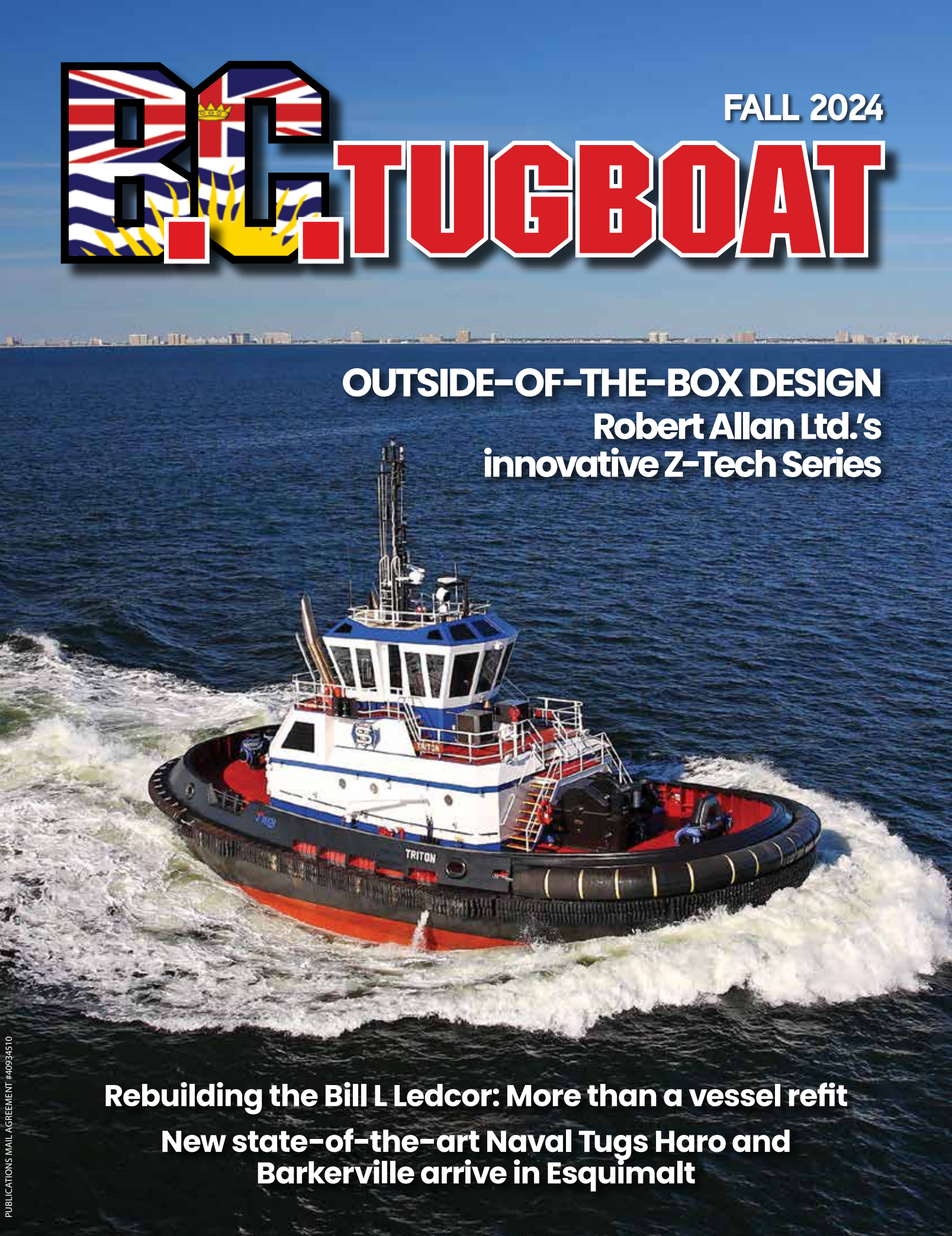
B.C. TUGBOAT

FALL 2024

OUTSIDE-OF-THE-BOX DESIGN
Robert Allan Ltd.'s innovative Z-Tech Series



Rebuilding the Bill L Ledcor: More than a vessel refit

New state-of-the-art Naval Tugs Haro and Barkerville arrive in Esquimalt

PUBLICATIONS MAIL AGREEMENT #40934510

BEEN THERE, TOWED THAT.

CTL
CATHERWOOD TOWING LTD.

101-32885 Mission Way, Mission, BC V2V 6E4

OFFICE / DISPATCH: **604.826.9221**

dispatch@catherwoodtowing.com

Providing safe and efficient towage on the Fraser River and B.C. Coast for over 50 years.

Electrification is the Future

After successfully leading in the design of the first electric cable ferry in Canada, 3GA Marine Ltd. is at the helm of another such green energy project. The Electric Boom Tug has been designed for Seaforth Environmental Services out of Vancouver, and is will be delivered in November 2025.

12M ELECTRIC TUG

Designed to operate as a fully electric vessel, our tug features a power system that can effortlessly transition to hybrid mode when needed—such as in emergencies. By tapping into clean shoreside energy from BC Hydro, the tug not only slashes emissions but also reduces maintenance and fuel costs.

Engineering for Operational Cost Savings and a Smaller Carbon Footprint

The future benefits of the technology used for the design of the boom tug are multi-layered. Fuel consumption will be reduced and there will be decreased wear on main engines and gensets. This will ultimately result in lower emissions and less maintenance. Efficiency will be key to this environmentally friendly switch.

Green house gas emissions such as CO2, NOx and SOx, are decreased and the carbon footprint shrinks as more reliance is placed on the electrification of water vessels such as this hybrid Tug. The near silent running of an electric boom Tug, adds another aspect of environmental benefit when both shore and sea life enjoy the quiet of the near silent voyage.

Tug Specifications

- Length 11.9m • Breadth 5.17m • Depth 2.5m
- Gross tonnage 14.99 tons
- Loaded displacement 59.5 MT
- Main propulsion power 1 x 225 kW
- Maximum speed 8 knots est.
- Service speed 4 to 6 knots est.
- Energy storage cap. 294kWh to 3MWh (optional)
- Bollard pull 4.5 MT+ est.
- Genset power 116 kW (optional)
- Steel construction
- MDO storage capacity 4.8 m^3
- Complement 2

FREE ELECTRIFICATION PRE-FEASIBILITY STUDY

3GA is offering a free evaluation of your vessel or fleet of vessels to determine the potential business case of switching to an electric propulsion system. Owners are quickly realizing the financial benefits to eliminating or greatly reducing fossil fuel energy costs often leading to short payback periods for electric propulsion conversions or new electric vessel construction.

Contact Daniel McIntyre at 778.938.6522 to learn more!

3GA MARINE LTD.

