. The last true “activation” was Desert Fox, Desert Storm and Desert Freedom. The after-action reports describing the failures of the program from both activation and operation resulted in additional foreign tonnage being flagged in. “Reserve Operating Status” was developed where selected tonnage was made available with a reduced operating crew, at selected berths with developed maintenance procedures to make them available between 48 and 76 hours.



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Ship Repair

It was a step in the right direction. We rebuilt and flagged three RoRos during that program upgrade.

In 2019 Marad opened an unannounced “turbo-activation” to test the system. Public reports indicated significant failures to operate or actually meet the “readiness” requirement. Keep in mind this \$6.2 billion now speaks to maintaining that RRF which is now six years older than the last activation and those public reports attacked the age of the fleet at that time. This is a lesson-learned opportunity.

Begin with a complete round table analysis of what vessels within the 51 is:

- a) useful to Transcom
- b) structurally sound and sustainable to operate for the transition period and
- c) economically feasible to meet extended conversion and maintenance to meet those simple requirements.

Rebuild the Fleet: Step-by-Step

Once the analysis is complete, scrap the remaining tonnage. And we know the cost of that scrapping alone will affect the current funding. That said it reduces future fleet maintenance costs and provides the program with vessels that perform the mission.

With the vessel identifications complete, develop the specifications to complete steel and coating repairs for a 10-year life extension with extensive ultrasonic gauging and coating failures reports. Next research propulsion capability. A vessel may qualify due to its cargo capability but not with its steam propulsion. The same applies if the stern section is capable but the cargo capability is out dated. Identify if the stern section can be removed and replaced with an updated and current propulsion system – hybrid, diesel electric, medium speed or slow speed diesel.

Work first with US manufacturers – Cummins, John Deere, Wabtec, Fairbanks Morse Defense – most to con-



Gulf Marine Repair & Hendry Marine Industries



Colonna's Shipyard

firm a US supply chain is available and sustainable – or not. All of us that have been involved with activations and Transcom understand the crisis of having equipment that cannot be supported. It is our latest experience with commercial conversion, that the supply chain is near non-existent if foreign supply is not considered. This is the data we need to feed the manufacturing base with the U.S. build requirement in new construction.

The upgrades continue with cabin and hotel capability to attract seafarers. Navigation and machinery upgrades that consider crew compliment automation and autonomy as we work through our labor issues. Dual use commercial/military operations during the transition period can work towards operating the vessels rather than idling them to confirm modifications.

As those specifications and modifications are developed develop RFPs to complete the shipyard activity – develop the repair facilities to work to identify the problems the industry is dealing with. These activities will be as near “new construction” as you can get at this time and at costs well below replacement tonnage.

Let the Washington “decision makers” understand that we may have fallen behind in new construction. However, due to our history of construction costs, no maritime nation has the experience we do in conversion, life extension and extended maintenance. We can restart Maritime Dominance with a dedicated repair program working to rebuild a manufacturing infrastructure supporting the MarAd logistics platform.



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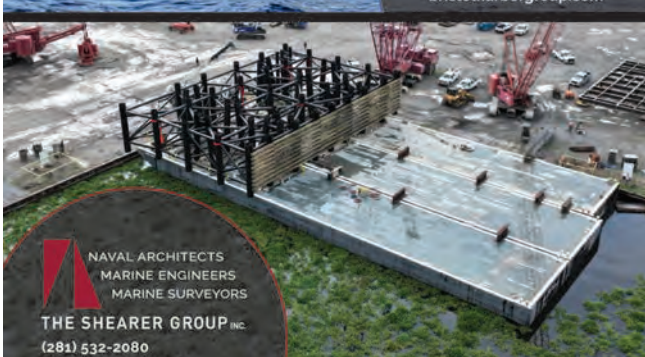
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Feature

Passenger Ferries

Tim Schenck

FERRIES NATIONWIDE



FAST-TRACK CLEAN PROPULSION

Increasingly, cleaner operations centered on reduced greenhouse gas and particulate emissions have seen wide adaption in the passenger transport space. Ultimately, hybrid propulsion (diesel electric supplemented by battery power) is giving way to fully electric propulsion with hydrogen fueling in the wings. It's cutting edge and it's in the early stages.

