March/April 2025

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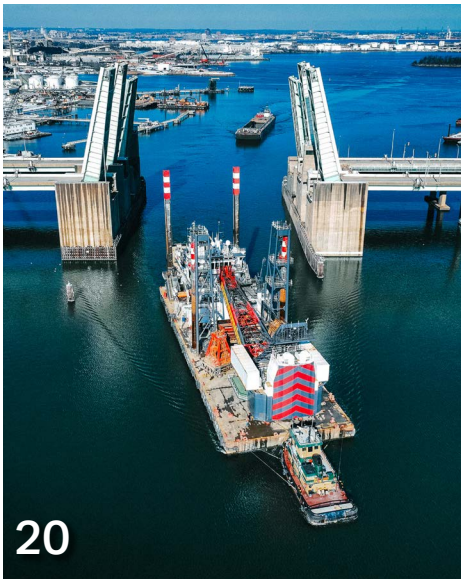
CONTENTS

MARCH/APRIL 2025

News



Features

Departments

THE JOURNAL OF RECORD FOR THE WEST COAST COMMERCIAL MARITIME INDUSTRY SINCE 1983.

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The End of an Era

Dave Abrams, Publisher

Dear Readers,

It is with much sadness that I must inform you that this will be the last edition of *Pacific Maritime Magazine*.

Since acquiring the rights to the publication in 2021 after it closed down during the Covid pandemic, my team has worked hard to bring you great content, which I hope you found valuable.

The publication was funded by advertisers, and with ever increasing competition from large digital and print media companies combined with unrelenting cost increases, we just could not make the numbers work anymore.

I am very grateful to those advertisers that supported us, and gave us the opportunity to serve you, our readers. I hope you will consider supporting all of the advertisers that you see in this issue.

Thank you to my great team for all of your efforts to put together a high quality publication. I am also thankful to you, our readers, for supporting us through your subscriptions.

I wish you all fair winds and following seas.

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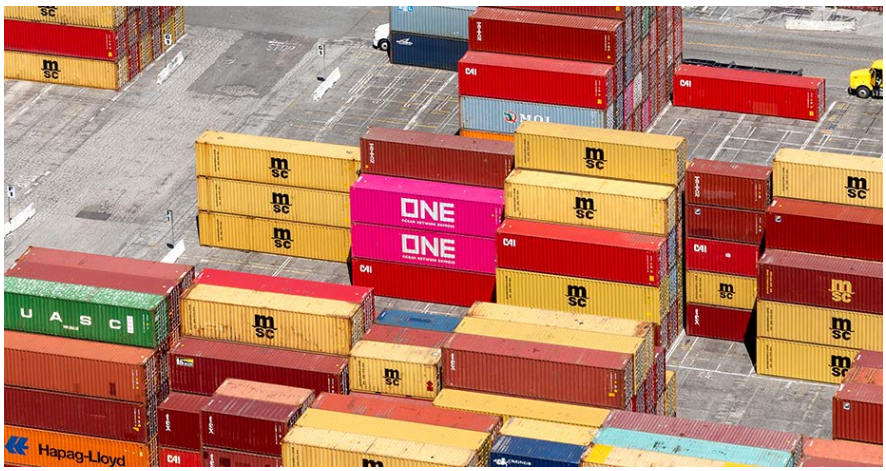
ON THE COVER
Long Beach, Calif.-based Curtin Maritime while working in the Chesapeake Bay in Baltimore in early 2024. Photo: Ryan Mack, courtesy of Curtin Maritime.

9 Indicted Re: Alleged Mass Smuggling Scheme at LA/Long Beach Ports



Cargo containers stacked at a marine terminal. File photo via Port of Long Beach.

Nine people, ranging from logistics executives and warehouse owners to truckers, have been named in a federal indictment involving an alleged complex scheme to smuggle millions of dollars' worth of fake goods from China through the Los Angeles and Long Beach seaports, the U.S. Justice Department said Jan. 27.

The 15-count federal indictment, which was unsealed Jan. 24, charges nine people with "conspiracy, smuggling and breaking customs seals" from at least August 2023 to June 2024, according to the Justice Department.

The agency asserts that the nine people shifted cargo containers from China for "off-site secondary inspection" and swapped the illegal goods with filler cargo.

Over the course of the investigation, more than $130 million in contraband was seized, including $20 million in fake goods such as clothes, luxury purses, perfume, shoes and watches confiscated in June.

Eight of the nine people have been arrested and await trial, scheduled for March 18. Weijun Zheng, 57, of Diamond Bar, who controlled various logistics firms operating in the L.A. region, remains a fugitive.

Those who were arrested include:

- Hexi Wang, 32, of El Monte, who manages City of Industry-based K&P International Logistics LLC, which allegedly recruited truck drivers to move containers from the Port of L.A.
- Jin "Mark" Liu, 42, of Irvine, the K&P International Logistics LLC owner who handled the finances for one of the warehouses that allegedly held illegal goods and paid truckers to move those goods.
- Dong "Liam" Lin, 31, of Hacienda Heights, who was in charge of one of the contraband warehouses.
- Marck Anthony Gomez, 49, of West Covina, the owner and operator of Fannum Trucks LLC. He's alleged to have organized moving contraband containers.
- Andy Estuardo Castillo Perez, 32, of Apple Valley, a M4 Transportation Inc. driver.
- Jesse James Rosales, 41, of Apple Valley, who coordinated truckers.
- Daniel Acosta Hoffman, 41, of Hacienda Heights, who is said to have worked with Rosales to bring cargo containers from the port to warehouses.
- Galvin Biao Liufu, 33, of Ontario, who the Justice Department said oversaw truckers bringing the goods into the warehouses.

If convicted, the nine could serve a maximum sentence of five years in federal prison for every count of conspiracy, up to 10 years in federal prison for each count of breaking customs seals and a maximum of 20 years in prison for each smuggling count, according to the Justice Department.

"The…contraband seized…illuminates how complex smuggling schemes try to exploit our legitimate trade practices and the American consumer," Department of Homeland Security Los Angeles Special Agent in Charge Eddy Wang said. ■

Delta Marine, Artemis Technologies Partnering on eFoiler Vessels

Image: Artemis Technologies.

Seattle-based boat builder Delta Marine Industries is partnering with Artemis Technologies on the production of eFoiler vessels that would operate in the Puget Sound, the companies announced Feb. 16.

Both parties have signed a memorandum of understanding allowing them to leverage their expertise to bring zero-emission ferries to market in the Pacific Northwest.

"Partnering with Artemis Technologies allows us to bring world-leading electrification and foiling expertise to our region," Delta Marine Vice President Michelle Jones said in a statement. "By building these ferries locally, we are supporting Washington's clean energy objectives and fostering innovation in the U.S. maritime sector."

Artemis, which is based in Northern Ireland, recently launched North American operations in New York. The company, which was founded in 2017, is known for its vessel electrification efforts, having worked on the world's first commercially coded electric foiling vessel, according to Artemis.

The firm's product portfolio includes the Artemis EF-24 Passenger and the Artemis EF-12 Escape, both of which can be scalable for high-speed ferry services, the company said.

"Our collaboration with Delta Marine enables us to bring our market-leading eFoiler technology to one of the busiest ferry hubs in the U.S.," Artemis Technologies co-founder David Tyler said.

"Washington state is ready for this shift to sustainable maritime transit," he continued, "and we're proud to offer real-world solutions that address the region's pressing transportation challenges and environmental goals." ■

SF Bay Ferry Reaches Passenger Milestone

More than a million passengers have taken the Alameda Seaplane ferry route since debuting on July 1, 2021, San Francisco Bay Ferry and the City of Alameda announced Feb. 12.

The weekday Alameda Seaplane ferry route linking Alameda Point to downtown San Francisco has averaged about 1,500 riders daily, the second busiest weekday service on the SF Bay Ferry system.

Alameda Mayor Marilyn Ezzy Ashcraft called the milestone a huge accomplishment.

"Our dedicated ferry riders…know that Seaplane offers an unbeatable commute—less than 20 minutes to San Francisco with…bike-friendly access," Ashcraft said.

"The City of Alameda looks forward to continuing its strong partnership with WETA to enhance the ferry experience for our residents for years to come," he added.

WETA is the San Francisco Bay Area Water Emergency Transportation Authority, which operates the ferry system.

The route's robust ridership reflects the system's recovery across its routes. SF Bay Ferry said that in 2024 it experienced a 16% surge in ridership and is projecting continued growth this year.

"Connecting communities like Alameda's west end to San Francisco is a great example of the ferry's mission to provide safe, reliable and affordable transit across the Bay Area," SF Bay Ferry Board Chair Jim Wunderman said. ■

WattEV Adds Tesla Semis to Growing Zero-Emission Fleet at Long Beach Port

WattEV, a Long Beach, Calif-based provider of heavy-duty freight electrification services and facilities, in mid-February announced an agreement with Tesla to take delivery of 40 Semi heavy-duty electric trucks in 2026.

"Tesla Semi is the only truck in the market that can deliver 500 miles on a single charge, with superb energy efficiency and fast charging," WattEV CEO Salim Youssefzadeh explained.

WattEV has said that it's focused on a high-mileage duty cycle, achieving as much as 550 miles a day on certain routes in California. The company plans to include Tesla Gen-IV chargers at its depots while growing its fleet with Semis in 2026 and beyond.

A WattEV electric truck. Photo: WattEV.

As part of the agreement, WattEV has already taken delivery of two Semis to expand its freight-hauling service range in 2025. This represents the first use of Tesla Semis at the Long Beach-Los Angeles seaport complex.

"We're glad to see Tesla Semis deployed at Port of Long Beach," Port of Long Beach CEO Mario Cordero said. "This is another step forward towards increased adoption and our commitment to elimination of heavy-duty freight emissions at the port."

WattEV has been among the leaders in the freight electrification market via its growing network of charging depots in California.

"We've been future-proofing all our charging depots to allow for the transition from CCS charging to megawatt charging with MCS," said Youssefzadeh. "Our collaboration with Tesla is another major milestone as we expand our network to electrify freight on more routes throughout California and beyond."

CCS is Combined Charging System, a charging standard for electric vehicles; MCS stands for Megawatt Charging System, a charging connector under development for large battery electric vehicles.

WattEV has a stated goal of placing 12,000 heavy-duty electric trucks on California roads by 2030, and plans to have 100 charging stations in operation by 2035. More information about the company is available at www.WattEV.com. ■

Saltchuk Co-Launching Transport, Logistics Talent Development Program

Seattle-based Saltchuk Resources said Feb. 13 that it's teaming up with the Polytechnic University of Puerto Rico (PUPR) to establish a "talent development program," which is expected to bolster education and career development in Puerto Rico's transportation and logistics industry over the next decade.

Under a Memorandum of Understanding, both parties have agreed to create programs and nurture industry relationships to attract, retain and train professionals in Puerto Rico and the greater Caribbean area.

SALTCHUK
FAMILY OF COMPANIES

The Talent Development Program is set to begin later this year, according to Saltchuk. The program is being launched with $200,000 in funding, with the potential for more based on key performance milestones, according to the announcement.

"Through this collaboration, we aim to empower a new generation of professionals in transportation and logistics, creating pathways for education and career development that will benefit individuals, businesses, and the economic development in Puerto Rico," Saltchuk Chairman Mark Tabbutt said.

"This collaboration will open avenues for faculty and students to contribute solutions that strengthen Puerto Rico's role in high-tech manufacturing and supply chain logistics," Carlos J. González Miranda, vice president of academic affairs and dean of the School of Engineering and Applied Sciences at PUPR, said. "Our goal is to maintain a world-class talent pipeline that meets the highest industry standards." ■

Brix Marine Delivers New Catamaran for Canadian Waters

Port Angeles, Wash.-based Brix Marine has announced the launch of its latest vessel, the ***Bridge Cat 49***, built for workforce accommodations vessel provider Bridgemans Services Group of Vancouver, BC.

The 44-foot personnel transfer vessel, named ***Bridge Cat 49***—also known as the BC49—accommodates up to 45 passengers plus three crew, and is built to meet Transport Canada passenger vessel requirements for use in British Columbia, Brix said.

"We're really proud of this vessel," Brix Marine Sales & Marketing Director Charlie Crane said. "The BC49 is all about getting people where they need to go safely and comfortably."

The BC49 is constructed with a 45-foot aluminum hull and an 18-foot-6-inch beam for stability and efficiency. It's powered by twin Cummins QSL9 405HP diesel inboard engines that are paired with ZF marine transmissions for smooth operation.

The port side of Brix Marine's ***Bridge Cat 49*** vessel.

A rear view of the ***Bridge Cat 49*** vessel built for Bridgemans Services Group. Photos: Brix Marine.

The vessel has a 500-gallon fuel capacity and a lightship weight of about 43,000 lbs. Its navigation and electronics suite includes Garmin GPSMAP multi-function displays, radar and VHF radios for enhanced situational awareness.

She is also equipped with an Espar/Eberspacher heating system, Fireboy-Xintex fire suppression system, and Delta T ventilation for safety and comfort.

The BC49 has seating for 45 passengers and a three-person crew, the vessel provides a secure and efficient solution for workforce transportation in British Columbia and beyond.

"Working with Bridgemans on this project has been a great collaboration," Brix Marine Managing Director Perry Knudson said. "The BC49 is built to deliver comfortable and reliable transport."

For news about another recently built Brix vessel, see page 34 of this issue. ■

Seaspan Investing $2.5 Million in Maritime Skills Training for Indigenous People

Canadian shipbuilder Seaspan is investing $2.5 million into a five-year program that would give Indigenous people in the Vancouver, BC area the chance to pursue apprenticeships and training for careers in the maritime industry.

Seaspan is teaming up with Aboriginal Community Career Employment Services (ACCESS) on the program, which would support:

- Increasing skills and providing technical training such as metal fabrication, welding, bridge watch and other shipbuilding trades.
- Reaching out to high schools with plans by ACCESS to host "sampler programs" with five lower mainland school districts to introduce students to the trades and offer skills training.
- Funding emergency relief of $22,500 annually to the Urban Spirit Foundation to help students finish their training, and
- Granting achievement awards of $2,500 annually to top students in marine training programs.

Seaspan has been an ongoing supporter of ACCESS, funding more than $6.8 million for the nonprofit to support training programs since 2016.

"We are proud to continue partnering with ACCESS to help deliver skills development programs tailored to urban Indigenous people so they can pursue high-demand and rewarding careers in shipbuilding," Seaspan Shipyards CEO John McCarthy said in a statement.

"As we create the next generation of B.C. shipbuilders, we need to ensure that we are reducing barriers and building a diverse workforce," he continued. "Programs such as this help us achieve that goal and provide opportunities for generational careers in our rapidly expanding industry." ■

Port of Hueneme, NYK Line Sign Deal to Launch Green Auto Shipping Corridor

In a step toward sustainability and environmental stewardship, the Port of Hueneme and global shipper NYK Line have signed a Memorandum of Understanding (MOU) to establish a Green Automotive Shipping Corridor between Japan and Southern California.