1575-3777 Kingsway
Burnaby, BC V5H 3Z7
604-205-5550

208-1497 Admirals
Victoria, BC V9A 2P8
250-920-9992

info@3gamarine.com
www.3gamarine.com

Fall 2024

B.C. TUGBOAT

CONTENTS

COVER IMAGE PROVIDED BY
ROBERT ALLAN LTD.
STORY ON PAGE 30

Published by
DEL COMMUNICATIONS INC.
Suite 300, 6 Roslyn Road
Winnipeg, Manitoba
Canada R3L 0G5
www.delcommunications.com

President & CEO:
DAVID LANGSTAFF

Managing Editor:
TAMMY SCHUSTER
tammy@delcommunications.com

Advertising Sales Manager:
DAYNA OULION

Advertising Sales:
BRENT ASTROPE
brent@delcommunications.com

Production services provided by:
S.G. Bennett Marketing Services

Creative Director / Design:
KATHLEEN CABLE

Publications mail agreement #40934510
Return undeliverable
Canadian addresses to:
DEL Communications Inc.
Suite 300, 6 Roslyn Road
Winnipeg, Manitoba
Canada R3L 0G5
Email: david@delcommunications.com

PRINTED IN CANADA
10/2024

MESSAGE FROM THE EDITOR

Welcome to the fall issue of *B.C. Tugboat* magazine where we delve into key developments shaping British Columbia's maritime sector, highlighting innovation, sustainability, and growth.

In this issue, we examine the impact of the B.C. Maritime Industries Infrastructure Modernization and Expansion Grant Program. This initiative, supported by government funding, is driving the modernization of shipyards, dry docks, and small vessel construction, strengthening the province's maritime infrastructure and economic potential.

We also feature the remarkable refit of the tugboat Bill L, which showcases how teamwork and technological upgrades can enhance vessel performance and extend service life. We learn more about the ground-breaking HaiSea Marine fleet operating in Kitimat which are among the world's greenest and quietest, demonstrating how cutting-edge technology can minimize environmental impact while maintaining high operational standards.

The state-of-the-art naval tugs CFAV Haro and CFAV Barkerville arrive on the west coast, representing a significant milestone for Canada's National Shipbuilding Strategy. These powerful vessels will play a vital role in Esquimalt Harbour's operations.

We also look at Seaforth's hybrid-electric tug, Jonny 5, which is setting new standards for emissions reductions and energy efficiency. This vessel represents the future of maritime technology, combining economic and environmental benefits. And we learn more about the latest innovations from Robert Allan Ltd. (featured on the cover) exploring how their leading-edge designs and technologies are influencing the future of the industry.

We hope you enjoy this issue of *B.C. Tugboat* magazine, which celebrates the progress and ingenuity of the maritime industry that is helping to shape British Columbia's future.

Revitalizing British Columbia's maritime sector

The B.C. Maritime Industries Infrastructure Modernization and Expansion Grant Program

The maritime industry in British Columbia has long been a cornerstone of the province's economy, and the ongoing implementation of the B.C. Maritime Industries Infrastructure Modernization and Expansion Grant Program administered by the Association of British Columbia Marine Industries (ABCMI) is set to enhance its future potential.

ABCMI embarked on the critical task of assessing the state of the province's industrial marine sector in 2019. This initiative included the commissioning of an Economic Impact Analysis and Subsector Assessment Study, conducted by KPMG, which identified that British Columbia's marine infrastructure was inadequate to meet the growing demand for ship maintenance, repair, refit and small vessel construction. In particular, the study highlighted the scarcity of dry docks and the lack of working wharfage. Given the increase in marine traffic from the Pacific Rim and along Canada's west coast, the marine infrastructure limitations presented a challenge to capitalizing on new opportunities within the sector.

In response, the BC Government in partnership with ABCMI, crafted the BC Maritime Industries Strategy, officially released in May 2023. This comprehensive strategy identified key pathways for growth, including the need to expand maritime infrastructure. Accordingly, the BC Government followed through on the strategy with the $25 million BC Maritime Industries Infrastructure Modernization and Expansion Grant that is aligned with the Stronger BC Economic Plan, creating economic and environmental benefits of clean and inclusive growth, and the Clean BC Roadmap to 2030, meeting legislated emissions reduction targets.

The grant funding is allocated through two capital investment streams:

Stream 1: Provides 50% of project capital costs, up to $500,000, for equipment and facility modernization support for boat and shipyards or new small vessel construction.

Stream 2: Offers 25% of project capital costs, up to $5 million, for increased lift and wharfage capacity for boat and ship overhaul, refit, maintenance, and repair infrastructure.

Today, we are seeing the tangible results of this grant program. From enhancing dry dock capacity to expanding ship and boat yard facilities, these projects are positioning British Columbia's marine sector to meet current demands and capitalize on future opportunities. The grant program has allowed 41 diverse maritime companies to modernize their operations, expand their capabilities and capacities, and ultimately contribute to the province's economic growth.

These 41 companies are spread across BC's economic regions, with 16 companies located in the Lower Mainland/Southwest, 20 on Vancouver Island and Central Coast, 2 in the Thompson/Okanagan, 2 on the North Coast, and 1 in the Kootenay region. This widespread impact demonstrates the program's reach, supporting growth in key maritime hubs while also benefiting smaller, more remote regions of the province.

The following companies were beneficiaries of funding through Stream 1 of the program:

- **Campbell River Marine Terminal Ltd.** (Campbell River) will expand its boatyard, increasing vessel placements and enhancing productivity to improve service quality and reduce its carbon footprint.
- **Titan Boats Ltd.** (Sidney) will add 4,800 square feet to its fabrication and welding shop, nearly doubling output to meet rising demand for aluminum RHIBs from Canadian and international markets.
- **Liquid Metal Marine Ltd.** (Sidney) will upgrade its facilities and acquire modern equipment to enhance capabilities and better respond to client needs.
- **KingFisher Boats Inc.** (Vernon)

will modernize its manufacturing process to increase throughput and quality, addressing unmet market demand.

- **EagleCraft Boats Inc.** (Campbell River) will expand its manufacturing space and procure equipment to improve vessel construction and attract new business opportunities.
- **JR Marine Manufacturing Ltd.** (North Saanich) will upgrade equipment to enhance speed, functionality, and quality, including new welding units and training.
- **COTA Aviation Ltd.** (Parksville) will modernize facilities and acquire advanced equipment to strengthen its role as an indigenous player in BC's marine industry, focusing on small vessel maintenance and repair.
- **Zodiac Hurricane Technologies Inc**. (Delta) will modernize its facility to streamline the painting process for RIBs, significantly reducing painting time.
- **Jastram Engineering Ltd**. (North Vancouver) will invest in CNC equipment to enhance production capacity and maintain competitiveness.
- **Tyee Pacific Marine Operations Ltd**. (Richmond) will upgrade its marine docking facility, providing services for medium to small marine cargo operators.
- **Open Ocean Robotics Inc.** (Victoria) will expand its manufacturing capacity for Uncrewed Surface Vehicles (USVs), increasing production from two to eight per month.
- **Platinum Marine Group Ltd.** (Richmond) will increase production capacity by transforming outdoor space into climate-controlled work areas, optimizing workflow efficiency.
- **Ideal Welders Ltd**. (Delta) will implement a state-of-the-art robotic welding system to enhance its pipe spool welding services.
- **Van Isle Marina Co. Ltd.** (Sidney) will complete significant repairs to its boat ramp, enhancing its ability to haul and launch boats. This project is expected to boost revenue and competitiveness, positioning the marina as a leader in boatyard repair, maintenance, and storage for local and international vessels.
- **Ocean Performance Technologies Inc.** (North Saanich) will expand and enhance its equipment to provide modernized services, solidifying its position as a leader in clean marine propulsion

systems while supporting innovative designs and job growth.