By Barry Parker

Feature

Passenger Ferries

Ferry building continues to boom in and around the U.S., and today the splash of new vessels increasingly comes with innovative new hybrid and pure electric propulsion systems. On July 4, 2025, American Cruise Lines' (ACL) AMERICAN PATRIOT was christened, its latest newbuild and the first of six Patriot Class ships being built at its Salisbury, Md. Facilities of Chesapeake Shipbuilding. The 130-passenger vessel is designed for cruising coastal waters; its first itinerary saw it calling coastwise at ports in New England. With number one in the water and working, the subsequent deliveries of the five additional sisterships will continue through 2027. ACL, with headquarters in coastal Connecticut where the business began with river cruising, now has a fleet of nearly two dozen vessels designed for river and coastal trades. With shore powering infrastructure coming to more ports, ACL reminds potential customers that: "American Cruise Lines ships are ready to 'plug in' to any port with shoreside electrical infrastructure. New ships are built shore power ready and all other ships are retrofit ready as shoreside infrastructure becomes available."

The larger, 386-passenger VIKING MISSISSIPPI was built at an Edison Chouest yard, and this vessel is tied to the well-known European river cruising specialist, which also operates smaller oceangoing vessels. It has been offering trips around the inland river system since 2022, and in a quirky twist for passenger ships on the rivers, with occasional switches in itineraries due to shifting water levels. The cost of the vessel, owned by an Edison Chouest affiliate in a complicated ownership structure enabling compliance with the Passenger Services Act, was said to be around \$100 million.

U.S. shipyards building passenger ships are also active in

the commercial sector.

The Chesapeake yard, owned by the same interests as ACL, is also well known for constructing commercial boats. Most recently it completed a series of four "Salisbury Class" 3,000 hp tugs for the Baltimore-based Vane Brothers. While the Viking vessel relies on diesel electric propulsion, Edison Chouest recently delivered a hybrid powered offshore service vessel presently serving in the Northeast, most recently at the Orsted/Eversource Revolution Wind project (This is the project that, with construction more than 75% complete off the Rhode Island coast, that was cancelled in late August 2025 by the Trump Administration).

While the coastal and river cruising segments are a growing niche with stylish appeal, much of the waterborne U.S. passenger transport is of the much more mundane variety, broadly described as passenger/vehicle ferries. In recent years, fuel efficiency and reduced emissions have been a concern of vessel operator on all coasts. In late June, the Washington State Ferries (WSF) ferry WENATCHEE (2,500 passengers, 200 vehicles) came back into service on the Seattle to Bainbridge run across Elliott Bay, following conversion to hybrid electric propulsion at the Vigor Marine yard in Seattle. Initially, WSF had contracted with the yard to also convert two sister vessels TACOMA and PUYALLUP, however major delays and cost over-runs led to a pause on conversion of the other boats. In the WENATCHEE conversion, two of four diesel generators were removed, and energy storage and charging equipment was then installed, along with new switching and wiring infrastructure. (As *Marine News* went to press WSF announced that sea trials on WENATCHEE had gotten off to a bad start, reporting "investigation by our technicians and engine crew discovered last week the control sys-



Washington State Ferries
WENATCHEE dockside at
Vigor Shipyard.

WSDOT



The 2025 newbuild American
Patriot, cruising New
England waters.

American Cruise Lines

Feature

Passenger Ferries

tem communication wires were creating intermittent instability which caused the drive motors to go offline.”)

WSF Aims for Emission-Free Ferry Fleet

According to WSF, it “aspires to a reliable and emission-free ferry fleet by 2050. To get there, we will expand the fleet by converting six existing vessels to hybrid-electric power, **building 16 new hybrid-electric vessels** and adding shore charging to 16 terminals.” As part of this plan, explained further that: “On July 1, 2025, Gov. Bob Ferguson announced that **Eastern Shipbuilding Group (ESG)** was awarded a contract to build three new hybrid-electric 160-auto ferries. We received bids from two shipyards: Eastern Shipbuilding Group (ESG) of Panama City, Florida and **Nichols Brothers Boat Builders** of Freeland, Washington. ESG won with a bid of \$714.5 million for the three vessels. Both bids were close to the state engineer’s estimate of \$514 million for two vessels.” In an August 2025 release announcing a Notice to Proceed from WSF to build two ferries, with an option for a third, ESG (also having considerable commercial building expertise) said, “The state-of-the-art hybrid/electric vessels have a length overall of 409.5 ft. with an 83.2-ft. beam and a hull depth of 24.5 ft.. They will be certified to transport 160 standard-sized passenger vehicles and 1,500 passengers. With a draft of 16.5 ft., the ferries will achieve a speed of 17 knots at full load and are designed to interface with all existing WSF dock facilities.”