"The collaboration between the port and NYK Line is poised to transform the way the global shipping and automotive industries approach environmental responsibility and sustainable trade practices," the Port of Hueneme said in a statement.

The signing ceremony took place Feb. 12 at the port, marking the continuation of a collaboration that both parties says is aimed at both innovation and environmental progress.

Port of Hueneme and NYK leadership with the signed Memorandum of Understanding. Photo: Port of Hueneme.

"The MOU solidifies the commitment of both parties to explore innovative and sustainable shipping practices, with an emphasis on reducing greenhouse gas (GHG) emissions, advancing energy efficiency, and promoting the use of alternative fuels and zero-emission technologies," the port said in a statement.

The partnership is also expected to explore joint research and development efforts to push the boundaries of green technology in the maritime and automotive sectors, officials said.

The Port of Hueneme, located in Ventura County, Calif., about 90 miles northwest of the Port of Los Angeles, is one of the top 10 U.S. ports for automobile imports. It handles about 400,000 vehicles annually, with 20% of those being battery electric vehicles (BEVs), according to port data.

The signing ceremony was attended by several key figures from NYK Line's corporate office in Tokyo, including NYK Line Managing Executive Officer Yutaka Ikeda and NYK Executive Officer Mie Sugano, as well as other NYK staff.

"This is not something we can achieve on our own. It requires building strong partnerships with many stakeholders …The signing of the MOU with the Port of Hueneme is quite remarkable for us and a big step toward achieving a greener future in the logistics industry," Ikeda said.

Also participating in the event were members of the Port of Hueneme's Board of Harbor Commissioners, Mary Anne Rooney, Jess Herrera and Celina Zacarias.

"We are incredibly grateful for the strong collaboration between the Port of Hueneme and NYK Line," Rooney said. "Together we have benefitted thousands of working families throughout Ventura County and the state of California."

"This MOU is more than just a partnership—it's a commitment to fostering innovation, reducing emissions, and promoting green technologies, all while enhancing the value we deliver to our communities and our stakeholders," Port of Hueneme CEO & Port Director Kristin Decas said.

Both the port and NYK Line have long been recognized for their environmental leadership.

In 2024, the Port of Hueneme made history by announcing a goal of zero emissions port operations by 2030. This goal was determined as feasible thanks to the port's Blueprint to Decarbonization Plan, which guides future purchasing of zero emission equipment that will run on clean fuels to eliminate emissions from nearly all on-port operations.

Similarly, NYK Line has set ambitious environmental targets, including reducing GHG emissions by 45% by 2030 and achieving net-zero emissions by 2050. ■

Tideworks Technology Marks 15 Years of Intermodal Pro Terminal Operating System

Seattle-based Tideworks Technology, which provides terminal operating system (TOS) solutions, is celebrating the 15th anniversary of Intermodal Pro, the company's comprehensive TOS for intermodal rail terminals.

To date, Intermodal Pro has been implemented in more than 85 intermodal rail terminals, with a goal of improving efficiency, reducing costs and increasing revenue for rail stakeholders and customers worldwide, Tideworks has said.

Tideworks said that it developed Intermodal Pro in collaboration with leading rail operators to meet the industry's evolving needs, as it provides real-time intelligence to enhance throughput, streamline operations and optimize asset utilization, driving greater efficiency and capacity for terminals.

"Intermodal Pro empowers operators to digitize workflows, seamlessly connect terminal systems and partners and scale effectively for growth," the company said in a Feb. 19 announcement.

"For 15 years, we have evolved Intermodal Pro to help rail operators modernize, adapt to shifting supply chain demands and reduce nonproductive moves, ensuring efficiency and resilience in a dynamic industry," Tideworks President Thomas Rucker said.

Tideworks has deployed Intermodal Pro across sites at three of the six Class I railroads, including the largest freight railroad in the U.S. Intermodal Pro supports all types of intermodal rail terminals, including large and small, manually operated and highly automated facilities.

"It is designed to handle the most complex automation solutions, including operations with automated wide-span gantry cranes," Tideworks said.

For more information about Tideworks Technology, a division of logistics solutions provider Carrix, visit www.tideworks.com. ■

LA, Long Beach Port Heads Outline Successes, Priorities at Annual 'State of Port' Events

By Mark Edward Nero
mark@maritimepublishing.com

Port of Los Angeles Executive Director Gene Seroka during the 2025 "State of the Port" speech. Photo Via Port of LA.

With a focus on "people, planet and performance," Port of Los Angeles Executive Director Gene Seroka outlined the port's agenda for the coming year at POLA's 10th annual State of the Port event on Jan. 23.

Seroka, now in his 11th year as executive director, outlined POLA's strategic priorities for the year ahead in the his three key areas.

People

Emphasizing the need to prioritize people and workforce development, Seroka highlighted the port's newly opened $16 million ILWU-PMA Maintenance and Repair Training Center on Terminal Island and the ongoing development of a new Goods Movement Training Facility. Both focus on re-skilling and up-skilling of workers serving the port.

Remarking on the importance of bringing future talent to the industry, Seroka announced two educational initiatives: one with UCLA that focuses on advancing clean technology, and another with the California Community College system that seeks to prepare students for future maritime industry jobs, particularly careers focused on decarbonization and environmental stewardship.

Planet

Seroka told the crowd of about 640 attendees that the Port of LA has long been a leader in cleaning up ports and reducing pollution. Its many environmental initiatives over more than two decades have reduced emissions of all kinds, with diesel particulate matter down 91% and sulfur oxides reduced by 98% since 2005, even with simultaneous cargo growth of 15% over that same period.

The most recent Air Emissions Inventory indicates the lowest level of overall emissions since 2005.

Now, Seroka said, the port is on a more aggressive path to a zero-emissions future.

"Our goal isn't fewer emissions, it's zero emissions," he said. "It's about setting a new standard for ports worldwide, proving that economic growth and environmental stewardship can go hand in hand."

Seroka outlined some of the major initiatives underway to achieve the port's zero-emissions goals, including ramping up the number of no-emissions trucks in service at the port; investing $640 million in new cargo-handling equipment, trucks and charging stations; moving ahead with POLA's Hydrogen Hub project, focused on producing zero-emissions terminal cargo handling equipment, and creating green shipping corridors with

ports around the world to decarbonize the vessel side of the maritime industry.

He also noted that work has started on a major $500 million enhancement project with the Los Angeles Department of Water and Power that would allow POLA to handle more electric equipment and clean shore power operations in the future.

Performance

Seroka's remarks included the revelation that POLA finished 2024 by processing more than 10.3 million container units, which is a nearly 20% increase over 2023 and the second-best year in the 117-year history of the port.

He also discussed initiatives contributing to improved performance and efficiencies at the port, including the recently completed $73 million Pier 400 On-Dock Rail Expansion project and another similar rail expansion currently underway at Fenix Marine Pier 300.

Additionally, he reiterated the importance of using data to improve performance and discussed how the port's been able to build on its Port Optimizer, a digital platform, first introduced in 2017, providing stakeholders real-time data and predictable cargo-planning capabilities.

Seroka shared that the platform's latest feature, a Universal Trucking Appointment System, now allows nearly 20,000 truckers serving the port to digitally manage terminal appointments. Introduced to improve workflow, the system is already showing promising results.

"Everything we do to speed containers through the port pays off, because for every four containers we move, it equals one job," he said.

The State of the Port, hosted by the Pacific Merchant Shipping Association, gives all proceeds from the event to two local non-profit organizations: EXP, which focuses on next-generation maritime workforce development and the International Seafarers Center, which provides and maintains facilities and services for merchant seamen calling at the ports of Los Angeles and Long Beach.

Archived video of the event can be streamed at https://www.youtube.com/watch?v=JfWkT8M3XY4.

Port of Long Beach CEO Mario Cordero. Photo: POLB.

Long Beach

Meanwhile, during his annual State of the Port address on Jan. 16, Port of Long Beach CEO Mario Cordero said his port is accomplishing its environmental, operational and commercial goals and is setting its sights on greater achievements in the years ahead.

Cordero recounted that it was in January 2005 that the Long Beach Harbor Commission adopted its Green Port Policy. The panel promised to reduce harmful impacts from port operations, safeguard the health of people living in Long Beach and surrounding communities, protect wildlife and the natural habitat and engage the community to ensure that the port lives up to its commitments.

The policy resulted in a range of sustainability initiatives that resulted in a cleaner harbor, industry-leading green building practices and most notably, air quality improvements resulting from reductions in emissions.

So far, according to POLB data, diesel emissions are down 92% at the port compared to 2005 levels, while nitrogen oxides have declined by 71%, sulfur oxides by 98% and greenhouse gases by 17%.

In his remarks, Cordero thanked the community for its role 20 years ago in demanding action that resulted in the Green Port Policy. He also credited industry partners, marine terminal operators and waterfront workers for adopting innovative technologies and adapting to new, sustainable practices aimed at enhancing air and water quality, while also achieving maximum efficiency for cargo movement.

During the roughly one-hour address, Cordero also told the audience of about 900 people that Long Beach is making progress in transitioning operations to zero emissions, while recording dramatic air quality improvements and other environmental benefits throughout its 20 years of efforts.

"For those in 2005 who questioned our environmental resolve, the data shows otherwise. For those who said a Green Port wouldn't be able to compete commercially, the facts show otherwise. And today, for those who still doubt us, we are proving you wrong every single day," Cordero said.

Long Beach's full State of the Port event, which also includes speeches by Harbor Commission President Bonnie Lowenthal and Long Beach Mayor Rex Richardson, is available to stream at www.polb.com/stateoftheport. ■


Photo: All Metals & Forge Group.

Shipbuilding: Purpose-Built Forged Parts Optimized for End Use

By Royce Lowe

Working with an experienced supplier of open die forgings, seamless and contoured rolled rings and complex forged parts that prioritizes the "end use" of the part form in the early stages of the process helps ensure quality, performance, safety and compliance in critical applications.

Open die forgings and seamless rolled rings are crucial in shipbuilding, ensuring durability and performance in harsh marine environments.

Open die forging produces high-strength components like engine parts, turbine shafts, rudder stocks and propeller shafts, essential for vessels such as cruise liners and supertankers.

These forgings offer superior fatigue resistance and corrosion protection, extending service life.

Seamless rolled rings provide strength, wear resistance, and precision, making them ideal for bearing rings, flanges, turbine casings and thruster components. Their resilience to thermal and chemical stress reduces maintenance needs, enhancing propulsion, steering, and anchoring systems.

By integrating these advanced forgings, shipbuilders improve vessel efficiency, reliability and longevity, ensuring high performance in demanding maritime conditions.

When using open die forgings or forging seamless rolled rings for shipbuilding, however, it is crucial to tailor components for their specific applications, or "end use."

In the realm of metal parts, this term commonly denotes the ultimate form and state of the final machined part, along with a comprehension of the operating conditions it will face during service.

"By understanding the final application or purpose—the end use—for which these parts are designed and manufactured, forged parts suppliers can determine the appropriate materials, manufacturing processes, and quality standards necessary to ensure that the metal parts perform effectively and reliably in their intended applications," All Metals & Forge Group spokesman Jeff Klein said.

The ISO 9001:2015 and AS9100D-certified manufacturer produces open die forgings, seamless and contoured rolled rings and complex forged parts to industry standard specifications in 8-10 weeks.

According to Klein, open die and forgings and seamless rolled rings play a crucial role as components in gears, turbines, bearings, clutches, couplings, drives, flanges, valves, machines and rollers for a wide variety of end uses.

As such, these items must exhibit exceptional attributes such as strength, durability, precision and resistance to fatigue, deformation and harsh environments in saltwater or downhole uses to meet precise performance standards when deployed in the field.

In some cases, failing to consider the end use can even introduce serious risk to ships, their crews and cargo, including catastrophic failure of a part while in operation.

Consider End Use from the Start

For the shipbuilding industry, the consideration and planning to

meet end use requirements should begin with the service requirements outlined during the engineering phase of design and conclude when the part is in its operating position, performing as intended.

"It is vital that the manufacturer specify the end use of each part and ensure it is communicated throughout the production chain, from the design engineer, through purchasing, the forging operation, heat treating, finish machining and final assembly of the end use, including the mechanical property requirements and the heat or corrosive conditions in which the forged part will perform," Klein said.

According to him, different industries, including shipbuilding, have unique specifications and standards that metal parts must meet.

The specific function of the part will dictate its design, dimensions, material selection, forging, heat treating and finishing processes. In all cases, the part must be manufactured to industry standard specifications such as ASTM, AMS, AISI, or API unless the OEM (original equipment manufacturer) has developed their own requirements by modifying one of those standards.

In short, the finished product must comply with all quality, durability, chemistry and mechanical properties within the selected standard.

Seamless rolled rings can be produced in a variety of alloys, sizes and shapes specific to fit end use requirements.

However, by collaborating closely with the forging supplier, engineers, buyers, and machinery builders can ensure the ideal selection of chemistry, mechanical properties, heat treatment, machining and testing ultimately required for each part's end use.

The process often begins with the selection of the alloy grade used in for open die forging or seamless rolled ring production, which can apply to many specific end uses.

These range from low and medium carbon steels, through high-carbon steels, aluminum alloys, alloy steels, stainless steels, nickel alloys, tool steels and titanium alloys.

The precise alloy for the intended end use should always be specified and stated in the purchasing process according to final mechanical property requirements and service conditions.

Material properties can also be altered for specific end uses by hot working as well as by using various chemistries, temperatures, heat treatment times and cooling methods.

This facilitates the production of seamless rolled rings or forged parts with optimized mechanical properties and structural integrity, before the part moves on to finish machining.

Each metal possesses unique alloy chemical compositions formed during the steel mill process, along with diverse production procedures for generating ingots or billets of different grades and purities tailored for industry specifications. Consequently, the quality of steel mill output is critical.

In the case of All Metals & Forge Group, end use is emphasized from the very beginning in the request for quote (RFQ) process. The company works with its steel mills to purchase the correct starting stock to achieve the specified properties and operating reliability required of every part.

In addition, rough machined parts are tested at least three times to prove chemistry, mechanical properties, and soundness before shipping.

According to Klein, there are groups of alloys within each metal material that lend themselves to specific end uses.

High-nickel alloys (I625, I718, I825), for example, are used at high temperatures in applications where high oxidation resistance is required. Other alloys within this group find use in industries where corrosive conditions may be severe.

The Inconel 600 and 700 series were developed for specific end uses. Inconel 600 resists chloride-ion stress corrosion cracking. Inconel 690 resists sulfur-bearing gases. Inconel 718 is a precipitation-hardening alloy designed to give very high yield, ultimate tensile strengths, and resistance to creep rupture at temperatures up to 1300°F (705°C).