- **Vector Yacht Services Ltd.** (Sidney) will construct a new facility and acquire a hydraulic trailer, enabling the company to bid on larger jobs and expand its capacity to work on boats by approximately 50%.
- **Arrow Marine Services Ltd.** (Richmond) will construct a new onsite machine shop and upgrade its hydro-electric capacity to meet the growing demands of the marine services industry and customer projects.
- **Shelter Island Marina Inc.** (Richmond) will implement a project to install a variable-width travelift, allowing the boatyard to handle vessels of various sizes safely and efficiently.
- **Ripple Rock Repairs Ltd.** (Campbell River) will construct a new welding shop to support increased capacity for vessel and heavy equipment repairs and maintenance.
- **Bridgeview Marine Ltd.** (Prince Rupert) will build a facility to haul out vessels for annual maintenance and major refits in Prince Rupert, addressing limited access to water for launching and retrieval.
- **Reed Point Marina Ltd.** and CT Inlet Marine Repairs Inc. (Port Moody) will upgrade their Port Moody facility by installing a new variable-width marine travelift and upgrading the wastewater treatment system to manage environmental impacts.
- **Interior Marine Construction Ltd.** and **Leopold Developments Ltd.** (Scotch Creek) will reconstruct their manufacturing facility lost in the 2023 wildfires, enabling a 30% increase in production and attracting larger stakeholders in the marine industry.
- **GCRD Holdings Ltd.** doing business as Jack's Boat Yard (Lund) will replace aging machinery with a more efficient self-propelled trailer, increasing storage and workspace capacity by over 50%.
- **Ocean Pacific Marine Supply Ltd.** (Campbell River) will develop additional land to be leased from the Wei Wai Kum First Nation, expanding its boatyard footprint by approximately 40%.
- **West Coast Launch Shipyard Ltd.** (Prince Rupert) will build a drive-down ramp and dock facility with upgraded power for servicing vessels in Prince Rupert, becoming the only marine shipyard for maintenance in the area.
- **Bracewell Marine Group Ltd.** (Richmond) will enhance marine fabrication capabilities and increase capacity for building both conventional and electric marine vessels.
- **Shearwater Resort LLP** (Denny Island) will initiate shipyard improvements and purchase equipment to enhance daily operations and expand offerings as an Indigenous-owned business.
- **Victoria Shipyards Co. Ltd.** (Victoria) will invest in additional equipment to expand its pipe spool and metal parts manufacturing capacity, supporting the National Shipbuilding Strategy (NSS) new build program.
- **D.C.D. Pile Driving (1990) Ltd.** (Campbell River) will develop a work platform to service multiple dry docks simultaneously, expanding their maintenance and repair capabilities and enabling vessel deconstruction, improving service efficiency.
- **Bracewell Marine Group Ltd.** (Richmond) will acquire advanced 5-axis CNC cutting technology to increase efficiency and reduce costs in their boat building and marine fabrication operations.
- **Drop Marine Inc.** (South Slocan) will expand their manufacturing space, reducing reliance on subcontractors and boosting production capacity to meet growing demand, support sales, and create skilled jobs.
- **Ideal Welders Ltd.** (Delta) will modernize their infrastructure by integrating PipeCloud software into marine operations, enhancing efficiency and product quality for pipe spool fabrication, allowing them to bid for National Shipbuilding Strategy projects.
- **Monaro Marine Ltd.** (Delta) will set up a covered work area to expand usable boatyard space, improving operational efficiency and creating more job opportunities.
- **Philbrooks Boatyard Ltd.** (Sidney) will upgrade their metal fabrication shop with new equipment and facility improvements, increasing productivity, reducing rework, and enhancing overall quality to meet client expectations.
- **SAAM Towage Canada Inc.** (Vancouver) will overhaul their maintenance and repairs facility to accommodate battery-electric tugboats at the Port of Vancouver, reducing maintenance costs and supporting decarbonization efforts.
- **Strait Marine Ltd.** (Richmond) will enhance their marine repair

facility by building a sheltered all-season work bay and upgrading heating, ventilation, and filtration systems, enabling year-round specialized work.

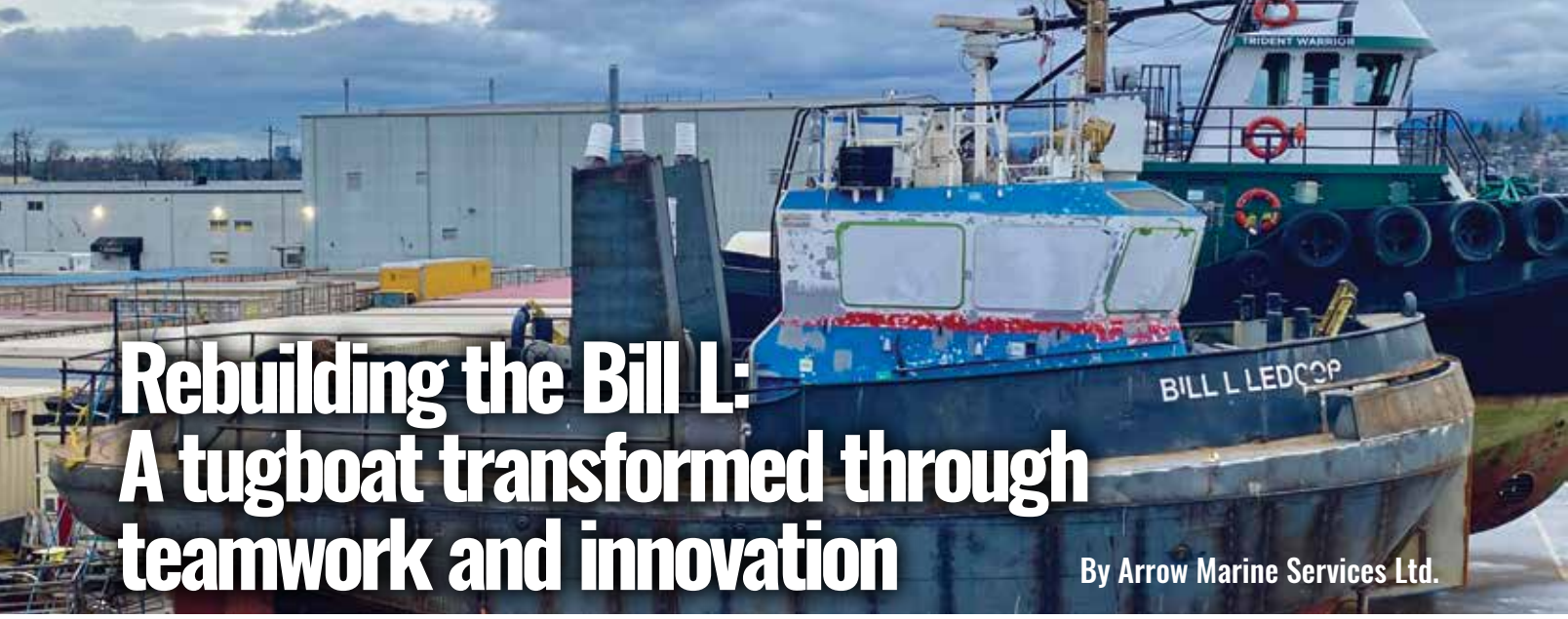
- **Walker Aluminum Boats Ltd.** (Coombs) will acquire modern equipment and upgrade electrical infrastructure to scale production, allowing them to build and market eco-friendly boats across Canada and North America.