The vessels, with first set for a 2029 delivery, would also have a capacity for 1,500 passengers. Local reports suggested that the actual cost of the vessels would be higher once

costs of supervision, and change orders were considered, and because the powertrains would be purchased separately. Some observers expressed concerns that possible tariffs on imported steel might lead to higher costs. There was some controversy surrounding the choice of yard; Washington State has multiple yards (including Nichols Brothers) with many local business and government interests unhappy about the decision to build the boats “out of state”. Electrification also requires shore-side infrastructure and dock-side charging installations. The state government in Washington explained, in a release that: “In collaboration with regional utilities, WSF is updating 16 terminals to charge hybrid-electric ferries. We established memorandums of understanding with Seattle City Light and Puget Sound Energy to add power to the first five terminals: Bainbridge Island, Seattle, Clinton, Bremerton, and Kingston. Adding power involves routing new dedicated power lines and installing switchgear and a vessel charging system. Construction is currently anticipated to start in 2026 with Seattle and expected to wrap up in 2029.”

Electrification Projects Across the Country

In Louisiana, electrification is also on the way.

A 1964-built vehicle/passenger ferry, CAMERON NO II, which had been crossing the Calcasieu Ship Channel in Cameron Parish, Louisiana, until being taken out of service since early 2025, will be replaced by two new boats under construction at **Thoma Sea’s** yard in Lockport, La. with deliveries expected in late 2025/early 2026. According to the U.S. Department of Transportation (USDOT), “The project scope includes the replacement of the (de-

Design for new
Cameron Ferry.



Elliott Bay Design Group



Cameron Ferry under construction.

Louisiana State DOT

Feature

Passenger Ferries

cedes old) vessel with the design and construction of two hybrid diesel-electric ferries. Each ferry can carry approximately 35 cars, 6 semi-trucks, and 500 passengers across the 1,000-ft. Calcasieu Ship Channel.”

Naval architects **Elliott Bay Design Group** add that: “The ferry has an overall length of 190-ft., a beam of 50-ft., and a depth of 13-ft. They explain further that: “The ferry will be one of the first U.S. new-build ferry vessel equipped with the **Siemens Energy** Blue Drive Eco hybrid propulsion system and is designed to operate in a hybrid mode. In this mode the diesel engines will share load with the propulsion batteries whereby the propulsion system will maximize the usage of the battery energy capabilities, resulting in lower exhaust emissions. It will have enhanced maneuvering capabilities provided by the **Thrustmaster** azimuthing thrusters.”

Where ferries are part of public transport networks, funding may originate from multiple sources, with Federal support supplementing money provided at the state and local levels. A \$19 million portion of the financing for the \$57+ million Cameron ferry project (which provides a 100 mile+ short cut for car and truck drivers who would otherwise travel via I-10, well to the north) comes from the USDOT’s Transportation Infrastructure Finance and Innovation Act (TIFIA) loan program, which, in this case- due to a special initiative, provides term finance with interest costs below those of U.S. Treasury rates. In July, 2025, the USDOT announced changes to the TIFIA program, increasing allowed financing from 33% up to 49% of eligible project costs. **Dr. Morteza Farajian**, who heads the **USDOT’s Build America Bureau** said, “This policy update will ensure the program remains available at full capacity to support our private and local partners.”

Reduced emissions are crucial for new vessel orders; diesel propulsion is giving way to hybrid propulsion with the buildout of requisite onshore charging infrastructure underway simultaneously in ports on all coasts. **San Francisco Bay Ferries (SFBF)** recently took delivery of the diesel-powered catamaran **KARL**, capable of speeds up to 40 knots. The boat, with an Australian design, was the third in a series built for SFBF at the **Mavrik yard**, on Washington state’s Skagit Bay. With the recently enacted stricter standards on particulate emissions from the California Air Resources Board (CARB), the 320-passenger capacity

boat, powered by a quartet of **MAN** 1450hp engines with **Hamilton Water Jets**, was fitted with diesel particulate filters (DPF, two per engine), also from **MAN**, designed to capture virtually all particulate emissions, as well as a selective catalytic reduction (SCR) system to dramatically reduce NOX emissions. A sister vessel is due for late 2025 delivery. Financial incentives also play a role here; in 2023, Congressman John Garamendi (D – California 3rd District), who sits on the House Transportation and Infrastructure Committee, was able to gain authorization for \$1.5 million towards payment for the DPFs. According to Garamendi’s submittal to the House Committee on Appropriations, the DPF’s would provide “... an 85 percent reduction in emissions of particulate matter. The vessels will operate on the Authority’s routes across the Bay Area include the ferry terminals in San Francisco, Alameda Seaplane, Harbor Bay, Oakland and Alameda, Richmond, South San Francisco, and Vallejo.”