End use is equally important with stainless steels, where the various groups of martensitic (hardenable), ferritic and austenitic cover a very wide range of properties and applications when resistance to corrosion and heat are critical.

Basic type 410 martensitic grade stainless, with around 13% chromium, is sufficient for mild corrosive conditions, whereas the ferritic type 430, with 17% chromium shows resistance to more severe environments.

The performance of the austenitic stainless steels, based on the 18% chromium/10% nickel in type 304 is selected for certain end uses when correctly heat treated and not subject to carbide precipitation.

The various additions to the base 304, such as molybdenum, improve resistance to pitting corrosion. The resultant molybdenum-containing grades are types 316 and 317, normally supplied in the low-carbon versions, 316L and 317L.

The range of stainless steels continues through types 329 and 2205 duplex alloys—austenite and ferrite—that provide good resistance to pitting and stress corrosion cracking, to precipitation hardening grades such as 13-8Mo, 15-5PH, 15-7Mo and 17-4PH.

These latter grades reach high yield and ultimate tensile strengths from a single, low-temperature heat treatment following a solution anneal. This makes these types of stainless steels suitable for challenging applications.

With so many options available, a thorough grasp of the end use is vital for establishing the correct material, dimensions, and properties needed during forging to guarantee peak performance in the eventual application.

By collaborating with an experienced seamless rolled ring manufacturer that can tailor the forging process to the specific end use, shipbuilding OEMs can ensure their final product meets all the necessary requirements and industry standards for their specific application.

More information is available at www.steelforge.com. ■

ROYCE LOWE is a troubleshooter when metallurgical failures occur with over 30 years' experience in metallurgy, sales and marketing of a broad range of carbon and alloy steels, including all stages of their processing. He has coincident experience with stainless and nickel in the suitability of these alloys, based on their metallurgical and mechanical properties, for the end uses. He often writes articles about alloy applications, as well as issues in the industries that use them.

Power Engineering Construction Elevates Four to Ownership Team

Northern California-based Power Engineering Construction, which has been involved in marine and heavy civil construction for nearly four decades, announced in late January that it has added four new members to its ownership group.

They are **Jeff Van Meter**, **Marc Service**, **Brian Shalk** and **Scott Williams**.

Van Meter, who has been with Power Engineering for 15 years, spent a decade working in the field, progressing from intern to project manager. His interest and skill in estimating and value engineering emerged and he transitioned into the estimating department five years ago.

Today, he's the company's director of estimating, leading preconstruction, scheduling and estimating for Power's complex marine and heavy-civil construction projects. He also has played a role in the company's expansion throughout Southern California.

Service has been with Power Engineering for 15 years, starting as an intern in 2009. He was later hired on as a project engineer and was promoted to project manager in 2014.

He has led two of Power's highly complex design-build projects: a ferry terminal for the Water Emergency Transportation Authority in Alameda, Calif. and a heavy-civil infrastructure project for Silicon Valley Clean Water, where he mastered jack-and-bore micro-tunneling and bypass tie-ins at an active water treatment plant.

Service is expected to continue to lead projects.

Shalk brings 15 years of industry experience to his role, beginning his career in tunnel and heavy construction then joining Power 10 years ago, rising from a project engineer to project manager.

Shalk, who led the steel floats and gangways design-build scope for Power's largest project, the Downtown San Francisco Ferry Terminal expansion, is behind Power's expansion of commercial diving services, introducing cutting-edge methods and technology to serve ocean outfall and subsea cable clients.

Jeff Van Meter.

Marc Service.

Brian Shalk.

Scott Williams.

Williams has 16 years of construction experience, including eight years at Power. He began his career at a global construction and engineering firm as a project engineer, later advancing to project manager with a focus on marine-related projects.

In 2017, he joined Power as a project manager. One of his earliest achievements was leading a seismic upgrade on one of Power's refinery clients' wharves—navigating live fuel lines and tanker deliveries without disrupting operations.

He is currently spearheading Power's expansion into Southern California. ■

Port of Oakland Commission Chooses 1st Female Executive Director

Port of Oakland Chief Operating Officer **Kristi McKenney** has been named the port's next executive director, making her the first woman to serve in the leadership role in the port's 98-year history, it was announced Feb. 14.

The Oakland Board of Port Commissioners voted unanimously Feb. 13 to sign McKenney to a three-year contract, succeeding Danny Wan, who is expected to retire on Feb. 28.

McKenney, who began her career at the Northern California seaport as an environmental planner, has stepped into various roles at the port, including assistant aviation director, interim executive director and COO, a position she has held since February 2020.

McKenney earned her Master of Science degree in civil engineering from the University of California, Berkeley and a Bachelor of Science degree in aeronautics from San Jose State University.

Kristi McKenney.

She was key in overseeing port operations in the initial stages of the COVID-19 pandemic, and as COO, she helped to secure hundreds of millions of dollars in state and federal funding for the port, the seaport said in an announcement.

"As a port veteran, Kristi McKenney will bring solid leadership and management skills to the position," Wan said. "She will also bring continuity and stability to port operations, which are essential to helping us build for the next generation."

In the announcement, McKenney stated she was grateful and excited for the opportunity to lead during a transformative time at the port.

"I look forward to implementing the port's five-year strategic plan that will help grow local employment and contracting opportunities and strengthen our economic base," she said. ■

San Diego Maritime Museum Names New President/CEO

Christina Connett Brophy, a seasoned executive in museum management, has been appointed the new president and CEO of the Maritime Museum of San Diego, officials announced Jan. 29.

Christina Connett Brophy.

Connett Brophy is expected to lead the nonprofit organization, which is dedicated to "collecting, preserving and presenting the rich maritime heritage connections with the Pacific world." The museum boasts a substantial collection of National Historic Landmark Vessels, including sailing ships, steam-powered ships and a submarine.

Connett Brophy's experience in museum leadership spans more than a decade, including as senior vice president of the Mystic Seaport Museum in Connecticut and Chief Curator at the New Bedford Whaling Museum in Massachusetts, according to the announcement.

"Dr. Connett Brophy's leadership and collaborative approach will enhance the Maritime Museum of San Diego's partnerships with educational institutes, community organizations and businesses all while keeping the organization at the forefront of adventure and preservation," Maritime Museum of San Diego Board Chair Kenneth Stipanov said.

Connett Brophy said she's looking forward to an exciting future on the West Coast.

"San Diego is inextricably linked to the sea, and the Maritime Museum is the gateway to public engagement and personal connection," Brophy said in a statement. ■

New Oxnard Harbor District Board President Sworn In

Longtime port and community advocate **Jess J. Ramirez** has been sworn in as the new president of the Oxnard Harbor District Board of Directors, the five-member body governing the Port of Hueneme.

Jess Ramirez.

Ramirez, who previously served as the board's vice president, took the leadership reins from Commissioner Celina L. Zacarias in mid-January.

"I am very proud to serve the people of the Oxnard Harbor District for one last term," Ramirez said in a prepared statement. "During this term, I look forward to continuing to build community."

Ramirez has more than five decades of experience as a member and leader in International Longshore and Warehouse Union (ILWU) Local No. 46.

As a member of the harbor district board, he has championed sustainability at the port and pushed for business growth and strategic development that yield economic and social benefits.

"It is this attentiveness that has enabled the Port of Hueneme to create opportunities that not only spur economic development but also build social capital and investment in the community," Ramirez said. ■

Mandel Promoted to Government Affairs Director at Port of LA

The Port of Los Angeles has promoted **Artie Mandel** to the role of Director of Government Affairs, a position that oversees the port's collaborative efforts with governmental entities at the local, regional, state and federal levels.

His duties involve advocacy, legislative coordination, grant funding identification and coalition building, among other responsibilities.

Artie Mandel.

Mandel previously served as the POLA's Director of Strategic Initiatives. In his new position, he continues to report to Avin Sharma, the port's Senior Director of Workforce and Government Affairs.

"Artie has a long track record of bringing stakeholders together to tackle challenging policy issues, and facilitate smart and strategic solutions," Sharma said. "His extensive background and understanding of government processes across all levels of government, along with his strong work ethic, are a tremendous asset to our port."

Prior to joining the Port of LA, Mandel was Chief of Intergovernmental and Legislative Affairs for the City of Los Angeles, where he oversaw federal, state and local government affairs and advocacy.

In that role, he worked with city departments and the City Council to develop and execute the city's legislative program. During his tenure there, he was credited with helping secure more than $1 billion in state homelessness assistance and housing grants for the City of Los Angeles.

Previous to that, he spent 10 years on Capitol Hill as senior policy advisor for U.S. Sen. Maria Cantwell (D-WA) and legislative director for Congressman Bill Pascrell, Jr. (D-NJ), where he focused on tax, international trade and affordable housing policy.

Originally from New Jersey, Mandel earned a bachelor's degree in government and politics from the University of Maryland. ■

Coast Guard Cutter Returns to Wash. Following Law Enforcement Patrol

Photo: U.S. Coast Guard.

The U.S. Coast Guard cutter ***Active*** returned to its Port Angeles, Wash. homeport on Feb. 10 following a 65-day law enforcement patrol off the Southern California coast.

The cutter's crew covered more than 5,500 miles on patrol in support of Coast Guard District 11's Southwest Maritime Border Security operations. The operations counter Transnational Criminal Organization activity in the Coastal California Region and the United States Pacific Maritime Southern Border including immigration operations.

Active's crew, the Coast Guard said in a statement, interdicted three vessels carrying 46 undocumented immigrants, while providing assistance in the apprehension of another 40 migrants. They "were all safely transferred to the custody of Customs and Border Protection agents in San Diego," officials added.

"***Active***'s crew interdicted three vessels carrying 46 illegal aliens in total, while providing assistance and direction to aid in the apprehension of another 40 illegal aliens," the Guard said in a statement. "The illegal aliens were all safely transferred to the custody of Customs and Border Protection agents in San Diego."

To enhance the crew's military readiness, they conducted training exercises with regional Coast Guard crews, including an Air Station San Francisco MH-65 helicopter air crew, the U.S. Coast Guard cutter ***Terrell Horne***, a 154-foot fast response cutter homeported in San Pedro, Calif., as well as teams from the San Diego-based Coast Guard Maritime Security Response Team West.

Additionally, while operating offshore in Northern California, the crew responded to four search-and-rescue cases.

The ***Active*** is a 210-foot medium endurance cutter. Patrolling from the northern-most part of the contiguous United States, and as far south as the equator, ***Active*** has conducted law enforcement, defense operations and search-and-rescue missions for over 60 years.

It is a multi-mission platform that falls under the operational command of the Coast Guard Pacific Area Commander. ■

Coast Guard Offloads More Than $275 Million Worth of Cocaine in San Diego

The crew of the U.S. Coast Guard cutter ***Waesche*** offloaded about 37,256 pounds of cocaine, with an estimated value of more than $275 million, on Feb. 13 in San Diego.


Photo: U.S. Coast Guard.

The offload is a result of 11 separate suspected drug smuggling vessel interdictions or events off the coasts of Mexico and Central and South America by the Coast Guard cutter ***Waesche*** from last December through February.

The ***Waesche*** is one of four legend-class national security cutters homeported in Alameda, Calif.

"The ***Waesche*** crew faced numerous challenges during this patrol, overcoming the hardest adversities and still had 11 successful drug interdictions," ***Waesche*** Commanding Officer Capt. Tyson Scofield said. "Their dedication, strength of character and resilience ensured the success of our mission, preventing over $275 million worth of illicit narcotics from reaching the United States."

Multiple U.S. agencies, including the departments of Defense, Justice and Homeland Security, collaborate in the effort to combat transnational organized crime. The Coast Guard, Navy, Customs and Border Protection, FBI, Drug Enforcement Administration and Immigration and Customs Enforcement, along with allied and international partner agencies, all play a role in counter-narcotic operations.

The law enforcement phase of counter-smuggling operations in the Eastern Pacific Ocean is conducted under the authority of the Coast Guard's District 11, headquartered in Alameda, Calif.

The interdictions, including the actual boardings, are led and conducted by the Coast Guard, which this year has increased operations to interdict, seize and disrupt trans-shipment of cocaine and other bulk illicit drugs by sea. ■

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Charting Key Regulatory Change Across Maritime Law in 2025 and Beyond

By Stamatis Fradelos

A tidal wave of new regulations is set to hit the global maritime sector this year, representing fresh, highly complex compliance challenges. From environmental performance to evolving security and safety standards, the shipping industry faces a raft of new rules intended to ensure safe operations and reduce greenhouse gas (GHG) emissions.

In this article, Stamatis Fradelos, Vice President of Regulatory Affairs at the American Bureau of Shipping, explains what the flood of new regulations really means, and how operators can navigate through the period of change.

Global Outlook for Regulatory Updates

At a global level, the International Maritime Organization (IMO) has been publishing important new regulations for the past five years, with others under consultation, but many critical updates have only just or are expected to become applicable.

They have wide ranging implications that can be broken down into two key areas: first, environmental protection. This relates to international efforts to improve ship design, operational efficiency and reduce the world's reliance on fossil fuels; therefore, lowering the sector's environmental impact.

Second, a focus on maritime safety, specifically related to the use of alternative fuels, as well as the importance of robust cybersecurity protocols.

Cyber Threats: Navigating Troubled Waters

Cyber protection remains of critical importance for the maritime sector. The recent digitalization of ships, combined with growing geopolitical tensions, have created the perfect storm.

There were reports of a spike in incidents in 2024, but the true scale of the impact today is yet to be revealed. Official statistics[1] identified at least 64 cyber incidents targeting maritime organizations in 2023, according to the Netherlands' NHL Stenden University of Applied Sciences. A decade earlier, there were three, and zero in 2003.

According to a 2023 report[2], on average a cyberattack within the maritime industry costs the target organization approximately USD$550,000—up from USD$182,000 in 2022. Demands for ransom have increased by more than 350%, with the average ransom payment at USD$3.2m in 2023—up from USD$3.1m the previous year.

In response to intensifying concerns over safety at sea in a digital world, IMO has published several standards in recent years with the aim of enhancing ship safety standards. These include a focus on improving crew training, implementing new technologies, and ensuring that international regulations keep pace with innovations such as autonomous shipping.

Working Toward Carbon-Free Journeys

In July 2023 the IMO adopted the '2023 Revised IMO Strategy on Reduction of GHG Emissions from Ships', which included targets to tackle harmful emissions. The targets are broken down into four key areas:

1. To lower the carbon intensity of new ships, by strengthening their energy efficiency design requirements.
2. To reduce CO2 emissions per transport work, as an average across international shipping, by at least 40% by 2030, compared to 2008.
3. Uptake of zero or near-zero GHG emission technologies, fuels and/or energy sources to represent at least 5%, striving for 10%, of the energy used by international shipping by 2030.
4. Reduce GHG emissions from international shipping compared to 2008,
   a. By 20%, striving for 30% by 2030
   b. By 70%, striving for 80% by 2040
   c. To net zero by or around 2050.