The following companies were beneficiaries of funding through Stream 2 of the program:

- **Ocean Pacific Marine Supply Ltd**. (Campbell River) will expand its shipyard capacity by acquiring a travelift, significantly increasing lifting capacity and enabling larger vessel access.
- **Canadian Maritime Engineering Ltd.** (Port Alberni) will construct a new vessel lift and shipyard operation to address capacity constraints and improve service efficiency.
- **Meridian Marine Industries Inc.** (Delta) will modify a deck barge to serve as a floating docking facility, enhancing capabilities for small to medium vessels and commercial barges.
- **Vancouver Drydock Co. Ltd.** (North Vancouver) will undergo a major expansion to meet market demand, including upgrades to existing facilities and the addition of new drydock capabilities.

As the maritime industry continues to evolve, the B.C. Maritime Industries Infrastructure Modernization and Expansion Grant Program stands as a testament to the province's commitment to fostering growth, innovation, and sustainability within the sector. Minister of Jobs, Economic Development and Innovation, Brenda Bailey, encapsulated this vision, stating, "We are taking action to support our province's maritime industry, the largest nationwide, to help it continue to diversify and grow in the years to come."

As British Columbia charts its course towards a sustainable and competitive maritime future, the collaborative efforts between government, industry, and communities will undoubtedly create lasting impacts for generations to come.



Rebuilding the Bill L: A tugboat transformed through teamwork and innovation

By Arrow Marine Services Ltd.

The Bill L Project was more than just a vessel refit; it was a testament to the power of teamwork, dedication, and adaptability. The entire crew, from management to skilled tradespeople, took immense pride in every step of the process, overcoming challenges and driving the project forward with determination. What stood out most was the collaborative spirit, with each team member bringing their expertise and commitment to ensure the Bill L met—and even exceeded—the expectations set at the beginning. This project became an emblem of what can be accomplished when a diverse set of skills unites for a common goal.

Built in 2014 by Damen Shipyards, the Bill L was designed to be a reliable workhorse with 1,350 brake horsepower (BHP) and a gross tonnage of 49.19. Compact and highly maneuverable, with a length of 16 metres and a beam of 5.5 metres, it was perfectly suited for coastal and offshore operations. Over time, however, it became clear that the vessel needed updates to continue operating efficiently in British Columbia's rugged west coast environment.

The Bill L's refit was designed to enhance its capabilities and equip it for even more demanding conditions. Key updates included changes to vessel displacement, extending its length and beam, installing modern equipment such as a new winch and fendering system, extensive hull and structural improvements, and a significant overhaul of the exhaust system. The refit allowed the Bill L to continue its essential role in industries such as fishing, cargo transport, and marine construction.

The planning phase began early in 2022, with detailed schedules and milestones laid out for each major task. Coordinating with multiple stakeholders—including engineers, project managers, and external contractors—the project required precise attention to timelines and sequencing to avoid delays. From structural repairs to complex mechanical upgrades, the logistics of bringing in the right materials, ensuring timely inspections, and organizing skilled labour were critical to the project's success.

Communication across departments was key, especially as unforeseen challenges arose. From material shortages to scheduling conflicts with external vendors, the team had to constantly adjust and find solutions to keep the project on track.

The workforce on the Bill L project was made up of a highly specialized crew. Welders, electricians, shipwrights, and mechanical engineers worked in sync, bringing the vessel to its final form. Some tasks required unique skill sets, such as installing the winch system or performing precision welding for hull repairs. The team also relied on external specialists for tasks like non-destructive testing (UT testing) and Bureau Veritas (BV) inspections to ensure compliance with stringent Class society standards.

Each phase required not just technical skill, but also creative problem-solving as unexpected obstacles came up. This blend of workforce expertise and adaptability proved vital in hitting key milestones while maintaining the highest quality standards.

The project was successfully completed in June 2024, delivering a modernized vessel with enhanced performance, safety, and operational efficiency.

REDDEN NET & ROPE:
Bringing the best of high-performance synthetic tug lines directly to you.

WE HAVE THE PRODUCTS AND SERVICES WHEN AND WHERE YOU NEED US.

- Ready available stock of Samson mainlines, backer lines, and chafe products made with Dyneema®
- Expert consultation to aid in the proper selection and design of your towing system
- Onboard installation, inspection and training in proper handling

www.redden-rope.com

WITH Dyneema®

FABRICATING DISTRIBUTOR

REDDEN NET & ROPE LTD.

REDDEN *Commercial & Industrial*

#27 - 12491 Number 2 Rd, Richmond, BC V7E 2G3
Toll Free: 1-866-233-1422 604-274-1422

samson®
THE STRONGEST NAME IN ROPE

"I would like to commend all parties involved for their outstanding work during the recent refit of the tugboat Bill L Ledcor. The project scope was highly complex from the outset, involving strict Bureau Veritas (B.V.) class requirements, where Arrow Marine Services (AMS) staff demonstrated remarkable expertise and professionalism throughout the entire process.

The AMS team worked closely with Ledcor Resources & Transportation (LRT) management, to ensure that every phase of the refit met the strict standards required for a grand project of this nature. The attention to detail, quality, and ability to navigate the technical challenges were truly impressive by both teams. Arrow Marine Services' deep industry knowledge and skilled craftsmanship were key to the successful completion of this project. This refit is a testament to the seamless collaboration between AMS and LRT, as well as our shared dedication to delivering exceptional results. The 'Bill L Ledcor' is now prepared for many more years of reliable service on the Canadian Pacific coast."

- Yvon Postnikoff, Division Manager, Arrow Marine Services Ltd.

Above: Arrow Marine Services proudly completed the Bill L Ledcor refit on June 15, 2024. Seen above, the Bill L Ledcor during and after refit.