San Francisco Bay will be seeing the introduction of three zero-emission boats each with 150 passenger capacity, to be the first delivered into **San Francisco Bay Ferry’s Rapid Electric Emission Free (REEF) Ferry Program**, and deployed on new routes- linking downtown San Francisco to its Treasure Island and Mission Bay neighborhoods. The aluminum 100’ x 26’ aluminum catamarans (initially developed by **Aurora Marine Design** in San Diego and further developed by New Zealand naval architects **Teknicraft**), to be built by **All American Marine** (Bellingham, Washington) will be propelled by an integrated battery electric package provided by provided by **Wärtsilä**, who explain: “Wärtsilä’s scope of supply is for the full electric propulsion system. This includes the energy and power management system (EPMS), the integrated automation system (IAS), batteries, DC Hub, transformers, E-Motors, and the shore power supply. The Wärtsilä equipment is scheduled for delivery commencing in 2026, and the first vessel is expected to join the ferry fleet in early 2027.” The Federal Transit Administration (part of USDOT) will be providing \$11.5 to support procurement of the three fully electric boats. The U.S. Environmental Protection Administration will support buildout of the infrastructure; according to the **San Francisco County Transportation Authority**, in late 2024 “...the U.S. Environmental Protection Agency awarded the Port of San Francisco and San

Feature

Passenger Ferries

Francisco Bay Ferry a \$55.4 million grant to complete the nation's first ever high-speed zero-emission ferry network connecting transportation hubs. This grant fully funds the charging infrastructure at the San Francisco Ferry Building, a new ferry landing at Mission Bay, and a 400-passenger electric ferry vessel.

East Coast

Hybrid propulsion is coming to the East Coast, as well. In Maine, **Casco Bay Lines (CBL)**, which links Portland with nearby islands, had generated considerable attention with its plans to replace the 40 year old MACHIGONNE II, with a newly built diesel/battery hybrid vessel with capability of moving 600 passengers and 15 vehicles across the Bay. The new vessel, to be named BATTERY STEELE, under construction at **Senesco's** North Kingstown, R.I. yard, has been experiencing a host of delays. The yard had previously christened a smaller (250 passengers/ 23 vehicles) diesel electric vessel (with some battery backup), CAPT. ALMER DINSMORE, for **Maine State Ferries**. The Maine Department of Transportation told *Marine News* that "the vessel is under construction at Senesco, and the current date for delivery is October 16, 2025. It anticipates its entry into service about two months after that."

Work on BATTERY STEELE, named for a local landmark (with a double entendre on the power source) has seen twists and turns, including a shift in the battery manufacturer, necessitated by changing business circumstances, and leading to required re-designs of vessel systems. A March, 2025 update noted that: "Currently, the new completion date for the work is September 15, 2025. CBL and Senesco will continue to work together to try and improve on this date...." A June 2025 report noted that: "CBL and the shipyard continue to have regular conversations on schedule and the pending delivery date of the vessel to Maine." There is forward movement; CBL reported that: "The shipyard is making steady progress on many of the vessel's systems as well as the structure of the vessel." The operator did caution, however, that: "While steady progress is being made, the completion date continues to slip as some areas need to be re-addressed, or efforts take more time than anticipated."

In New York Harbor, August saw the debut of the HARBOR CHARGER, with a capacity of 1,200 passengers and

30 vehicles, which will be linking Governors Island, a climate research and maritime education center in the Upper Bay, with downtown Manhattan. The vessel was designed by **Elliott Bay Design Group** and delivered from **Conrad Shipyard** in Morgan City, La., and is set to replace a diesel-powered boat in service since the 1950s. As explained by its owner, **The Governor's Island Trust**, "The hybrid propulsion system reduces air pollution by allowing the boat's systems to toggle between three modes: zero-emissions, battery-only power, and battery assisted hybrid with diesel backup." They explain further that the vessel is equipped with **Siemens Energy's** BlueDrive Eco diesel-electric propulsion system, its BlueVault advanced battery-based solution, and EcoMAIN — a technology platform ... for monitoring the... equipment." The Trust points out that: "The battery-assisted hybrid mode will reduce carbon dioxide emissions by nearly 600 tons annually, allowing the Trust to make groundbreaking progress on its net-zero emissions goals."

Federal financing also plays a role here. According to the Trust "Thanks to support from Senator Schumer (D-NY), Senator Gillibrand (D-NY), and Congressman Goldman (D-NY), the Trust secured \$7.5 million in federal infrastructure funding from the US Federal Transit Administration to support the shoreside rapid charging infrastructure, enabling the HARBOR CHARGER to reach fully electric operations once installed. The rapid charging infrastructure is currently in design."