Short to Mid-Term Environmental Protection Measures

The IMO's Marine Environmental Protection Committee (MEPC) is expected to finalize and approve a series of short to mid-term measures that will underpin these ambitious environmental targets by April 2025, with an anticipated roll-out by 2027.

One element will likely focus on the measurement of the ship's GHG intensity on a Well-to-Wake (WtW) basis per energy consumed on board—the GHG Fuel Standard (GFS)—combined with a phased reduction of the GHG Fuel Intensity (GFI) over time. This equation will relate to a possible correction factor for ships serving ports of developing countries.

Furthermore, there are plans to attach a price to carbon dioxide (CO2) emissions to incentivize shipowners and operators to reduce emissions by selecting cleaner fuels such as synthetic fuels derived from renewable sources, as well as adopting energy-efficient technologies.

We can also expect an increased governance of the fund under the IMO's remit. This emphasizes the need for transparency, accountability and good governance of revenue management, and a balanced geographical representativeness of its membership.

Key Priorities for the U.S.

1. Cybersecurity: In-line with the international agenda to safeguard shipping and port companies from bad actors online, The Vessel Cyber Risk Management Work Instruction (CVC-WI-027), which was published in October 2020 and revised in October 2023, provides guidance on the United States Coast Guard's (USCG) approach to assessing cyber risk in commercial vessels.

It outlines expectations for U.S.-flagged vessels and companies to integrate cyber risk management into their Safety Management Systems (SMS). Furthermore, foreign-flagged vessels calling at U.S. ports must have adequately addressed cyber risk management in their SMS.

Additionally, an executive order signed in February 2024 mandates that cyber threats be addressed through updates to Part 6 of Title 33 of the Code of Federal Regulations (CFR), which includes cybersecurity protocol. The executive order defines a "cyber incident" and establishes reporting requirements for them. This reporting requirement also applies to foreign-flagged vessels operating in U.S. waters and ports.

Furthermore, the USCG has taken steps to update its maritime security regulations. This proposed rule would introduce several requirements for owners or operators of U.S.-flagged vessels, facilities and Outer Continental Shelf facilities. It would mandate the implementation of cybersecurity measures aimed at identifying risks, detecting threats and vulnerabilities, protecting critical systems, and facilitating recovery from cyber incidents.

2. Increased environmental protection at sea: October 2024 saw the U.S. Environmental Protection Agency (EPA) publish its final rule under the Vessel Incidental Discharge Act (VIDA). It established federal performance standards for marine pollution control devices applicable to discharges into U.S. waters and the contiguous zone.

The USCG is required to develop corresponding implementation, compliance and enforcement regulations within two years. These regulations may include requirements for the design, construction, testing, approval, installation and use of devices necessary to meet the EPA standards.

The EPA's rule took effect on 8 November 2024; however, the federal standards will only become enforceable once the USCG finalizes its regulations. Until then, existing requirements from the 2013 Vessel General Permit (VGP) and the USCG's requirements under section 1101 of the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) will remain in effect.

Two types of standards have been established under VIDA. The general standards are organized into these three categories:

- General operation and maintenance
- Biofouling management
- Oil management

The specific standards address discharges of 20 different pieces of equipment and systems. The new requirements are at least as stringent as those in the VGP. We can expect these to transition into regulation that reflect national technology-based standards of performance, improve clarity, enhance enforceability and implementation, and incorporate new information and technology.

[1] https://www.ft.com/content/c05c9b21-77bd-4ddf-82e1-02356acf0899

[2] https://cyberowl.io/maritime-cyber-risk-report-shipping-industry-remains-easy-target-pays-average-us3-2m-in-cyberattacks/

California Air Resource Board 2020 At-Berth Regulation

Vessels visiting California must now report each visit within 30 days of departure and meet opacity requirements. Emissions controls compliance will also take effect. Two years ago, container and refrigerated cargo vessels, as well as passenger cruise vessels were required to comply with these controls, while roll-on/roll-off vessels and tanker vessels that visit the Ports of Los Angeles or Long Beach are now following the requirements as of January 2025, and finally, all remaining tanker vessels must comply by January 2027.

As well as communicating with the regulated terminal at least seven days prior to arrival, the vessels must comply by reducing emissions while at the terminal. This could mean connecting to shore power, employing a CARB-approved Emission Control Strategy (CAECS) or an approved innovative concept, within two hours of the vessel arriving at the berth continuing on until one hour before the pilot boards the vessel for departure.

Building Awareness to Manage Uncertainty

Uncertainty remains as the IMO, and country-specific regulators, work towards finalizing these safety and environmental policies. Maritime and shipping organizations should take a proactive approach to prepare for compliance by building their awareness of new regulations on the horizon. Awareness will help them to steer a smooth course to compliance in the long-term. The ABS Regulatory Trends and Impact report which provides updated guidance to help navigate the regulatory landscape can be downloaded at https://tinyurl.com/378yk337. ■

STAMATIS FRADELOS is Vice President, Regulatory Affairs for the American Bureau of Shipping. Prior to joining ABS, he was the Regional Bulk Carriers Segment Director in DNV Business Development team providing insight into future business initiatives, market drivers and services for inclusion in local and regional business plans and following regulatory and technological developments focused on bulk carriers.

A diver with a cross brace working on Power Engineering Construction's upgrade of seawater intake pipelines. Photo: Power Engineering Construction.

Maritime Construction Projects in Full Swing

By Sara Hall

Pacific Coast-based maritime construction companies have been busy with work on a variety of projects recently, including burying cable, upgrading pipelines and important dredging plans, both big and small.

Pacific Maritime reached out to a selection of companies to find out about some of their notable projects.

Power Engineering Construction

Power Engineering recently worked on projects that live up to its reputation of tackling complex marine and heavy civil construction projects along the West Coast.

As part of critical infrastructure development to enhance communication networks across the San Francisco Bay, the company was recently enlisted to deploy and bury a long stretch of subsea telecom cable. The Power team quickly accomplished the challenging task.

The record-breaking installation efficiency was primarily achieved due to the diameter and capacity of the fiber optic cable, as well as the swift execution of the shoreside landings, explained Project Manager Brian Shalk in an email. A total of 17 miles of fiber-optic cable were laid in under six days, with burial completed the following week.

An on-site crew of more than 40 team members worked around the clock to ensure the project was completed on time and safely, Shalk noted. This number does not include offsite engineering and planning partners, such as the cable manufacturer, shipping logistics teams and other key contributors.

A Power Engineering Construction vessel mobilizing for a project to upgrade the structural support system of seawater intake pipelines. Photo: Power Engineering Construction.

The 24-hour schedule was necessary for several key reasons, he added.

"Once the cable is deployed from the barge, continuous progress is essential to mitigate risks. An exposed cable presents a hazard to navigation and remains vulnerable in the water column, where it can be damaged by inclement weather, barge movements or surrounding vessel traffic," Shalk explained. "Additionally, the mooring arrangement utilized floating anchor lines (Dyneema) to prevent seafloor scour and comply with environmental regulations. These floating lines posed a navigational hazard, requiring constant surveillance to prevent vessels from crossing over the mooring spread. Beyond navigation risks, any damage to the mooring lines could compromise barge positioning, survey accuracy, cable alignment, and even risk cable failure."

Gaeaquatic, a global specialist in subsea cable engineering and management, looked to Power Engineering for their local knowledge, fleet of marine assets and skilled personnel to address the complex challenges of the marine operation—like a heavy lift over water, fluctuating depths, currents, navigable areas and other daily changes.

Tasked with a pivotal role, Power Engineering assisted with the unloading and deployment of the custom-manufactured cables, crafted in Germany. The team then maneuvered the cable onto the seafloor and supported the intricate process of jetting and burying the cable, while adhering closely to land-lease requirements dictating a 30-meter variance from the proposed alignment.

The Power team came up with innovative solutions to operate the heavy machinery in shallower waters while still upholding environmental protocols.

A shallow-draft deck barge was used to stage cable-laying materials and equipment while accessing the bay's shallower areas without the risk of grounding, Shalk said.

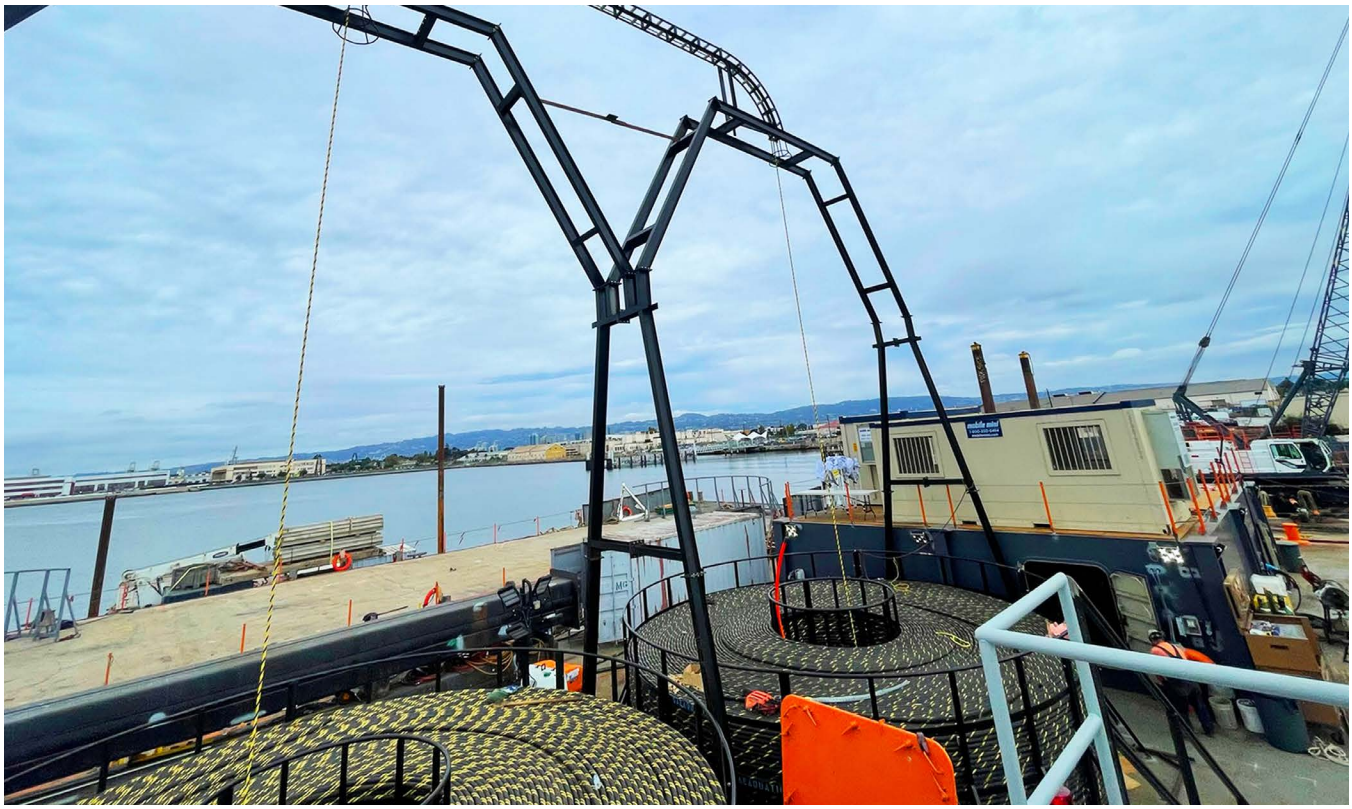
To prevent anchor wire scour on the bay floor and avoid subsea gas lines supplying fuel to San Francisco International Airport, Dyneema mooring lines were utilized, he explained. The four-point mooring spread, paired with intricate survey equipment, ensured precise cable alignment. Power's deck engineers operated six individual anchor winches to maneuver the barge across the bay while maintaining a 30-meter cable alignment specification.

Shalk also highlighted the use of a shallow-water anchor handling barge and low-draft jet boats. These vessels were deployed to support continuous operations during the fiber-optic cable shore landings.

A shallow-draft self-propelled work barge followed the cable-laying operations, housing a secondary crew responsible for immediate cable burial. Using a high-volume jet pump and a custom-fabricated cable burial sled, the team buried the cable as soon as it was laid on the seafloor, Shalk said.

The project also demonstrated global collaboration, as Power worked with partners from Germany to England and Greece to coordinate with various stakeholders throughout the process.

In another project, Power Engineering Construction's ADCI-certified dive team upgraded the structural support system



Spools of subsea telecom cable used during a deployment and burial project with Power Engineering Construction in the San Francisco Bay. Photo: Power Engineering Construction.

of two 950-foot-long parallel seawater intake pipelines located in a Marine Protected Area along the California coast. The underwater team was supported by topside crew, dive vessels and a construction barge.

Despite the challenging conditions, the team finished the work without any issue, said Diving Department Manager Allen Deaver in an email.

"With all the project's complexities and environmental sensitivities, work was completed on time and without incident," Deaver noted.

The pair of 16-inch diameter high-density polyethylene pipes were initially supported by concrete blocks placed at 15-foot intervals on the seabed. Officials noted that the existing support system showed levels of age deterioration and a comprehensive renovation was necessary to ensure the continuous and sound operation of the system while maintaining its minimal ecological footprint.

Based on the seafloor geology, Power divers utilized a two-pronged approach. In the surf zone (five to 20 feet below sea level) and intake zone (55 feet and deeper), concrete block supports were retrofitted with stainless steel brackets that secure them to the seabed. In the sand zone (20 to 55 feet below sea level), concrete blocks were replaced with socketed pipe-and-beam support systems designed for the sandy seabed's stability and long-term reliability.

"(Even) with all the project's complexities and environmental sensitivities, work was completed on time and without incident."

Allen Deaver, Power Engineering Construction

The installation is intended as a 100-year fix, Deaver noted.

Due to sensitive marine habitat, the team also had to adhere to strict regulations, including continual surveillance, observation and monitoring.

"To mitigate disturbances which could disrupt the normal behaviors of wildlife near the worksite, each piece of equipment and procedure was tailored to minimize environmental impact to the fullest extent possible," Deaver said.

For example, when marine mammals were observed within a predetermined distance from the worksite, vessel operations, deployment of tethered equipment or anchors and subsea work would stop until the animals moved beyond that specified distance, he explained. Sensitive species such as whales, for example. were given a safe distance of 500 meters.

The company was allowed three seasons (June to December) from 2022 to 2024 to complete the project. They finished operations on-site in October 2024, Deaver said.

Curtin Maritime

A few recent projects from Curtin Maritime, a Long Beach, Calif.-based company that provides a range of maritime services, from marine transportation to construction, have reached milestones and highlighted the company's cutting-edge clamshell dredge.