NAVIS® NAVACORD®

NAVIS JOINS NAVACORD TO FORM MARINE CENTRE OF EXCELLENCE!

"Navacord's reputation for service excellence and their desire to grow in the niche sector of marine insurance made them a perfect fit as our partner."
Paul Mendham, President and CEO, Navis Marine Insurance Brokers

"The addition of Navis to the Navacord group underscores our strategic focus on expanding our speciality lines, and we are pleased to expand our capabilities in the marine sector. They bring a demonstrated track record of delivering innovative solutions with unique products that we look forward to distributing across Canada."
T. Marshall Sadd, Executive Chairman, Navacord

THE BEST JUST GOT BETTER. WHO ARE YOU WORKING WITH?

NAVIS® MARINE INSURANCE BROKERS LTD | NAVACORD®

Coverholder at LLOYD'S

604 620 4510

WE ARE navismarine.ca

24/7

35+ YEARS INSURING THE MARINE COMMUNITY

Lift boats signifying the end of the 8,500 nautical-mile journey from Group Ocean's operation in Quebec.

Arrival of state-of-the-art naval large tugs CFAV Haro and CFAV Barkerville to the west coast: A proud moment for Point Hope Maritime

By Riccardo Regosa, General Manager, Point Hope Maritime

While at Point Hope Maritime, the vessels received a group of distinguished visitors who were on-hand to preview the new arrivals. Left to right: Daniel Arsenault, Executive Vice President for the Ship Repair and Construction Division, Group Ocean; Riccardo Regosa, General Manger, Point Hope Maritime; The Honourable Bill Blair, Federal Minister of National Defence; Rear-Admiral Christopher Robinson, Commander Maritime Forces Pacific; Stefanie Beck, Deputy Minister National Defence; Martin Lepage, Director Procurement and Infrastructure, Group Ocean; Base Commander CFB Esquimalt, Captain (Navy) Kevin Whiteside; Gary Bartlett, Chief Operating Officer, Ralmax Group

The recent arrival of a pair of new Naval Large Tugs (NLT) *Haro* and *Barkerville*, marks a significant milestone for the Canadian Navy at their base in Esquimalt.

Designed by renowned naval architectural firm Robert Allan Ltd., these powerful new vessels are two of four NLT tugs being built by Group Ocean in Quebec as part of Canada's National Shipbuilding Strategy. They are replacing two existing Glen-class tugs, *Glendyne* (YTB 640) and *Glendale*

"For all of us at Point Hope, it was an honour to support Group Ocean in this significant project, and we look forward to the opportunity to have Haro and Barkerville return to our facilities for drydocking services and maintenance in the years ahead. This partnership reflects the high standard of excellence and collaboration that defines our work culture at Point Hope Maritime, and we are proud to have played a role in this important milestone for the Navy."

- Riccardo Regosa, General Manager, Point Hope Maritime

(YTB 641), along with the fire and rescue boat *Firebrand* (YTR 562).

These tugs will be deployed in Esquimalt harbour undertaking essential harbour operations, coastal towing, and firefighting.

Point Hope Maritime played a key role in welcoming these vessels to the west coast. Following a 8,500 nautical-mile transcontinental journey that included passing through the Panama Canal, the tugs arrived on a heavy-lift vessel at the federal graving dock facility in Esquimalt. Point Hope Maritime provided unloading support to a skilled team of longshoreman and the vessels' crew who oversaw the safe transfer from the heavy-lift vessel to the water. Once afloat, the tugs were towed to Point Hope Maritime's shipyard on Victoria's upper harbour, where they underwent final preparations and crew training before delivery.

Point Hope Maritime's team worked closely with Group Ocean to carry out the final works and helped facilitate crew training for both vessels. This stage involved conducting final trials to ensure the tugs were ready

for the demanding service they will perform at the naval base in Esquimalt. Upon the successful completion of these preparations, *Haro* and *Barkerville* were delivered to their new home at CFB Esquimalt as part of the King's Harbour Master's fleet.

Canadian Forces Auxiliary Vessel (CFAV) Naval Large Tug #1 Haro. This name references the Haro Strait, which connects the Straits of Georgia and Juan de Fuca, and is frequently transited by Royal Canadian Navy vessels proceeding north from Esquimalt. Photo: Todd Kalyniuk.

Canadian Forces Auxiliary Vessel (CFAV) Naval Large Tug #2 Barkerville. This name honours the Second World War-era Ville-class tug of the same name, which capsized and sank at the entrance of Bedwell Harbour, on December 17, 1945, while towing His Majesty's Canadian Ship (HMCS) Hespeler to its mooring.

HaiSea Marine Fleet.

HaiSea Marine: One of the world's greenest and quietest tugboat fleets starts a new journey in Haisla Territory

The vision to design a new class of tugboats that would change the way the maritime industry thinks about tugs and how they transit through sensitive ecosystems has come to fruition.

After many years of research, design, testing and collaboration, one of the greenest and quietest tugboat fleets in the world is now fully operational in Kitimat, British Columbia, in the traditional territory of the Haisla Nation. They are operated by HaiSea Marine, a partnership between the Haisla Nation and Seaspan.

The fleet of five tugs is based in Kitimat to support escort towing services to LNG carriers calling at LNG Canada's new export facility. It's anticipated that approximately 170 LNG carriers will eventually visit the marine terminal annually. The LNG carrier passage to the facility will involve an escorted 294-kilometre-long voyage from the sea - the longest gas carrier escort in the world. A dedicated escort tug will be assigned to ensure safe passage through the Douglas channel.

With that in mind, HaiSea Marine began with a simple promise to the Haisla Nation to protect their home, and ended with the creation of what may be one of the world's most environmentally friendly tugboat fleets, both in terms of air emissions and underwater noise.

The new fleet is leading the way in technological design and includes two heavy-duty, low emissions escort tugs. These two RAstar 4000-DF vessels

measure 40 metres in length and have dual-fuel (LNG and diesel) engines so that they can carry out regular escort missions using lower carbon and cleaner burning LNG as their primary fuel. The tugs also incorporate an exhaust after-treatment system in full compliance with IMO Tier III emissions standards, the most stringent emissions standards for the international marine industry, when operating only on diesel fuel. When operating in LNG mode on their route from Kitimat to the pilot station near Triple Island, B.C., emissions will be drastically reduced when compared to all diesel tugs. But just because they're environmentally friendly, doesn't mean a loss of power or performance. The tugs come with 100 tonnes of bollard pull, making them the most powerful escort tugs on the west coast of Canada.

The fleet also includes three electric harbour tugboats that can run 100% on batteries during normal operations, effectively resulting in zero emissions.

These three ElectRA 2800 tugs will provide all ship docking services. Each vessel's battery banks – the equivalent of about 70 Tesla batteries – can be fully charged in four hours and are sized to perform two ship docking missions before requiring a recharge. Thanks to this battery technology, the three vessels are nearly silent when they sail, making them extremely quiet. This technological advancement is particularly significant in the sensitive habitat of the Douglas Channel.