Hydrogen fueling is coming, too. SFBF broke new ground in late 2024 with the successful introduction, in a six month trial (with public funding at the state level supplementing private investment), of the 75-passenger catamaran SEA CHANGE, powered by hydrogen fuel cells, in a package from **Zero Emission Industries (ZEI)**. Owner **Switch Maritime** explains that the vessel's propulsion system is built around: "2x 300kW electric motors, powered by 360kW of PEM fuel cells and 100kWh of lithium ion batteries. 240kgs of hydrogen are stored in gaseous form on the top deck at a pressure of 250 bar." The East Coast is also joining the hydrogen fray; in late August, 2025, Switch announced that New York State Energy Research and Development Authority (NYSERDA) had awarded it with a \$2 million grant to support a development/ demonstration project for a 150-passenger catamaran that could serve New York Harbor.



Ferry Battery Steele rendering.

EBDG



Capt Almer Dinsmore soon to be delivered.

Maine DOT



San Francisco Bay Ferries (SFBF) recently took delivery of the diesel-powered catamaran KARL, capable of speeds up to 40 knots. The boat, with an Australian design, was the third in a series built for SFBF at the Mavrik yard, on Washington state's Skagit Bay.

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Vessels

The Trust for Governors Island introduced its new hybrid-electric ferry, the Harbor Charger, the first of its kind in New York State and an addition to the Trust's existing ferry fleet. The arrival of the new boat coincides with the 20-year anniversary of Governors Island opening to the public, as well as major recent progress in its development as a leading destination for climate research and education.

Harbor Charger was named following a citywide naming competition that drew more than 800 submissions, with the winning name submitted by David Kurnov of Brooklyn. The \$33 million vessel is the first hybrid-electric public ferry in New York State.

Harbor Charger traveled up the Eastern Seaboard from Louisiana, where it was built at the Conrad Shipyard in Morgan City. The ferry has a capacity of up to 1,200 passengers and 30 vehicles for Island deliveries and services and boasts an increased cruising speed of 10-12 knots. It will replace the diesel-powered Lt. Samuel S. Coursen, the Trust's current vehicle and passenger ferry that was commissioned by the U.S. Army in 1956 and has been in continuous use ever since. Later this year, the Lt. Samuel S. Coursen will retire from service.

Harbor Charger is equipped with Siemens Energy's BlueDrive Eco diesel-electric propulsion system, its BlueVault battery-based solution, and EcoMAIN—a technology platform that enables the operator to constantly monitor

Harbor Charger: Governor's Island Hybrid-Electric Ferry

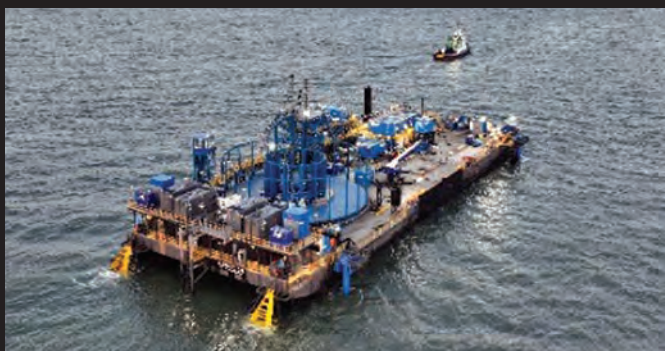


the equipment. The hybrid propulsion system reduces air pollution by allowing the boat's systems to toggle between three modes: zero-emissions, battery-only power, and battery assisted hybrid with diesel backup. The battery-assisted hybrid mode is projected to reduce carbon dioxide emissions by nearly 600 tons annually.

Once shoreside charging facilities are installed, which are currently in the design phase, the vessel will reduce emissions by an additional 800 tons annually.

Harbor Charger was designed by Elliot Bay Design Group (EBDG) and required more than 465 tons of steel. It is propelled with Schottel azimuthing thrusters featuring 360-degree steering. The boat also features modern amenities, a lower-level ADA-accessible lounge, and restrooms on each level. This is the second ferry boat EBDG has designed for the Trust, the passenger-only GOVERNORS 1, built by Blount Boats, went into service in 2019.

Nexans, Crowley Wind Services Partner on Unique Cable Lay Barge



American Maritime Officers (AMO)

Nexans and Crowley Wind Services formed a partnership to develop and operate a Jones Act compliant cable lay barge, dedicated to supporting the installation of subsea transmission lines necessary for offshore wind energy, telecommunications and other major industrial applications.