Curtin recently completed a major dredging project in Puerto Rico with the hybrid powered ***D/B Avalon*** dredge vessel, company spokesman Brendan Raasch told *Pacific Maritime*.

U.S. Army Corps of Engineers officials described the vessel as designed with a fully automated dredging system capable of an all-electric operation, with shore-power connection, making it a true zero-emissions operation. The groundbreaking system greatly minimizes turbidity pollution and the necessity to clean-up dig, completing depth targets faster and further reducing the carbon footprint of any project.

The Corps of Engineers awarded a $56.7 million contract to Curtin Maritime for the widening and deepening of the inner channels of San Juan Harbor in Puerto Rico in June 2023. Curtin kicked off dredging in April 2024.

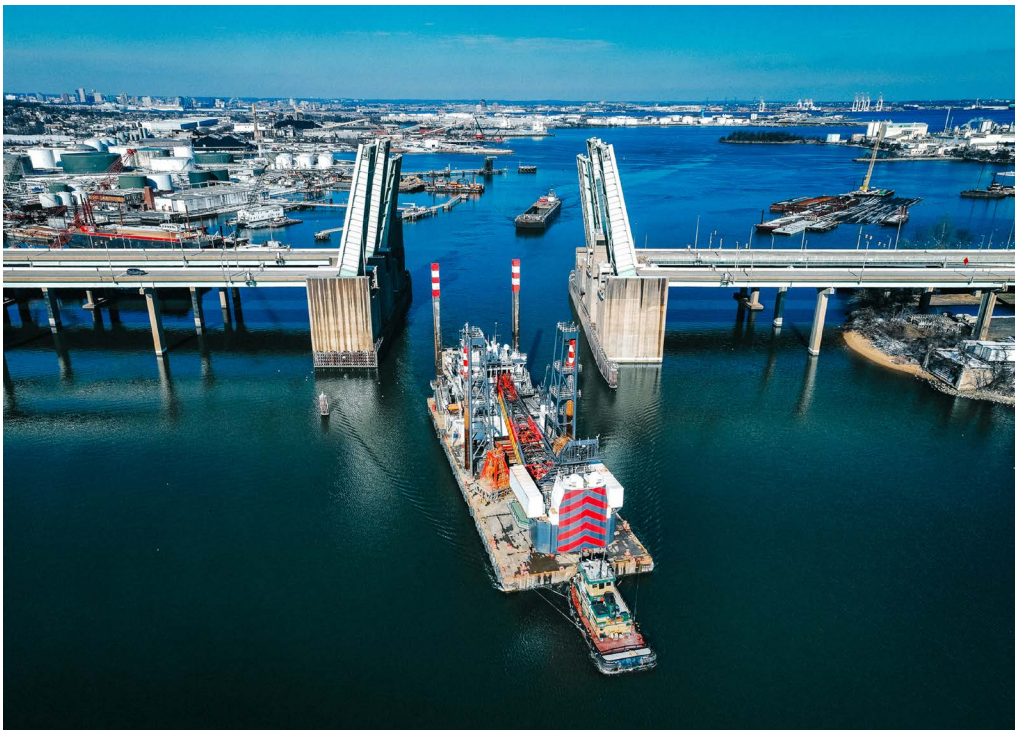
San Juan Harbor is a vital hub for commercial cruise ships, petroleum tankers and terminal operators on the island, although access for larger vessels was restricted over the past decade due to the accumulation of bottom debris and the increasing size of ships.

"The San Juan Harbor deepening and widening project demonstrates how effective coordination and collaboration among all stakeholders is crucial to project success," Col. Charles L. Decker, commander of the USACE Caribbean District, said in a statement.

The Avalon is a state-of-the-art clamshell dredge, one of the largest and more efficient dredging vessels in North America.

The scope of work included deepening Cut-6 of the entrance channel to -47 feet, deepening the Army Terminal Channel and Army Terminal Turning Basin to -46 feet, and deepening channels adjacent to the cruise terminal to -37 feet. The channel was widened by 100 feet and added flares where it meets the basin.

Curtin Maritime's ***D/B Avalon*** loads the last bucket during a dredging project at the San Juan Harbor in Puerto Rico. Photo by Robert Collaro, courtesy of Curtin Maritime.



Curtin Maritime's ***D/B Avalon*** navigates the Pennington Avenue Bridge in Baltimore. Photo by Robert Collaro, courtesy of Curtin Maritime.

By the time Curtin wrapped up the project on Nov. 13, an estimated 2.9 million cubic yards of material had been removed.

The Corps of Engineers and Curtin Maritime worked together to prioritize the safety of both the crew and navigation waterways during the 24/7 dredging operations. Efforts were made to minimize environmental impacts, such as turbidity and disruptions to marine life, ensuring that the dredging process adhered to strict environmental protocols.

Curtin Maritime also recently used the Avalon to complete a phase of the Baltimore Harbor and channels dredging project.

The crew discharged approximately 550,000 cubic yards of dredged sediment from the Fort McHenry and Curtis Creek Channels into the Cox Creek Dredge Material Containment Facility and moved on to work on other areas in the harbor.

The removed material consists primarily of mud, silt, sand, shell and other mixtures. Another roughly 1.74 million cubic yards of material are to be dredged from various Maryland approach channels—Craighill Entrance and Angle, Cutoff Angle and Upper Range Channels—and re-used at the Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island.

These channels are used by large container ships traveling to and from Port of Baltimore facilities. They will be dredged to their respective authorized dimensions, plus an allowable over-depth of 1 foot.

USACE, Baltimore District, awarded a $33.5 million contract to Curtin Maritime for the project. Completion is expected in March.

American Marine Corp.

American Marine Corp., which provides full-service marine construction support for a variety of projects, has been busy with some notable projects.

The company, which has locations in Alaska, California and Hawaii, works on projects including subsea outfalls and pipelines, pile driving, marina and pier construction and dredging.

In an email, Executive Vice President David Shahnazarian highlighted the Wailoa maintenance dredging project the company completed at the end of 2024 out of their Hawaii office.

Initial funding for the project was released in January 2024 and the Corps of Engineers expeditiously handled the required permitting process. According to state officials, dredging at Wailoa became a critical concern for Hawaii Island boaters after the Pohoiki ramp was surrounded by

Curtin Maritime's ***D/B Avalon***, the largest and one of the most efficient clamshell dredges in North America. Photo by Jennifer Garcia, courtesy U.S. Army Corps of Engineers, Caribbean District.

American Marine Corporation works on the Wailoa-Hawaii emergency dredging project in 2024. Photo: American Marine Corp.

lava during the 2018 Kīlauea eruption.

AMC was hired by the state of Hawaii to provide emergency dredging at Wailoa River Basin.

The water depth was at "dangerously shallow levels" and created a hazards for the fishing and local boating community. AMC mobilized the company's spud barge with a dredging excavator to tackle the critical situation.

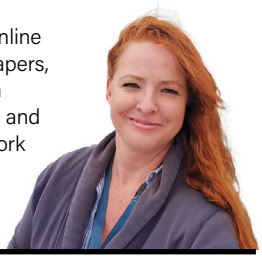
The project finished with roughly 23,000 cubic yards of material dredged and deepened the channel to a depth of eight feet. Sediment was moved from the harbor basin and spread along the shoreline, where it was trucked away to a county facility for the state to reuse.

The team had to overcome some unique conditions during the project, including high currents from rain runoff, rough water conditions, monsoons and floating debris that interrupted dredging operations.

AMC was also hired by the state of Hawaii to repair the Ke'ehi Small Boat Harbor boat ramp in Honolulu. Work included constructing a new concrete abutment and installing an aluminum framed loading dock with plastic lumber fenders and fiber-reinforced plastic decking.

Existing piles needed to be repaired via cleaning and adding underwater concrete for pile foundation and pile encasement. Pile caps were poured to support the new aluminum dock installed. A crane was used to lower the new dock onto the piles. ■

SARA HALL has 15 years of experience at several regional and national magazines, online news outlets, and daily and weekly newspapers, where coverage has included reporting on local harbor activities, marine-based news, and regional and state coastal agencies. Her work has included photography, writing, design and layout.



Pacific Northwest Seaports Update

By Karen Robes Meeks
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The bulk carrier ***African Quail*** loaded with wind turbine blades at the Port of Vancouver USA. Photo: Port of Vancouver.

The Greek philosopher Heraclitus once said that "the only constant in life is change." The saying, of course, also applies to cargo business.

In an environment in which natural disasters, geopolitical matters and more could affect the movement of cargo, seaports have little choice but to adapt.

Ports in the Pacific Northwest are doing just that, whether it's pursuing new streams of business to diversify its portfolio of cargo or investing millions of dollars in equipment and infrastructure projects to move more cargo more efficiently.

For example, the Northwest Seaport Alliance, the cargo operating partnership between the ports of Seattle and Tacoma, highlighted recent efforts to build capacity and efficiency.

That includes the March completion of the second phase of its Terminal 5 modernization project that included a pair of reconfigured berths with six state-of-the-art super-post Panamax cranes, giving the terminal the ability to process ultra-large vessels and have a total cargo capacity of 185 acres.

Here's a deeper look at what happening at several seaports in the Pacific Northwest:

Port of Vancouver USA

In recent years, Washington state's third-largest public port has been able to ride the unpredictable nature of the cargo business.

Port of Vancouver USA Chief Commercial Officer Alex Strogen recalled the port aggressively going after wind energy cargo in 2019, allowing the seaport to have one of its best years for cargo volumes in 2020 at the height of the COVID-19 pandemic.

"We had a booming year for wind energy and that provided an enormous economic shot in the arm for the area when things otherwise were pretty dark," Strogen said.

Demand for wind energy cargo shifted a bit in 2024, a result of more U.S. manufacturing.

"We really started to feel the impact of the Inflation Reduction Act and the tax incentives in place to encourage manufacturers to actually build the wind turbines domestically," he said.

The Japan-flagged vehicle carrier ***Rigel Leader*** at the Port of Vancouver in Washington state. Photo: Port of Vancouver.

Now most of the port's wind energy business is bound for Canada, especially to Alberta and Saskatchewan, he said.

"So, while U.S. policy has created a bit of a dampening effect for wind imports, what we've seen is still a pretty robust and healthy wind energy market in Canada," Strogen remarked.

The port is also seeing a softening of auto volumes after experiencing a healthy spike of vehicles in recent years. The port, the largest gateway for Subaru in the U.S., saw roughly 75,000 of the carmaker's vehicles arrive at its docks in 2024, less than the record 98,000 that moved through the port in 2023.

Strogen said inflation and rising auto insurance rates have dampened some of the demand for new autos.

"Still a good year, but maybe not as good as maybe we would have initially hoped," he said.

Keeping a diversified cargo business has been key for the port, a strategy that Vancouver intends to continue into 2025-2026.

"We simply believe that ultimately it's this mix that will keep us from finding ourselves in an awkward position," Strogen said.

The port saw a number of major components of project cargo move through their docks in 2024 and head to Boise, where Micron Technology is building a $15 billion chip manufacturing facility. The 600,000-square-foot plant is expected to be completed later this year with production set to start in 2026, according to the *Idaho Statesman*.

This spring, the port plans to break ground on a large new terminal revitalization project with Vancouver Bulk Terminal to adapt the facility into one that can export soda ash.

The soda ash, which is mined in Wyoming, can be used for solar panels and lithium-ion batteries for EV vehicles, Strogen said.

The re-imagined facility, which is expected to be operational by 2026, has the potential to move about 1.5 million metric tons of soda ash on an annual basis through the port.

"It will be a new commodity for the Port of Vancouver and one that we believe honestly has a lot of predictability and stability to it, regardless of where some of the geopolitics and economic factors may lead us," Strogen said.

Port of Grays Harbor

The Port of Grays Harbor has been on an upward trajectory in recent years. The Aberdeen, Wash.-based seaport reported historic growth at its four deepwater marine terminals in 2023 and 2024, with commodities such as timber, soymeal, liquid bulk, wood chips and automobiles leading the way.

"We have a real good diversity of cargo across our marine terminals," said Leonard Barnes, who became the port's executive director in April 2024 after his predecessor, Gary Nelson, retired.

Barnes said the port received a record amount of canola oil out of British Columbia that arrived in vessels and serves as biofuel feedstock for Renewable Energy

(Left) A rendering of the Port of Portland's project to transform Terminal 2 in Portland's Northwest industrial area into a 39-acre Mass Timber and Housing Innovation Campus. (Right) The South Korean containership ***SM Kwangyang*** docked at the Port of Portland's Terminal 6. Photos: Port of Portland.

Group, a biodiesel production company.

He anticipates more than 75,000 autos passing through the port's docks in the coming year.

"Grays Harbor has an awesome team, and that team is people within our port, our labor force, our customers, which is allowing us to have unprecedented growth," he said.

The port is advancing key projects to meet rising demand. In November, the port broke ground on its $60 million Terminal 4 Expansion and Redevelopment Project that extends rail into the Marine Terminal Complex by more than 40,000 feet and installs a new marine fender system for bulk and Ro-Ro vessels, as well as a new system for collecting and treating stormwater.

The project also aims to re-envision the former 520 casting basin site into a space for laying down cargo.

The T4 project supports the $170 million investment of Ag Processing Inc. (AGP) in a new export facility, also at Terminal 4. The company, based in Omaha, Neb., is the port's largest partner, and has been setting export records at its current location at Terminal 2. AGP needs the new facility to meet demand for soybean products and byproducts.

"Right now, we do about 60-plus Panamax vessels a year at T2, but with the expansion—and it'll be going online mid-year 2026—we will be doubling up to over 120 Panamax vessels a year," Barnes said.

Meanwhile, the port is engaged in a project at Terminal 3 with PNWRE (Pacific Northwest Renewable Energy), a company that wants to build a facility to create wood pellets from wood chips, sawdust and other material and ship the pellets overseas. The project, valued at more than $220 million, is in the permitting phase, Barnes said.

He also wants to further the growth of businesses at the port and economic opportunity for the county.

"I want to make sure our existing customers have a good platform to conduct their businesses environmentally and then also have the facilities in place for all of them to be able to go into their markets," he said.

"We are blessed with a lot of property here at the port that sets up our marine terminals," Barnes added, and making them "efficient (and) environmentally responsible" will create more economic opportunity for the community around Grays Harbor.

Port of Portland

With purview over four marine terminals, five business parks and three airports, the Port of Portland is a major economic engine, supporting thousands of jobs and the vital movement of goods.

It's home to Terminal 6, Oregon's only global container terminal that generates more than 1,500 jobs and about $20 million in local and state tax revenue annually.

When a funding shortfall prompted the port's announcement to wind down operations at Terminal 6 last year, lawmakers vowed to preserve a big part of the state's economic engine.