The HaiSea Wamis, the world's first fully electric harbour tugboat, performed sea trials up and down Indian Arm last fall to put its ultra-low underwater noise to the test. Data was measured over a two-day period from underwater hydrophones to prove the Wamis could perform under established benchmarks for noise. The team's ingenuity and tenacity produced the results they were striving for. Testing showed that it would take ten of these electric tugs running side-

Haisla Mariners sailing the HaiSea Wamis home.

by-side to produce the same amount of underwater noise as just one traditional diesel mechanical tug of the same power. This result was the foundation to HaiSea Wamis becoming the first tug to be awarded an underwater noise notation (UWN) by the American Bureau of Shipping (ABS) – a nod to the extra efforts that went into its design by Vancouver-based naval architect company, Robert Allan Ltd.

All three battery electric harbour tugs, and both dual-fuel escort tugs also became the firsts to be awarded ABS' ENVIRO+ notation, their highest environmental credential available, and reflective of the focus that was placed during design on achieving the lowest environmental impact during operations as possible.

And the recognition has continued. The first LNG tug that was delivered, HaiSea Kermode, won the prestigious Tug of the Year Award at the 2024 International Tug & Salvage Awards. That honour comes on the heels of the HaiSea Wamis winning Tug of the Year in 2023. The award recognizes outstanding

Thank You 2023-2025 Partners

BERNARD BARRISTERS | SOLICITORS

AGGRESSIVE TUBE BENDING INC. "The Hercules of Bends"

BRACEWELL MARINE

BRNKL

innovmarine

ROBERT ALLAN

FORTIS BC

VARD a Fincantieri company

BCFerries

Together. Making A Difference.

Save the Dates!

BC Ferries Business Opportunities Forum
February 27, 2025

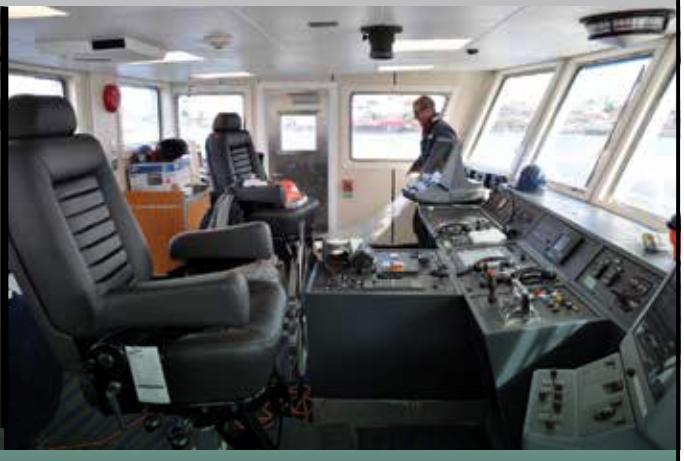
ABCMI Innovation Forum
April 15-16, 2025

ABCMI Business Opportunities Conference & Trade Show
October 21-22, 2025

HaiSea Kermode.

vessels that raise the bar for safety, sustainability and operational excellence, and the winners are selected by industry peers.

As HaiSea Marine ushers in a new era of technological advancements, this fleet of tugs is demonstrating to the world that environmental stewardship and performance achievements can go hand-in-hand as the global maritime industry embraces innovation, efficiency and a shared vision for a sustainable future.



HARKEN TOWING CO. LTD.

- Canadian-owned and operated, professional-grade marine towing service in the Pacific Northwest for over 75 years.
- Bonded for cross-border towing in the U.S.A.

SAFE CERTIFIED EFFICIENT MARINE TOWING

Dedicated and experienced marine employees with decades of knowledge.

WE'VE GOT YOU COVERED

Our fleet of 500hp-to-1800hp tugs is available to meet your marine towing needs throughout the Pacific Northwest.

SERVICES

- Ramp, aggregate and general barge towing
- Ship loading • Fuel sites • Water taxi
- Log boom towing and storage
- Ship docking • Barge moorage

SAFE CERTIFIED

604-942-8511 • info@harkentowing.com

www.harkentowing.com

2000 Argue Street, PO Box 7, Port Coquitlam, BC V3C 3V5

Jonny 5: Steering maritime innovation toward a greener horizon

By Daniel McIntyre

In an era where environmental sustainability is a necessity rather than an option, the maritime industry is making significant strides toward greener operations. A shining example of this progress is Seaforth's newest hybrid electric tugboat, the Jonny 5, representing a monumental leap in maritime engineering and sustainable technology.

In August 2024, representatives from Seaforth and 3GA Marine traveled to Türkiye to conduct the final sea trials of the Jonny 5. The vessel not only met but exceeded all performance expectations, particularly showcasing its silent operation in all-electric mode. After the successful trials, the tugboat was carefully loaded onto a transport vessel and is anticipated to arrive in Victoria by mid-November.

Revolutionizing Tugboat Propulsion

At the heart of the Jonny 5 lies an innovative hybrid power system designed to operate entirely on electricity during standard operations. This system allows the tugboat to function in 100% electric mode, significantly reducing emissions, maintenance, and fuel costs. However, in situations requiring extended range or during emergencies, the vessel can effortlessly switch to its hybrid capabilities, where a diesel engine supplements any additional power needs. This flexibility ensures reliability without compromising efficiency.

Economic and Environmental Benefits

One of the most compelling aspects of the Jonny 5 is its economic viability. Operators can save up to 80% of their traditional energy costs by switching from diesel to electric power. The substantial reduction in fuel expenses highlights the commercial advantages of adopting hybrid electric technology. Moreover, operators benefit from less maintenance and downtime, as electric motors are less maintenance-intensive compared to traditional diesel engine propulsion systems. This not only reduces operational costs but also increases the vessel's availability and efficiency.

Environmentally, the Jonny 5's operation in all-electric mode leads to a significant decrease in greenhouse gas emissions, including carbon dioxide (CO_2), nitrogen oxides (NO_2), and sulfur oxides (SO_2)—pollutants known for their harmful impact on air quality and public health. By minimizing CO_2 emissions, the vessel contributes to the global effort to combat climate change, reducing its carbon footprint substantially. This reduction is crucial in mitigating the environmental impact associated with traditional diesel-powered vessels.

Additionally, zero-emission vessels like the Jonny 5 are eligible for the Clean Technology Investment Tax Credit, offering a 30% tax credit on zero-emission watercraft. This incentive not only supports the construction of new, clean marine vessels but also makes sustainable technology more accessible across the industry—a true game-changer for maritime operations.

Moreover, the tugboat's silent operation reduces noise pollution, benefiting marine life sensitive to sound disturbances and enhancing the tranquility of

seaside areas. This aspect of the Jonny 5 underscores a commitment to environmental stewardship that extends beyond regulatory compliance.

Setting a New Standard

The arrival of the Jonny 5 is more than a technological achievement; it's a statement that electrification is not only possible for smaller vessels but also a commercially viable solution. It challenges the maritime industry's traditional reliance on diesel fuel and demonstrates that sustainable practices can lead to operational efficiencies and significant cost savings.