The 300-ft., U.S.-flagged barge, built in Louisiana and tested in the U.S. Gulf to Nexans specifications, will be crewed by American mariners under Crowley's operation. The vessel will play a role in laying and burying the subsea cables needed to deliver energy from offshore to the grid onshore. The barge is the first to have vertical injectors along with a dynamic positioning system and a multiple-anchors positioning system, which allow for accurate and efficient cable placement, even in challenging conditions.

It boasts a 3,500-ton capacity carousel to lay and bury subsea cable using burial tools such as a vertical injector, a jet sled, or a jetting ROV, with the potential to be upgraded to 7,000 tons with two carousels for bundle cable lay and burial. The barge is positioned to support Equinor's Empire Wind offshore wind farm for New York and can be configured to lay or repair cable for a multitude of other subsea applications.

70-year old M/V Sam Houston to be Replaced

Port Houston selected Incat Crowther to design a new, hybrid electric tour vessel for the port's Houston Ship Channel tours. Incat Crowther will partner with Louisiana-based shipbuilder Breau Brothers on the project, meaning the new vessel will be both designed and built in the U.S.

The new 73-ft. vessel will replace the near 70-year old M/V Sam Houston, which has been servicing the tourism route since the port began offering tours in 1958. Designed to accommodate 150 passengers, the vessel will be capable of operating in an all-electric, battery-powered mode during regular two-hour educational tours, and will be charged via a bespoke shoreside connection using AC/DC converters.

The vessel's main deck will feature spacious seating for 68 passengers, including two dedicated wheelchair spaces, in an air-conditioned cabin that also boasts a kiosk, an information counter and four bathrooms. The vessel's



Incat Crowther

expansive upper deck accommodates 81 passengers, with approximately 90% of seating positioned under cover.

The upper deck has been designed to optimize passenger flow and accessibility, enabling guests to safely enjoy panoramic views while seated or in motion.

Construction on the new vessel is set to begin in the second half of 2025, with the vessel expected to enter service by late 2026.

Main Particulars

Length.....	73 ft.
Beam.....	28 ft.
Draft.....	5.25 ft/
Depth.....	7.8 ft.
Construction.....	Aluminum
Fuel.....	700 gal.
Fresh Water.....	250 gal.
Sullage.....	250 gal.
Crew.....	6
Passengers.....	150
Wheelchair accessible passengers.....	2
Battery Hybrid System.....	Twin Disc Series Hybrid
Speed (Max).....	12 knots
Propulsion Motor.....	2 x 265kW
Gearbox.....	2 x Twin Disc MGE-5065 SC
Generators.....	2 x CAT C9.3 300 kW
Propulsion.....	2 x Fixed Pitch Propellers
Energy storage system.....	768 kWh
Flag.....	USA
Class / Survey.....	USCG Subchapter T

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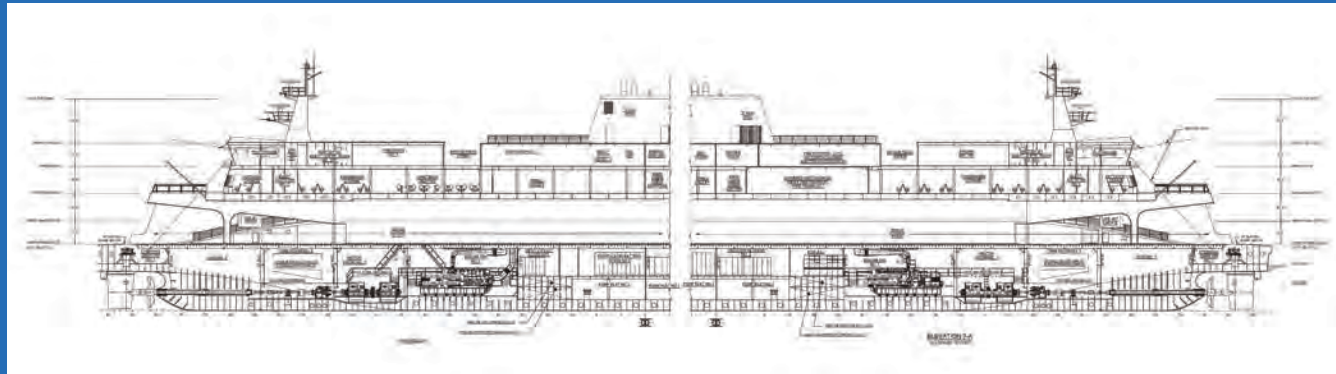
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ESG