In December, the port announced that it is working on a framework agreement with Wilmington, Calif.-based Harbor Industrial Services Corp., setting the stage for Harbor Industrial to be T6's long-term operator.

The agreement calls for the port to offset losses from container operations with state funds—$5 million, along with $20 million more for investment for terminal improvements.

"The framework agreement is the latest development in the port's focused efforts to rebuild and grow container service at Terminal 6, a critical resource for businesses in every part of the state that imports and exports products ranging from seafood and animal feed to building supplies," according to the port.

The agency is working to solidify a timeline and basic terms over the next five months and working with lawmakers on funding opportunities for T6.

Meanwhile, the port is close to wrapping up the "Stronger T6" project, a $42 million infrastructure project that includes replacing electrical parts to lower energy use and allow for zero-emission operations in the future.

There also are plans to install a new stormwater system to improve the quality of runoff into the Columbia River, add two new emergency generators for backup power during outages and expand and bolster about 10 acres of pavement and update an additional 30 acres of pavement throughout the terminal.

A U.S. Maritime Administration (MARAD) Port Infrastructure Development grant, a Connect Oregon grant and matching port funds help make the project possible.

"These infrastructure improvements will benefit businesses and workers throughout the Pacific Northwest who rely on cost-effective, safe, reliable and efficient access to international markets, in addition to reducing environmental impacts through lower carbon emissions,"

Port Marine Director John Akre said.

The port is also embarking on a massive effort to replace Dredge Oregon, which has been the sole dredging vessel in the last 65 years, as well as securing the necessary state funding to begin the next round of dredging needed to maintain the width and depth of the lower Columbia River navigation channel.

The port, which received $2.77 million through an EPA Clean Ports Planning Grant, is currently conducting studies to support lowering the carbon footprint of the port's marine terminals .The goal is to improve resiliency in the face of natural disasters and analyze wind and other green-energy market opportunities.

"This funding is a game-changer for planning a greener future at our marine terminals, from zero-emissions equipment to new renewable power and clean-fuel options for the vessels our terminals serve," port Executive Director Curtis Robinhold said.

Fresh paving work took place at the Port of Portland's Terminal 6 in December.

To support Oregon's growing mass timber industry and address the region's housing shortage, the port is also transforming Terminal 2 in Portland's Northwest industrial area into a 39-acre Mass Timber and Housing Innovation Campus.

The campus encompasses areas to build modular housing and other mass timber structures, research and develop new products and technologies, train the workforce and aid small business growth, while helping new companies get off the ground, according to the port.

In January, the port announced that the University of Oregon is leasing space at T2 for its new acoustic research laboratory.

Phase 1 of the project, which includes stabilizing upriver soil, extending utilities, improving campus-wide frontage and pavement and establishing anchor tenants, is set to be fully operational in 2028. Housing production is expected to start in early 2026.

Port of Coos Bay

The Oregon International Port of Coos Bay hired of its first female CEO in August, appointing Lanelle Comstock, who had been serving in an interim capacity since last June. She has been at the port for more than 12 years in various roles, including chief administration officer.

The port also announced that former Coos County Commissioner Melissa Cribbins has been named executive director for the Pacific Coast Intermodal Port (PCIP) project, which seeks to develop a fully electrified ship-to-rail facility that would be able to handle about 1.2 million TEUs annually when completed.

The facility is expected to generate about 9,400 direct and indirect jobs and strengthen the port's position in U.S. and global trade. The project includes improvements to the Coos Bay Rail Line and deepening a navigational channel.

Cribbins takes the helm at a time when the project and adjacent projects are garnering major funding.

In October, the PCIP netted $25 million from the U.S. Department of Transportation's INFRA (Infrastructure for Rebuilding America) program. The grant would fund the project's environmental compliance and permitting, design and engineering work.

In January, the port received nearly $4 million in federal Railroad Crossing Elimination (RCE) Grant Program funding for an overpass project and safety enhancements.

This funding is expected to pay for the design and engineering costs of a new overpass crossing Oregon Highway 38, as well as safety improvements in Reedsport, Ore., the port said.

"Safety is at the heart of everything we do at the Port of Coos Bay, and this project addresses important potential improvements in the Reedsport area," Comstock said in January. "We will continue coordinating as a regional team, thoughtfully balancing economic opportunity with enhanced safety."

The port also bolstered trade relations with one of its partners last year. In March, the port and the Port of Kaohsiung in Taiwan formally agreed to discuss best practices, technology and other industry solutions.

Trade is a significant sector for Oregon, where 1 in 10 jobs stem from port activities. Taiwan became the U.S.'s eighth biggest largest trading partner with $135 billion in 2022. ■

KAREN ROBES MEEKS, a Southern California native, is an award-winning journalist with more than 20 years' writing experience. Her articles have appeared in the *Los Angeles Times, San Francisco Chronicle, Orange County Register* and *Long Beach Press-Telegram*, where she worked as a reporter for nearly 14 years. Her work has been recognized by the California News Publishers Association, the Associated Press News Executives Council and the Los Angeles Press Club.

Spill Response + Recovery 2025

By Karen Robes Meeks
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The sunken Fairweather Cruises vessel ***Island Oasis*** in Vancouver, BC. Photo: Aqua-Guard Spill Response.

Western Canada Marine Response Corp. spill response vessels. Photo: WCMRC.

It often takes the combined effort of public and private sector partners to prevent or tackle any oil spill that threatens U.S. and Canadian West Coast shores.

For example, the U.S. Coast Guard, Environmental Protection Agency, California Department of Fish and Wildlife Office of Spill Prevention and Response and Stockton Fire Department came together to handle a petroleum product spill near Smith Canal in Stockton last September.

The leak apparently came from an oil burner carrying a maximum capacity of 380 gallons, according to USCG.

After quickly deploying a sorbent boom and another layer of hard boom flanking the spill site to keep the leaked petroleum from spreading into the San Joaquin River, the Coast Guard hired Patriot Environmental Services to collect, contain and recover the spilled product.

On more complicated incidents, the Coast Guard often taps NOAA's Office of Response and Restoration (OR&R) for scientific support. Last year, OR&R assisted in 27 incidents in Washington and Alaska combined, 14 in California and three in Oregon.

That included an incident in October when the m/v ***Pan Viva,*** near Dutch Harbor, Alaska, dragged anchor in 60 knot winds and 30-foot seas. The 738-foot vessel, carrying 21 crew members and 300,000 gallons of fuel and oil, ran aground.

OR&R quickly offered the Coast Guard weather and trajectory analyses to help predict where potential spills would move as well as information on any at-risk resources. The vessel was able to maintain its position and the incident did not result in an oil spill, according to OR&R.

OR&R is also lending its scientific know-how on the study of oil spills to further research and technology.

It is partnering with the Coastal Response Research Center (CRRC) at the University of New Hampshire, University of Michigan, Coastal Monitoring Associates and state and federal agencies on testing new technologies and strategies on natural oil seeps off the Santa Barbara coast.

The field research, which took place in August, tested three new pieces of technology: MetOcean's Stokes drifters, the DeepTrekker remotely operated vehicle (ROV) and the Drifting Exposure and Effects Assessment Ring (DEEAR).

The Stokes drifters, small buoys that can be dropped into the water, can map out where an oil spill may spread and give data in real time through the use of Iridium satellite telemetry, according to MetOcean, a satellite communication service in Nova Scotia.

Nico Wienders, who invented the drifter, said the buoys are able to "provide precious and unique data to help scientists validate their numerical predictions and forecasts, satellite current observations or coastal high-frequency radar current observations."

The Western Canada Marine Response Corp. spill response vessel ***KJ Gardner*** (foreground). Photo: WCMRC.

NOAA's Office of Response and Restoration is evaluating more emerging technology to test this year.

Initially developed and evaluated in 2018 by scientists from OR&R, the University of Michigan, Coastal Monitoring Associates and Naval Information Warfare Center Pacific, the DEEAR is a portable bioassay system that can measure toxic impacts to marine animals.

The system is created to "move with water currents and assess the toxicity of oil slicks and sheens to aquatic organisms in the underlying water," according to NOAA.

OR&R also used the DIVER (Data Integration, Visualization, Exploration and Reporting) tool to store data from this research, and the Environmental Response Management Application (ERMA) to compile and show the data from multiple sources.

The initial testing of the three technologies appears to be promising, and OR&R is evaluating more emerging technology to test this year. It is also working on publication of the field research results.

OR&R said research is ongoing and it plans to return to Santa Barbara to conduct another workshop with the Coast Guard to optimize data collection and delivery during environmental incidents.

Canada

For three years, North Vancouver, Canada-based Aqua-Guard Spill Response has been developing technology aimed at the efficient, mechanical recovery of oil sheen from the surface of water.

Current mechanical solutions are effective in light-to-heavy viscosity oil spills (thick oil layers) but are not effective in "film-type oil sheens," CEO Cameron Janz said.

"Sorbents, the current primary method for sheen recovery, are inefficient, wasteful and costly to dispose of," Janz remarked. "As a result, these spills are most often deemed 'non-recoverable' and bypassed, leaving the oil to disperse throughout the sensitive marine environment, causing long-term ecological harm."

Aqua-Guard Spill Response has received an overwhelmingly positive response from industry professionals for its innovative sheen recovery solution, Janz said, adding that collaboration from industry partners was key throughout the design and development process, especially from Western Canada Marine Response Corp.

The company recently field-tested the system at a live oil spill involving a sunken vessel leaching diesel fuel in Vancouver, BC. The system has completed rigorous verification and validation, including third-party witness testing to ASTM F631-15 standards, Janz said.

"Aqua-Guard looks forward to the final development and sales promotion of this new sheen recovery technology to close this critical gap in oil spill response within Canada and worldwide," he said.

Meanwhile, 2024 was eventful for the aforementioned Western Canada Marine Response Corp., which welcomed Mark O'Donohue as its new president, taking over for longtime leader Kevin Gardner. He retired last summer after 23 years at the helm, and oversaw much of the organization's massive, multi-year investment in new equipment, personnel and six response bases.

That estimated $170-million investment, which began in 2012 to address the heightened traffic that would come from the now completed Trans Mountain pipeline expansion project, expanded the organization from 13 to more than 200 people, and from $12 million to $213 million in assets. The organization is in a solid position to prepare for more oil tanker traffic in the future.

A MetOcean Stokes drifter. The compact drifting buoy is equipped with GNSS positioning, a sea surface temperature sensor, and Iridium satellite telemetry, enabling the buoy to transmit sensor and geo-positional location data in real time. Photo: MetOcean.

WCMRC wrapped up last summer with the opening of Beecher Bay Response Base, its last such project, and the commissioning of its ***K.J. Gardner*** offshore supply vessel, which has been assisting in backup towing duties since late 2024.

"We're all up and running now, and now it's sort of finding that even keel as we progress from here on out," WCMRC spokesman Michael Lowry said.

With its projects now completed, the organization plans to continue investing in innovation, technology and training, O'Donohue said in the organization's annual report.

That includes expanding its work with First Nations, training them to be response contractors, which would help in protecting their own shoreline through boom deployment and also on larger responses. Last year, three new First Nations vessels of opportunity received training.

"We are committed to staying prepared for the challenges that lie ahead and to being a trusted partner for both the communities we serve and the industries that rely on the safety of our coastal waters," O'Donohue said.

WCMRC is also keeping an eye on supporting its base in Prince Rupert, where LNG projects are expected to come online this year, as well as potential new regulations related to marine emergency services, Lowry said.

Transport Canada, which recently released a discussion paper on the matter, is seeking public feedback on how the proposed rules could enhance preparation and response.

"We're starting to see not just LNG projects coming online, but also vessels using different alternative fuels with methanol, ammonia," Lowry said.

For example, global ocean carrier Maersk announced Dec. 2 that it has agreements with three shipyards to build a total of 20 container vessels outfitted with dual-fuel engines that would enable them to run on lower emissions fuel.

Orders for vessels that run on alternative fuels are significant, Lowry said.

"There needs to be a corresponding regime for those kinds of products as well, and Canada is looking to develop a similar kind of approach as they have with an oil spill response," he said.

"So, we'll be following along with what that looks like, those requirements for vessels to have arrangements to tackle those kinds of spills, and that's still in its infancy here," he added. "We're going to be following that quite closely." ■

The port side of the Brix Marine-built whale-watching vessel.

New Brix Tour Vessel Enhances Power, Comfort

By Daniel Mintz
Images courtesy of Brix Marine

Brix Marine's recently-built whale watching vessel, the ***Raven***, works off of the company's popular 49-passenger design with a quad outboard configuration for speed and redundancy.

The ***Raven*** is the second whale watching vessel the Port Angeles, Wash.-based catamaran maker has built for Allen Marine Tours of Alaska.

The newer vessel has more power than the first, as it's outfitted with four Yamaha 450 HP outboard motors with 18-inch stainless steel three-blade propellers.

At 48 feet long and 18 feet wide, the ***Raven*** is sizable but light, with aluminum construction. It's also fast, averaging 30 to 35 mph fully loaded with passengers.

The quad outboard system distinguishes the ***Raven*** from vessels with more conventional set-ups.

"With the four engines, there's incredible redundancy, so in an emergency situation the boat can be operated on a single outboard," Brix's managing director, Perry Knudson, told Pacific Maritime. "And when we're in a quad scenario with the four outboards, we're able to prop the boat so that it operates as efficiently as possible with a full load."

Outboard motors are well-suited for limited touring seasons.

"When the tours are open, that's when they're going to make the money," Charlie Crane, Brix's director of sales and marketing, said. "They don't really like

diesels because it's hard to find a diesel mechanic and it's real easy to change an outboard. They can usually carry a spare and keep them online and keep the money rolling in."

Speed also is important for whale watching.

"One of the other things to consider with a boat like this is they'll want it to be fast so they can get out to the whale-watching grounds, wherever those happen to be," Knudson said. "In some cases that may be a 30-minute run and in some cases they may have to go an hour and they want to be able to cross that distance quickly."

On the way to the whales, passengers are in airline-style seats in a climate-controlled environment with what Knudson described as "big picture frame-style windows so they can still they feel like they're connected to the outdoors."

He added that once the ***Raven*** is where the whales are, "the vessel will be sitting in a basically static scenario and one of the things we have to plan for in a boat like this is passenger crowding."

Passengers move outside to view whales and the catamaran's stability is key when they congregate on one side of the boat.

The ***Raven*** features three decks—a large main foredeck, a smaller aft deck and a second story deck on the vessel's elevated pilot house.

Passenger comfort is an obvious consideration.

"With the catamaran design, the vessel is very stable versus a monohull, with a lot less seasickness," Crane said.

The ***Raven*** is a high-tunnel catamaran, with a higher tunnel section than a classic tunnel catamaran design. The high tunnel design allows more air flow under the hull, a feature that comes into play when waters get choppy.