Behind this ground-breaking vessel is the expertise of 3GA Marine, a Naval Architecture and Design company that specializes in innovative vessel design. Their involvement ensures that the tugboat not only meets but sets new industry standards for performance and environmental responsibility.

A Call to Action for the Maritime Industry

The Jonny 5 serves as a beacon for the maritime industry, illustrating that the integration of sustainable technology is both achievable and beneficial. As global efforts intensify to combat climate change, reducing CO_2 emissions has become paramount. The success of the Jonny 5 proves that green technology can be integrated without sacrificing performance or profitability, making a tangible contribution to environmental conservation.

Looking Ahead

As the Jonny 5 prepares to embark on its operations from Victoria, it symbolizes a significant shift toward a more sustainable and economically sensible approach to maritime activities. The vessel's advanced hybrid electric system, dual propulsion capabilities, and impressive operational savings set a new benchmark for the industry.

The maritime journey toward a greener future is underway, and with innovative vessels like the Jonny 5 leading the way, the horizon looks promising. It's an invitation for others in the industry to reconsider what's possible and to join in steering toward a cleaner, quieter, and more prosperous future on the water.

About 3GA Marine

3GA Marine is a Naval Architecture and Design company dedicated to crafting innovative vessels. They continue to be at the forefront of maritime innovation, delivering engineering solutions that balance operational demands with environmental responsibility. Their collaboration on the Jonny 5 project exemplifies their commitment to shaping a sustainable future for the maritime industry.

Strengthening the fleet

Ledcor Marine's commitment to innovation, sustainability, and workforce development

Ledcor Marine operates one of the largest marine fleets in British Columbia and is a key player in specialized marine transportation services in the Lower Mainland. Headquartered in Richmond, B.C, Ledcor Marine is positioned in the North Arm of the Fraser River, and the fleet comprised of 26 barges and multiple tugboats is well-positioned for swift response to coastal demands.

In 2022, Ledcor Marine partnered with Capilano Maritime (Capilano) to enhance the "Bill L Ledcor," a 1200hp twin screw tug, for improved performance in the dynamic waters of the Fraser River. Drawing on insights from the experienced crew and conducting extensive calculations, the collaborative effort resulted in a meticulously crafted design.

Following the initial design phase and required class approvals by Bureau Veritas Marine Inc, Ledcor Marine's management sought the valuable input of their Captains to fine-tune the modifications. Attention was dedicated to enhancing towing stability, ensuring adaptability to river conditions, and optimizing ease of control for operators. The effectiveness of proposed hull modifications, previously proven on other vessels, was underscored by Capilano's experience with tugs in the region, including Ledcor's own Lionel D.

Arrow Marine Services was the successful proponent to execute the modifications on the 'Bil L Ledcor.' A dedicated project team crafted a detailed work plan, adhering to classification standards (Bureau Veritas). Despite anticipated challenges, the Arrow team, in close collaboration with Ledcor Marine and Capilano, navigated the complexities promptly, ensuring the project remained within budget. The proficiency of Arrow Marine Services' workforce shone through, demonstrating their expertise throughout the project.

Since its launch in June 2024, the 'Bill L Ledcor' has undergone sea trials and been commissioned for operations. Positioned to contribute significantly to Ledcor's marine transportation services across B.C., the modified tug is poised to play a vital role in the company's operations for years to come. Notably, this marks the addition of two tugs to Ledcor's fleet in the first half of 2024, as they recently commissioned the Ron S Ledcor, a robust 1800hp twin screw tug.

In response to the demands of the marine industry in British Columbia, Ledcor Marine prioritizes talent acquisition and internal growth. With a "promote from within" approach, leadership is dedicated to advancing its people. The company also offers entry-level roles for those passionate about the marine sector. The hands-on work environment, supported by fully funded training courses, fosters continuous learning and development for employees. Ready for the industry's challenges, Ledcor Marine

embodies a skilled and adaptable workforce along the coastal waters of British Columbia.

Ledcor Marine places a strong emphasis on safety, environmental stewardship, and maintaining healthy work conditions, strictly adhering to industry standards and regulations. They conduct regular safety training, comprehensive risk assessments, and implement rigorous safety protocols. Committed to reducing their ecological footprint, Ledcor actively promotes sustainable practices. By fostering open communication and empowering employees, they cultivate a supportive and collaborative work environment.

Ledcor Marine is part of the Ledcor Group of Companies, which is one of North America's most diversified construction companies, serving the civil & infrastructure, energy, building, telecommunications, and property investment sectors. Ledcor is a privately held, employee-owned company with over 800 employee shareholders. Ledcor employs approximately 9,000 people across 20 office locations. Since 1947 the company has been growing with its clients and partners: Forward. Together. See how at www.ledcor.com and explore our opportunities at Jobs.Ledcor.com.

Mid-year trade volumes steady at Port of Vancouver, as container sector recovers

Performances in container, cruise, auto and liquid bulk sectors lead the way, as port terminals move a first-half record 62 million metric tonnes of international trade

Provided by the Vancouver Fraser Port Authority

PORT of vancouver | Vancouver Fraser Port Authority

Cargo volumes at the Port of Vancouver were steady in the first half of 2024, decreasing less than 1% compared to the same period a year ago, as record international trade was offset by lower volumes of domestic goods.

The Vancouver Fraser Port Authority's 2024 mid-year statistics show port operators and supply chain partners moved 75.5 million metric tonnes (MMT) of trade between January 1 and June 30, 2024—led by strong performances in the container, auto and liquid bulk sectors.

"Our focus is on working with port operators, and partners and government to ensure a strong, reliable and innovative Pacific gateway to enable both Canada's trade and our communities to prosper," says Peter Xotta, President and CEO of the Vancouver Fraser Port Authority, the federal agency that enables Canadian trade through the Port of Vancouver while protecting the environment.

"I want to acknowledge the work of Port of Vancouver terminals and supply chain partners for ensuring trade continues to move efficiently and reliably within a challenging environment that includes rising impacts from climate change, increasing global geopolitical tensions, and local issues such as wildfires and labour disputes."

While it was a record half-year for international trade (foreign traffic) through the port—up 3% to 62 MMT—overall cargo volumes handled by the port dipped slightly due to a 15% drop in domestic cargo, in particular volumes of forestry products, sand, and gravel.

The liquid bulk and auto sectors led the way—both handling record volumes as upgraded facilities helped boost throughput and pandemic supply chain disruptions resolved:

- A record of almost 250,000 vehicles were handled by the port's auto terminals, which includes the Annacis Auto Terminal where an optimization project has helped increase capacity by more than one-third. Nearly 100% of Canada's Asian-manufactured vehicle imports come through the Port of Vancouver.
- A record 7.0 MMT was moved by the port's liquid bulk terminals, as the expanded Westridge terminal and Trans Mountain pipeline came into operation in May. Liquid bulk includes canola oil and petroleum products, with volumes expected to continue to grow with construction underway on DP World's new canola oil export facility in Surrey and Trans Mountain continuing to ramp up its operations.