Eastern Shipbuilding Group received the Notice to Proceed from Washington State Ferries (WSF) to build two with an option for an additional 160-vehicle hybrid-electric ferries for the State of Washington. This milestone follows the first competitive bid for ferry construction in more than 25 years for the nation's largest ferry system. "We are honored to move forward with Washington State Ferries on this historic initiative," said Joey D'Isernia, CEO of Eastern Shipbuilding Group, Inc. "We are deeply com-

mitted to delivering world-class vessels that reflect the best of American shipbuilding, innovation, and environmental stewardship." The hybrid/electric vessels have a length overall of 409.5 ft. with an 83.2-ft beam and a hull depth of 24.5-ft. They will be certified to transport 160 standard-sized passenger vehicles and 1500 passengers. With a draft of 16'-6", the ferries will achieve a speed of 17 knots at full load and are designed to interface with all existing WSF dock facilities.

Rolls-Royce mtu Series 4000 Engines for new Catalina Express Ferry



Rolls-Royce was selected by Catalina Express of San Pedro, CA, to supply the marine propulsion system for its new 500-passenger ferry, which when delivered will be the largest in the Catalina Express fleet. The vessel will be powered by four EPA Tier 4-certified mtu 12V4000 M65L engines, delivering a combined output of over 7463 kW (10,000 bhp).

The new ferry is part of the Port of Los Angeles' \$31m LA MER project, funded by the California Air Resources Board (CARB). Via the project, Catalina Express received a \$15 million grant, matching it with \$15 million of its own investment. The goal of the LA MER project is to test ways to reduce emissions as the Port works toward becoming a zero-emission port.

The new 42-meter ferry, which will be able to reach speeds up to 37 knots, will replace three older Catalina

Express vessels maintaining capacity and increasing environmental performance. The vessel will serve as a next-generation leader of the fleet, showcasing the company's commitment to sustainable operations.

Founded in 1981, Catalina Express has grown from an operator with a single 60-passenger vessel into a multi-ship fleet and leading provider of marine transportation from mainland California to Santa Catalina Island. Most of the vessels in the company's current fleet feature mtu engines. Over the past four decades, the company has transported more than 33 million passengers, offering up to 30 daily roundtrips year-round from three mainland ports: San Pedro; Long Beach; and Dana Point. The new ferry will be based out of the company's San Pedro terminal.

Designed by Incat Crowther of Lafayette, LA, the new vessel is being built by Marine Group Boat Works of Chula Vista, CA. The ship's engines will be integrated with an mtu monitoring and control system and Hamilton brand waterjets. MSHS Pacific Power Group of Kent, WA serves as the distribution partner for the project and will oversee the custom packaging, installation and sea trials of the propulsion system. The mtu engines are scheduled for delivery in Q4 2025, with completion of the vessel expected in late 2026.

Vessels

NSMV State of Maine Christened

The U.S. Maritime Administration (MarAd) celebrated christening of the State of Maine, the third of five National Security Multi-Mission Vessels (NSMV), at Hanwha Philly Shipyard.

Built for Maine Maritime Academy, the State of Maine will serve as a training ship, supporting both the academic development of cadets and America's humanitarian relief.

At 525 feet long, a single NSMV can accommodate 600 cadets and up to 1,000 people in times of humanitarian need. These vessels boast eight classrooms, labs, a training bridge, auditorium, helicopter pad, advanced medical facilities, and roll-on/roll-off and container capacity.

State of Maine joins Empire State and Patriot State already in service, with two more NSMVs under construction at Hanwha Philly Shipyard, destined for Texas and California maritime academies.

NSMV Key Specs

Length.....	525.1 ft.
Design Draft.....	21.4 ft.
Breadth.....	88.5 ft.
Depth.....	55.1 ft.
Speed.....	18 knots
Deadweight.....	8,487 MT



MarAd

Oceaneering Upgrades Ocean Intervention II



Oceaneering

Oceaneering said its Subsea Robotics segment has upgraded the Ocean Intervention II (OI2), an Oceaneering-owned oceanographic research vessel, to perform simultaneous autonomous survey operations.

Launched in 2000, the OI2 was purpose built for geophysical and geotechnical surveys. In early 2025, the vessel underwent upgrades to expand its capabilities and improve performance for modern survey demands.

- **Survey System Upgrades**, including hull-mounted sensor expansions and a full overhaul of navigation and positioning systems.
- **Rear Deck and Interior Refurbishments**, including the installation of a dedicated Launch and Recovery System (LARS) for safe deployment and retrieval of uncrewed surface vehicles (USVs) and autonomous underwater vehicles (AUVs).
- **Data Infrastructure Improvements**, including computer rack room retrofits and integration with Microsoft Azure Cloud services for data processing and analysis.
- **Engine Room Modernization** to improve reliability and extend vessel life.