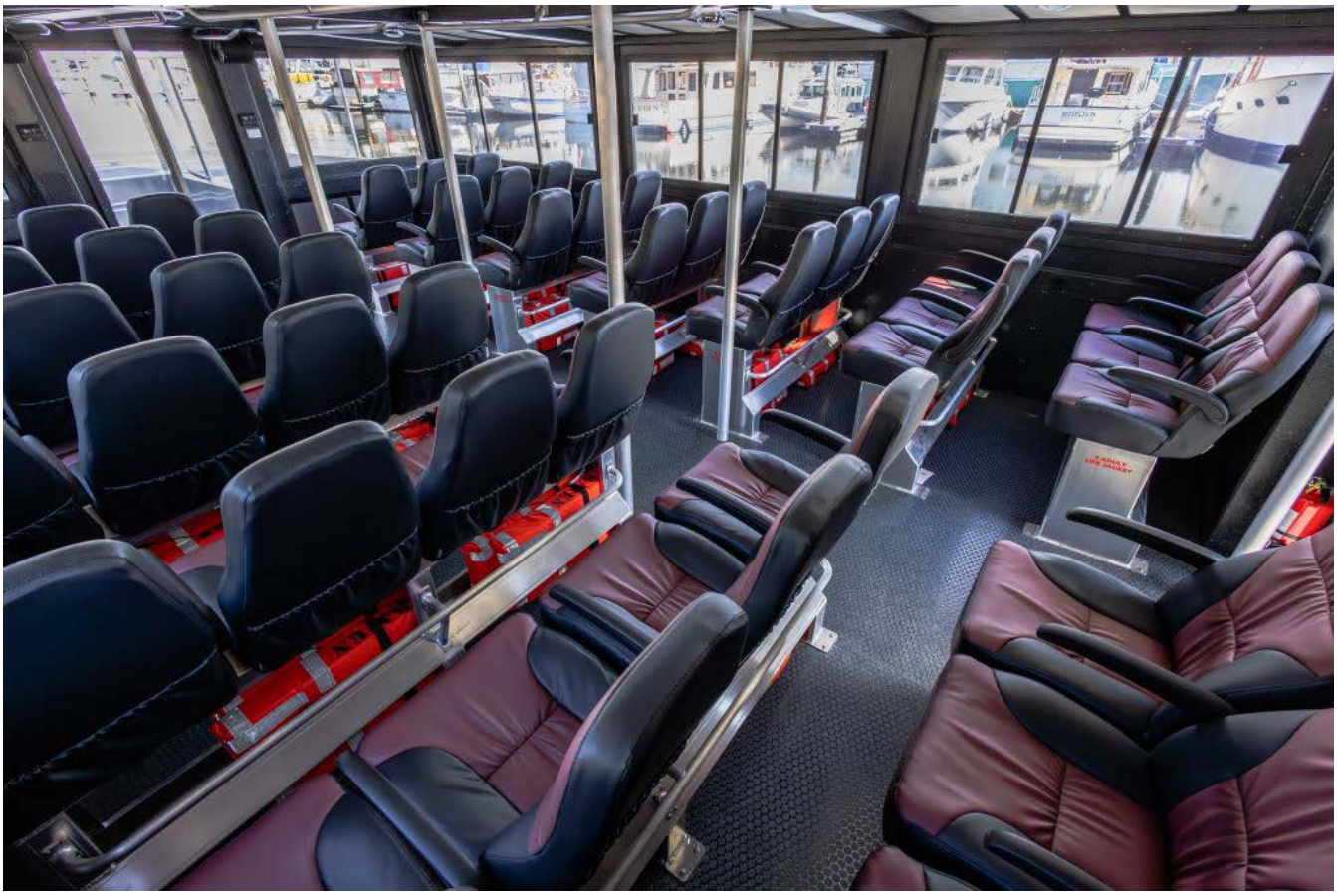
"What that does is it makes the ride even smoother in an offshore

4818-HTC-FW-PH
PAXCAT

Hull Length	48'
Waterline Length	44'
LOA	53'
Beam	17' 6"
Lightship Weight	~31,000 lb
Propulsion Outboards	4 x 450HP
Fuel Capacity	2 x 300 gal

Max USCG approval for 49 PAX + 3 crew
Note : figures vary depending on final outfitting & conditions

The bridge of the whale watching vessel ***Raven***.



Passenger seating.

environment, so when they're moving at 30 to 35 miles an hour and they're in a sea state of four-, five-, six-, eight-foot waves, we've brought the part of the boat that could create a slamming condition higher up out of the water to prevent that," Knudson said.

"And so by comparison," he added, "it's a smoother running boat in a larger sea state—when we start getting into this 49 passenger range, we really try to steer people towards that high tunnel version just because of the passenger comfort."

The vessel's elevated pilot house allows line-of-sight whale spotting and seats three, including the captain.

The dashboard features Yamaha's outboard control system, with joystick adjustability.

It took about 10 months to build the ***Raven*** at a cost of about $1.3 million.

"But the devil's in the details—we enable customers to have a high level of flexibility to design the boat so you can make it a lot more expensive with a lot more customization. or less expensive if we were keeping certain things simple," Knudson said.

Founded in 2001, Brix Marine's catamaran production has continually evolved.

"We've been building this style boat for well over 20 years," Knudson said. "And when I talk about those two hull forms, classic tunnel versus high tunnel, we've got over two decades of massaging this hull design in either direction to make sure that we're optimizing it."

"And we're pretty proud of what we've developed, and yet we will continue innovating with it into the future, as we have opportunities to do that," he added.

And there is indeed opportunity—Knudson said Brix is working on offering electric battery systems.

"The electric drive technology has come a long way in the last few years," he said. "And right now the batteries seem to be the more challenging portion of that design, but technology is changing rapidly—we're working on those designs and are looking forward to being able to offer our typical portfolio range, but now with this whole battery electric option."

Brix is working with a client who wants electric-powered boats and it won't be long before they'll be in production.

"It's not going to be 30 days (from now)," Knudson said, "but I don't think two years is a ridiculous timeline for when this stuff is going to become more available." ■

SPECIFICATIONS

BRIX MARINE HULL

Length 48' : Beam 18'
5086 alloy aluminum hull skins
5052 alloy aluminum interior transverse frames
Longitudinal t-bars
Longitudinal hull stiffeners
Floor framed on 26" centers
Self bailing aluminum decks
Watertight bulkheads
Extended T-transom c/w hinged aluminum gate Transom designed for 30" outboard shaft length

MAIN DECK ACCESSORIES

Hand rails fore, side & aft decks c/w BRIX cable system
2 x Side deck access gates (1 ea. Port & stbd)
- Aluminum gate frame c/w round bar mid-rail system Hinges & SS hardware
- Low-profile side deck handrails along cabin roof edge

Folding steps port & stbd to access sides from the aft deck (A)
Forward detachable radar & antenna mast
2 x Side boarding doors aft (port & stbd)
2 x welded aluminum tabs on upper hull stiffener below boarding gates (port & stbd)
Bow c/w webbed gate for anchor access
Forward door well c/w hand rails & rope gate
4 x Battery lockers c/w hinged doors each, latches, vents & drainage ports (2 ea. Port & stbd)
4 x Watertight 18 x 24, hinged hull access hatches (two fore & two aft) c/w access ladders
2 x Watertight liftout 15 x 24 hatches in full width outboard well
Welded aluminum engine guards (2 row)
8 x 11" tie up cleats
Anodes for cathodic protection

DC ELECTRICAL SYSTEM

Battery pack - 4 x group 31 starts & 3 x group 31 house
Remote battery switches w/ dash mounted controls & automatic charging relays (ACR)
1 x 12V power outlet (helm)
1 x 12V dual USB port (helm)
2 x Multiple speed air circulation fans (pilothouse)
USCG approved circuit protection
LED navigation lights
16 x LED red/white cabin lights
2 x Rigid D-Series PRO LED deck lights - aft
2 x Rigid D-Series PRO LED deck lights - fwd
3 x Pantographic windshield wipers w/ washing system
DC distribution panel
Bilge pump panel switch

AC ELECTRICAL SYSTEM

Smartplug shore power inlet c/w 50' cordset
30A Galvanic isolator
Victron MultiPlus 12V/3000VA 120A Inverter/charger
Victron Digital Multi Control GX
4 x 15A Duplex receptacles on GFCI circuit
AC distribution panel

ELECTRONICS & NAVIGATION

1 x Garmin GPSMAP 8612xsv MFD/Sonar
1 x Garmin 8616 MFD to main station
Garmin Twin SD card reader for 8000 series - USB
18HD +4kW radar
1kW SS thru hull transducer
2 x VHF radios w/ antennas
- 1 x Loud hailer

NMEA 2000 network
SI-TEX MDA-5, class B, AIS c/w GPS antenna
2 x Garmin GC-200 IP cameras
Premium electric trumpet horn
Magnetic compass
Fusion stereo c/w WiFi/Bluetooth, AM-FM, AUX, USB, 3-zone
- Fusion 500 Watt, 6 channel amplifier
- 4 x Polk Audio Atrium 5 Outdoor Speakers

Wireless PA system c/w speakers in pilothouse & cabin
- 1 x Mixer-Amp JBL CSMA180, 4 Input, 80W
- 3 x Shure BLX4R-H9 1/2 rack mount receivers
- 2 x Shure BLX1-H9 bodypack transmitters
- 2 x Shure WH20TQG Dynamic headset microphones w/ connectors
- 1 x Shure BLX2/PG58-H9 handheld wireless microphone transmitter
- 1 x Shure UA844+SWB/LC Five-way Active Antenna Splitter &
- Add one interior PA speaker in Pilothouse for captain to hear onboard naturalist 1 x Furman M-8LX power conditioner
- 4 x Polk Audio Atrium 5 Outdoor Speakers

ENGINES

Quad Yamaha 450hp XTO offshore outboards (gray) c/w 30" shaft length
XTO propellers

MAIN STATION CONTROLS

Helm Master helm quad full manueverability kit, main station c/w harnesses, autopilot & joystick
Destroyer style 15.5" steering wheel

WING STATION CONTROLS - STBD

Joystick control
CL5 display
Engine start/stop
Locking cover

FUEL SYSTEM

2 x 300 gal fuel tanks w/ analog fuel gauges
EPA compliant vents & fills
Diesel tank fills to have green lids (A)
4 x Racor 660 series gasoline fuel filters (metal bowl)
Emergency fuel shutoffs for all tanks
DC Continuous duty blowers, 12V USCG approved
Fireboy tank room fire suppression systems c/w automatic shutdown
3 x Diesel heater tanks w/ site gauges & fills (5 gallon ea.)

SAFETY PACKAGE

USCG approved safety package - local sector compliance
1 x USCG approved. 20 person life raft, round container & cradle w/ hydrostatic release
1 x USCG approved. 35 person life raft, round container & cradle w/ hydrostatic release Install yellow grip tape at all doors to highlight trip hazard

The containership ***COSCO SHIPPING ARIES*** while anchored at a marine terminal. Image via Pixabay.

Coast Guard Issues Final Cybersecurity Rule for the Marine Transportation System

By Ernie Hayden

On Friday, Jan. 17, the U.S. Coast Guard issued its final rule for Cybersecurity in the Maritime Transportation System. The Coast Guard is updating its maritime security regulations by establishing minimum cybersecurity requirements for U.S.-flagged vessels, Outer Continental Shelf (OCS) facilities and facilities subject to the Maritime Transportation Security Act of 2002 regulations.

The 370-page final rule addresses current and emerging cybersecurity threats in the marine transportation system by adding minimum cybersecurity requirements to help detect risks and respond to and recover from cybersecurity incidents.

It applies only to U.S.-flagged vessels that must comply with 33 CFR Part 104, for example, cargo ships greater than 100 gross tons.

These include requirements to develop and maintain a cybersecurity plan, designate a cybersecurity officer and take various measures to maintain cybersecurity within the marine transportation system.

The Coast Guard is also seeking comments on a potential delay for the implementation periods for U.S.-flagged vessels.

This final rule is effective July 16. From that date, it will become mandatory for covered organizations to submit a report to the National Response Center at (800) 424-8802 should a reportable cyber incident be identified.

Background and Need for the Rule

The maritime industry faces more cybersecurity threats as it increasingly relies on cyber-connected systems.

The final rule's purpose is to safeguard the marine transportation system against current and emerging threats associated with cybersecurity by adding minimum cybersecurity requirements to help detect, respond to and recover from cybersecurity risks that may cause security incidents.

This final rule addresses risks from the increased interconnectivity and digitalization of the maritime transportation system that results in new vulnerabilities.

This rule is based on the Maritime Transportation Security Act of 2002. In the 2018 amendments, Congress specifically required covered entities to include provisions for addressing cybersecurity risks that may cause security breaches.

The rule emphasizes that cybersecurity is not just an industry concern but also a national security issue. Cyberattacks on the maritime environment can result in severe consequences including collisions, groundings, environmental disasters (e.g., chemical/oil spills) and economic losses to both the shipping entity and the nation.

Of note, while previous Coast Guard cybersecurity guidance—*Navigation and Vessel Inspection Circular No. 01-20*—addressed cybersecurity for facilities, it was non-binding and did not extend to vessels. This new rule establishes mandatory minimum cybersecurity requirements to close these gaps.

Key Provision—Cybersecurity Plan

First, the final rule requires that owners or operators of U.S.-flagged vessels, facilities or Outer Continental Shelf (OCS) facilities are required to have a Cybersecurity Plan and Cyber Incident Response Plan.

The plan must include seven account security measures for covered entities, including the following:

1. Enabling of automatic account lockout after repeated failed log-in attempts on all password-protected information technology (IT) systems.
2. Changing default passwords (or implementing other compensating security controls if unfeasible) before using any IT or operational technology (OT) systems.

3. Maintaining a minimum password strength on all IT and OT systems technically capable of password protection.
4. Implementing multifactor authentication on password protected IT and remotely accessible OT.
5. Applying the principle of least privilege to administrator or otherwise privileged accounts on both IT and OT systems.
6. Maintaining separate user credentials on critical IT and OT systems, and
7. Removing or revoking user credentials when a user leaves the organization.

The Cybersecurity Plan also must include four security measure requirements:

- Develop and maintain a list of any hardware, firmware and software approved by the owner or operator that may be installed on IT or OT systems.
- Ensure that applications running executable code are disabled by default on critical IT and OT systems.
- Maintain an accurate inventory of network-connected systems including those critical IT and OT systems, and
- Develop and document the network map and OT device configuration information.

In addition, the cybersecurity plan must include two data security measure requirements: ensuring that logs are securely captured, stored and protected and accessible only to privileged users, and deploying effective encryption to maintain confidentiality of sensitive data and integrity of IT and OT traffic when technically feasible.

Owners and operators must submit the cybersecurity plan to the Coast Guard for approval within 24 months of the effective date of the Final Rule.

Key Provision—Cybersecurity Officer Designation

Owners or operators must also designate a cybersecurity officer (CySO) who must ensure that U.S.-flagged vessel, facility or other covered facility personnel implements the cybersecurity plan and the Cyber Incident Response Plan.

The CySO also must ensure that the Cybersecurity Plan is up to date and undergoes an annual audit, arrange for cybersecurity inspections, ensure that personnel have adequate cybersecurity training, record and report cybersecurity incidents to the owner or operator and take steps to mitigate them.

The CySO can serve multiple vessels or facilities. Also, the position does not require a Merchant Marine Credential unless other duties require it.

Key Provision—Cybersecurity Assessment

The cybersecurity assessment is an appraisal of risks facing a covered entity, asset, system or network. The assessment must be completed within 24 months of the effective date of the Final Rule and annually thereafter. Sooner than annually, however, if there's a change in ownership.

Each covered owner or operator must ensure that the cybersecurity portion of their plan and penetration test results are available to the Coast Guard upon request.

In this final rule, the Coast Guard considers penetration testing, cybersecurity assessments, and audits to be distinct actions. They are not interchangeable and each serves specific functions as part of the comprehensive cybersecurity requirements of this final rule.

Additionally, penetration testing must be completed in conjunction with renewing the cybersecurity plan and to specify that the CySO must submit a letter verifying that the test was conducted, as well as all vulnerabilities identified from the penetration testing.

Key Provision—Cyber Incident Response Plan

Owners or operators of U.S.-flagged vessels, facilities or OCS facilities must prepare and document a Cyber Incident Response Plan that outlines instructions on how to respond to a cyber incident and identifies key roles, responsibilities and decision-makers amongst personnel.

Implementation Requirements

Following the effective date of the final rule, personnel must complete certain training requirements and owners or operators must sequentially complete a cybersecurity assessment and submit the cybersecurity plan to the Coast Guard for review and approval within 24 months.

These implementation periods allow time for the owners and operators of applicable U.S.-flagged vessels, facilities and OCS facilities to comply with the requirements of this final rule.

All personnel must complete the training specified in the Final Rule within 60 days of receiving approval of the cybersecurity plan.

Owners and operators must conduct cybersecurity drills at least twice each calendar year. Owners and operators must also conduct cybersecurity exercises at least once each calendar year with no more than 18 months between the exercises.

The Coast Guard is offering the public the chance to comment by March 18 on whether they should delay the implementation periods for U.S.-flagged vessels for a period of 2 to 5 years beyond what is specified in the Final Rule.

After reviewing any comments and supporting information received, the Coast Guard may issue a future rulemaking to implement this additional delay to provide time for U.S.-flagged vessels to comply with these requirements.

Further Reading

Federal Register / Vol. 90, No. 11 / Friday, January 17, 2025 / Rules and Regulations, Pages 6298-6453

US Coast Guard Fact Sheet https://bit.ly/42zRTkK

US Coast Guard—"Final Rule: Cybersecurity in the Marine Transportation System" https://bit.ly/42EaY58

US Coast Guard Maritime Industry Cybersecurity Resource Center https://www.uscg.mil/MaritimeCyber/

ERNIE HAYDEN's background includes management and technical roles focused on cyber and physical security since the 9/11 attacks. He was previously a U.S. Navy Nuclear and Surface Warfare Officer and has published a book, *Critical Infrastructure Risk Assessment—The Definitive Threat Identification and Threat Reduction Handbook*, that was named the 2021 ASIS Security Book of the Year. Please send your questions or suggested article ideas to enhayden1321@gmail.com.

Panama Canal Enhances Cybersecurity Cooperation with U.S., Also Welcomes World's Largest Car Carrier

Panama Canal Administrator Ricaurte Vásquez Morales (left) presents a plaque to the captain of the ***Hoegh Aurora*** in commemoration of the car carrier's maiden transit through the canal. Photo: Panama Canal Authority.

The Panama Canal said in mid-March that it and the United States Southern Command (USSOUTHCOM) have entered into a cyber cooperation arrangement aimed at reinforcing digital security and ensuring the operational continuity of critical infrastructure in the face of emerging cyber threats.

"This arrangement sets a collaborative framework to enhance capabilities in key areas such as cybersecurity training, supply chain security, information sharing and technical assistance," the Panama Canal Authority said in a Feb. 20 announcement.

USSOUTHCOM, which is responsible for security operations across a region encompassing 31 countries, said that it plans to collaborate with the Panama Canal to optimize joint cybersecurity efforts.

"This arrangement," the Panama Canal Authority said, "facilitates the exchange of knowledge and best practices, building on a longstanding history of cooperation between the two entities."

The initiative doesn't replace existing agreements, but instead complements them, leaving room for future alliances with other organizations in this vital field, the Authority said.

Additionally, this effort strengthens an existing collaboration between the Panama Canal and the U.S. Department of Homeland Security's Cybersecurity and Infrastructure Security Agency (CISA) that was signed in January 2022.

In other news, the Panama Canal recently reaffirmed its position as a key hub for international maritime trade with the transit of the ***Hoegh Aurora***, the world's largest car carrier, operated by Norway-based shipping company Höegh Autoliners.

The ***Hoegh Aurora*** measures 199.9 meters in length (656 feet) and 37.5 meters (123 feet) in beam, with a cargo capacity of 9,100 CEU (Car Equivalent Units).

Built in 2024 and registered under the Norwegian flag, the vessel began her journey in Asia with an initial stop in China, followed by South Korea, and Japan before continuing to later destinations in Jamaica, Mexico and the U.S. Gulf Coast.

Höegh Autoliners developed the Aurora-class vessels as part of its efforts to transition from conventional fuels to more sustainable alternatives.

The ***Hoegh Aurora*** surpasses the previous record holder for the largest car carrier to transit the canal, the **Hoegh Target**, which has a capacity of 8,500 vehicles and made her inaugural transit in 2016.

In mid-February, Panama Canal Administrator Ricaurte Vásquez Morales and Vice President of Operations Boris Moreno presented a recognition to the ***Hoegh Aurora*** in honor of her inaugural transit through the canal.

"This transit reaffirms the efficiency and strength of the interoceanic route as a key route for global trade, highlighting the dedication and commitment of its workforce," Vásquez Morales stated. ■

International Maritime Piracy Dropped Last Year, but Crew Safety Remains Risky: Report

The International Chamber of Commerce's International Maritime Bureau (IMB) reports a decline in global maritime incidents and piracy in 2024, but is urging continued caution as crew safety remains at risk.

The IMB's annual Piracy and Armed Robbery Report, the results of which were released in January, recorded 116 incidents against ships in 2024, compared to 120 in 2023 and 115 in 2022.

It revealed that 94 vessels were boarded, 13 attempted attacks, six vessels hijacked and three fired upon.

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While the number of reported incidents in 2024 was similar to those reported in 2023 and 2022, IMB urged caution to promote crew safety given an increase in the number of crew taken hostage or kidnapped – from 126 taken hostage in 2024 compared to 73 in 2023 and 41 in 2022.

Twelve crew were reported kidnapped, compared to 14 in 2023 and two in 2022. Another 12 crew were threatened and one injured in 2024.

The use of weapons also continues to rise, according to the report. In 2024, guns were reported in 26 incidents compared to 15 in 2023. Knives were reported in 39 incidents in 2024, compared to 42 incidents in 2023.

"While we welcome the reduction of reported incidents, the ongoing threats to crew safety remain a significant concern. Safeguarding routes and ensuring the security of seafarers, who are essential to maintaining global commerce, is vital," ICC Secretary General John W.H. Denton AO said.

"Every effort must be made to protect lives at sea while ensuring the seamless flow of goods through international supply chains," he continued. "This requires a collaborative effort, with continued regional and international naval presence being crucial to this endeavor."

Crew Safety Risk in Gulf of Guinea

Activity remains relatively lower in the Gulf of Guinea with 18 incidents reported in 2024, compared to 22 in 2023, 19 in 2022, 35 in 2021 and 81 in 2020. However, crew members continue to be at risk, data show, with the region accounting for all 12 kidnapped crew and 23 % of the total number of crew taken hostage in 2024.

In East Africa, at least eight incidents were reported, including the hijacking of two fishing vessels and a bulk carrier in the first half of 2024.

"Despite the restrained activity, there is no room for complacency as ongoing threats to crew safety highlight the importance of continued caution," IMB Director Michael Howlett said. "Masters and vessel operators are strongly encouraged to strictly adhere to all recommendations in the Best Management Practices (guidance) while transiting the Gulf of Guinea and waters off East Africa."

Images: International Chamber of Commerce/International Maritime Bureau.

Rise in Weapons, Incidents in Southeast Asian Waters

The annual report shows that incidents in the Singapore Straits continue to rise with 43 occurrences in 2024 compared to 37 in 2023 and 38 in 2022. The report states that 93% of vessels targeted were boarded and 11 large vessels over 100,000 deadweight tonnage (DWT) were targeted in the strategically important seaway.

Harm to crew continued, with 13 taken hostage, five threatened and one injured during the incidents, data show. While considered low-level opportunistic crimes, the use of guns and knives increased to eight and 19 in 2024 respectively, compared to three and 15 in 2023.

CONTINUED ON PAGE 43

ADVERTISER INDEX

CONTINUED FROM PAGE 42

Most incidents were reported during the hours of darkness and while vessels were underway.

The IMB Piracy Reporting Centre (PRC) has also expressed concern of late reports as well as under reporting, by vessels being boarded in the waters.

"The increase in use of weapons and the late and under reporting by vessels are areas of concern. We continue to urge vigilance and strongly encourage the timely reporting of all incidents, as the optimal way of providing a clearer understanding of the risks and safety measures to take," Howlett said.

A year-on-year increase in reported incidents has been observed in the Indonesian archipelago, up from 10 in 2022 and 18 in 2023 to 22 in 2024. While 20 incidents remain under the definition of armed robbery, two fall under the definition of piracy.

In the two cases, crew members were taken hostage for the duration of the incidents. Overall, 31 crew were taken hostage and one threatened. Knives were reported in 10 incidents and guns in three.

The highest number of incidents in a decade was reported at anchorages in Bangladesh. IMB recorded 14 incidents in 2024, of which 13 were onboard ships anchored at Chattogram and one at Mongla anchorage.

Two crew were taken hostage and a further three threatened. Knives were reported in seven incidents.

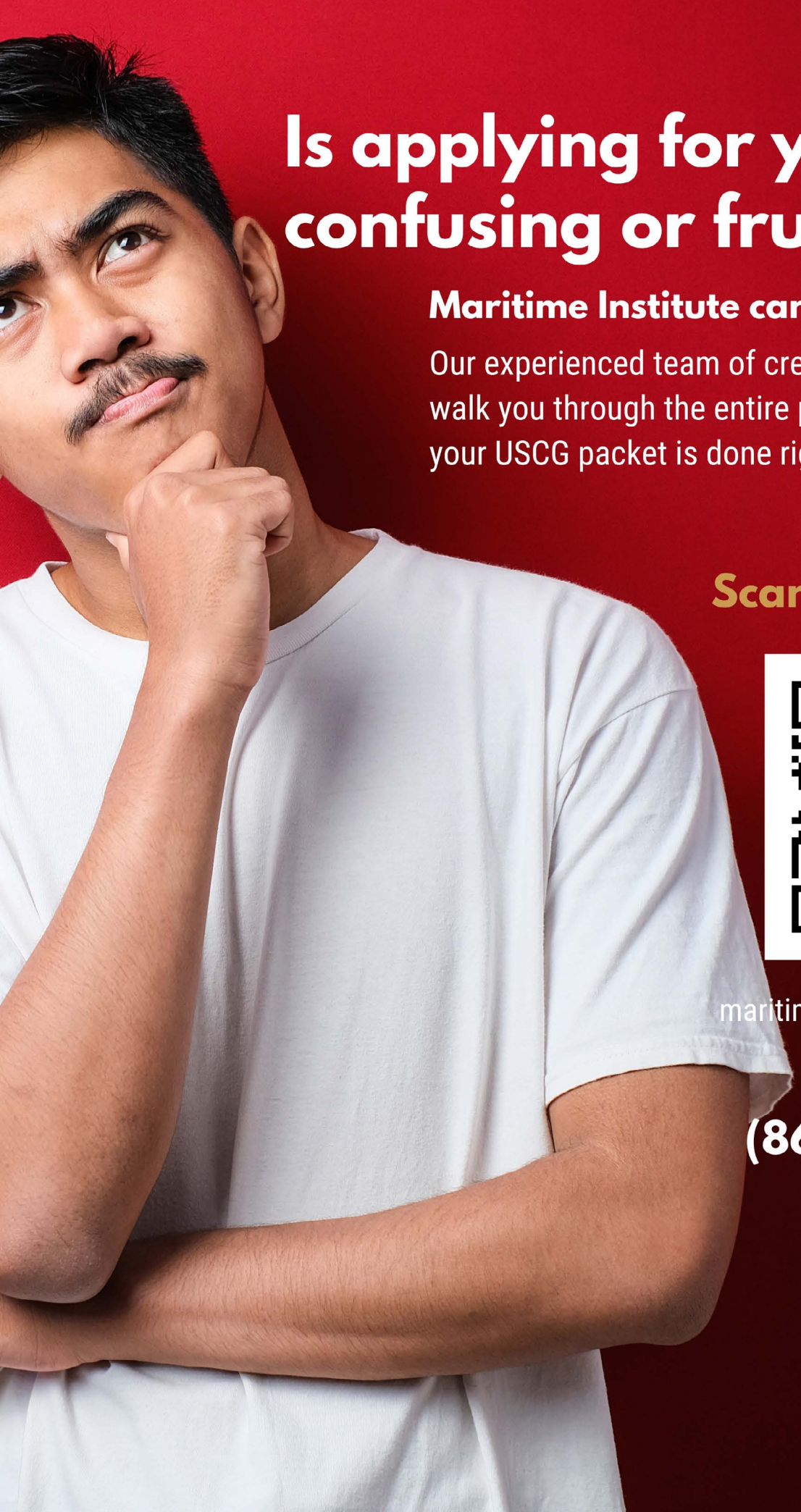
IMB's Piracy Reporting Centre, which was founded in 1991, serves as a 24-hour point of contact to report crimes of piracy and lend support to ships under threat.

Quick reactions and a focus on coordinating with response agencies, sending out warning broadcasts and email alerts to ships can help bolster security on the high seas, the organization has said.

The data gathered by the Centre can also provide insights into the nature and state of modern piracy.

IMB has encouraged shipmasters and owners to report all actual, attempted and suspected global piracy and armed robbery incidents to the Piracy Reporting Centre as a first step to ensuring adequate resources are allocated by authorities to tackle maritime piracy.

Copies of the 2024 Piracy and Armed Robbery Against Ships can be requested at https://icc-ccs.org/request-piracy-report/. ■



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