With its enhanced configuration, the OI2 transitions between AUV and towed geophysical surveys, and geotechnical sampling, supporting efficient, multi-discipline survey campaigns.

01 | January 2025

Ad close Dec. 20, 2024

Passenger Vessels

- Dredging Report
- Training & Education
- Safety Equipment

Events

CMA Shipping 2025

PVA Maritrends

Podcast:

Mega Machines – Cruise Ship Systems

02 | February 2025

Ad close Jan. 21

Innovation in Vessel Design & Construction

E-Magazine Edition

Podcast:

The Cutting Edge in Shipbuilding

03 | March 2025

Ad close Feb. 21

Offshore Energy

- Hybrid & Electrification
- Research & Survey Vessels
- Navigation

Events

IPF Wind 2025

Offshore Technology Conference

Podcast:

Maritime University Leadership

04 | April 2025

Ad close Mar. 21

Maritime Workforce Development

E-Magazine Edition

In partnership with MaritimeJobs.com

Podcast:

Addressing US Workforce Challenges

05 | May 2025

Ad close Apr. 21

Towboats, Tugs & Barges

- Dredge Technology Spotlight
- Emergency Response & Salvage
- Deck Machinery & Cranes

Events

IMX

Green Marine

WEDA

Seawork

Podcast:

Maritime Classification Societies

06 | June 2025

Ad close May 21

The Green Marine Edition

E-Magazine Edition

Podcast:

Improving Workboat Efficiency

07 | July 2025

Ad close Jun. 16

Combat & Patrol Craft

- Navy & Coast Guard Boatbuilding
- CTVs
- Crew Comms

Events

MACC 2025

Podcast:

Mega Machines – Navy Shipbuilders

08 | August 2025

Ad close Jul. 21

Inland Waterways

E-Magazine Edition

Podcast:

Rolling on the Rivers

09 | September 2025

Ad close Aug. 21

Naval Architecture: Boat Design

- Passenger Vessel Report
- Repair & Conversion
- Alternative Fuels

Events

SNAME

Breakbulk Americas

Podcast:

Emission Optimized Ship Designs

10 | October 2025

Ad close Sep. 22

Police, Fire, Patrol & Pilot Boats

E-Magazine Edition

Podcast:

Fast Craft Spotlight

11 | November 2025

Ad close Oct. 17

The Workboat Edition

- Top Vessels of 2025
- US Offshore Report
- Shipyard Equipment

Events

International Workboat Show

Podcast:

Mega Machines – Tugboats

12 | December 2025

Ad close Nov. 21

Power & Propulsion Technology Spotlight

E-Magazine Edition

Podcast:

Emissions Reduction

Products

1 VETUS Maxwell



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2 In-Mar Solutions



3. New Robotic Solution for FPSO Tank Cleaning

Ambipar and SBM Offshore announced a solution for cleaning cargo oil tanks on (FPSOs), a solution that importantly is geared to completely remove humans from entering tanks during cleaning activities.

The new approach will implement technology to use remotely operated robots to carry out the process in a safe way, dramatically reducing confined space risks and potential casualties. The technology has already been successfully applied to an FPSO in offshore operation. The robot removed heavy oily sludge, while the onboard team (POB) monitored the process remotely, 24-hours a day, from a safe location outside the tank.

4. FMD Wins USCG Valve Contract

Fairbanks Morse Defense (FMD) won a contract from Birdon to supply key fluid control components for the U.S. Coast Guard's Waterways Commerce Cutter (WCC) program. The company will deliver motor-operated valves for the first two vessels. Hunt Valve, together with its divisions, Hunt Valve Actuator, Montreal Bronze, and Pima Valve, LLC, was acquired by FMD in 2021.



3 SBM Offshore/Ambipar

4 FMD



5 Corvus

5. Corvus Energy Battery System

SAAM, the largest towage operator in the Americas, has introduced Trapananda, the first fully electric tugboat in Latin America, developed in partnership with Chile's national oil company Enap. Designed by Robert Allan Ltd. (RAL), built by Sanmar Shipyards, and powered by a Corvus Energy lithium-ion battery system, the tug will operate at Puerto Chacabuco in southern Chile. Measuring 25m with a 70-ton bollard pull, Trapananda will assist vessel maneuvers under challenging harbor conditions. It is SAAM's third battery-electric tug, following the 2024 launch of two similar units in Vancouver, Canada. Equipped with a 3,616-kWh Corvus Orca ESS—the most widely installed marine battery system globally—Trapananda offers zero-emission, near-silent operations, reducing both environmental and noise impacts.

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