The Port of Vancouver is Canada's largest and most diversified port—enabling trade of approximately $300 billion in goods each year with up to 170 countries. A new Economic Impact Study released in August found that port operations sustain 132,400 jobs in the supply chain and other supporting sectors across Canada.

Container volumes at the port largely recovered and stabilized in the first half of 2024, following several tumultuous years that included a pandemic-era surge in consumer demand and numerous supply chain disruptions. Imports (laden inbound) grew 19%, as retailers restocked their inventories early in anticipation of potential labour disputes and some volumes appeared to shift from the east coast due to disruptions to the Red Sea trade route, while exports (laden outbound) grew 4% with Canadian businesses increasingly turning to containers to ship their goods to markets across the globe.

"We're pleased to see the container sector bounce back from the correction experienced in 2023, with containerized imports returning to pre-pandemic 2019 growth trends and containerized exports continuing to recover," says Xotta. "However, despite an incredibly strong start to the year, we did see container volumes level off in late spring due to uncertainty around Canada's supply chains following natural disasters and ongoing labour disputes. Canada's wealth is built on trade—and we all benefit from working together to ensure our supply chains and reputation are strong, and our country is recognized as a reliable trading partner."

The Robert Allan Z-Tech Design: 20 years and counting

By: Robert G Allan P.Eng(ret), FSNAME, FRINA - Executive Chairman, Robert Allan Ltd.

Over the past two to three decades a few different tug designs have surfaced to test the waters of the ship-handling world. Some have died a quiet and worthy death; others have found strong but limited acceptance in niche applications.

However, the *Z-Tech* design, developed by Robert Allan Ltd. in 2003, has seen widespread international acceptance ever since, and now boasts 97 boats in active service, with a further 22 under construction. No "flash in the pan" this award-winning machine!

The *Z-Tech* story began for Robert Allan Ltd. in 2002 when Peter Chew of the Port of Singapore Authority (PSA) brought us a serious challenge. They had a need for new tugs to replace older vessels and add to their significant fleet. The PSA fleet comprised a random mixture of ASD tugs, some Z-drive tractors, and some Voith tractors. Different crews favoured different

types, generally according to the type with which they were most familiar. Peter's challenge to us was simple, "We need a single new design which incorporates the best features of both ASD tugs and Z-drive tractors."

In response, Ken Harford and I went to Singapore and spent several days riding on tugs, riding on the attended ships, talking to tug crews and to PSA management, gathering input about how they worked in one of the world's busiest ports, and watching their ship-handling operations. After about four days, Ken and I were having a well-earned beer after a busy day and brainstorming about how best to achieve Peter's request. Ken had an "ah-ha" moment and described his thinking about how to do just that with the proverbial bar napkin sketch. I spent the evening doodling at a somewhat higher level and in the morning, we had the genesis of what was to become the *Z-Tech* design to discuss with PSA.

Ken's concept was simple and quite brilliant: take a basic ASD tug, make its shape in plan more or less symmetrical fore and aft, but reverse the sheer line so it was lower "forward" than "aft" and move the house much farther "aft" than typical, making sure there were excellent sightlines in all directions, and the safest possible working environment for the crew.

This concept provides a large, clear and relatively level working deck around the winch when operating in the "ASD" mode (drives aft) and if towing or when rough weather transits were required, the tug could simply run going "stern first" in tractor mode (drives forward). Only one winch is required, saving space, weight, and cost.

The first of these tugs, ***Indee*** and ***Pardoo***, were built by Cheoy Lee Shipyards in 2004, and although ordered by PSA Marine they went directly into service with Teekay Marine as ship-handling/escort tugs in Port Hedland, Australia. These were followed in quick succession by an extended series of builds for PSA Marine themselves, for Lamnalco, Keppel Smit Towage, and Adsteam Towage, among others. This first generation of *Z-Techs* were 27.4 metres long by 11.5 metres beam and had 3,730 kW of diesel power, producing more than 60 tonnes bollard pull.

The distinctive *Z-Tech* concept attracted a lot of attention and jointly with PSA, Robert Allan Ltd. promoted the novel design as a candidate for a variety of industrial design awards. The year after the first *Z-Tech* tugs were delivered, the design received the Singapore Design Award, and in 2005 it won the prestigious German Red Dot International Design Award as the "Best of the Best," competing against the likes of Porsche, BMW, and Bose.

Since the first *Z-Tech* series, the design has continued to evolve into larger and more powerful variants, and even in some cases more modestly powered variants according to the needs of our clients. Outside of Asia, the major adopters of the *Z-Tech* fleet have

been G&H Towing, operating tugs on behalf of Bay-Houston Towing and Suderman & Young Towing in Houston, Texas. Other major clients include the Panama Canal Authority and the US Navy. The fleet in Panama bears some special mention, now numbering 21 authentic *Z-Techs* operating as the backbone of one of the busiest tug fleets in the world and in arguably one of the world's most critical waterways.

Today, *Z-Techs* are operating in Australia, Hong Kong, Panama, Japan, Malaysia, Middle East, Singapore, Turkey, USA and Vietnam. Operators in Peru and Thailand will take deliveries in 2025. The design has continued to evolve, now offered in two distinct hull forms, with or without RAstar type sponsons depending upon the need for a tanker escort rating. Bollard pull ranges from 45 tonnes to 82 tonnes with lengths of 24 metres to 30 metres.

The *Z-Techs* have been built in 11 shipyards in China, Turkey, and USA, however Cheoy Lee continues to be the dominant builder with 49 to its credit and 16 more on order. These tugs have sailed on their own bottoms across the full width of the Pacific Ocean and beyond.

The original owner, PSA Marine, has taken delivery of 16 boats and currently has 16 more on order.

G&H Towing operates the largest *Z-Tech* fleet currently with 28 units in service, with six more under construction.

The *Z-Tech* design has been a significant success story; a classic example of thinking "outside the box" to solve a basic design problem. The wide acceptance of this novel design has of course led to the inevitable plagiarism, with varying degrees of blatancy, however the original concept stands proudly on its obvious merits.

OCEAN

The newest,
The greenest,
And the most powerful fleet of harbour tugs.

INDEX TO ADVERTISERS


UZMAR®
BUILDING VESSELS
FOR NOW AND FOR
THE FUTURE
IMO TIER III - RAstar 3200W ASD TUGBOAT
WWW.UZMAR.COM

BRACEWELL MARINE

Keeping Workboats Working!

Shipyard for vessels up to 220 tones / 30 ft. beam



Repower & Refits • Full Yard Services • Marine Fabrication and Machine Shop
CSI Mechanical • Weld/Fab • Paint/Blast • Millwork • Stainless • Fendering


Now supplying all of your shafting and bearing needs. Prop shafts in 316, Aqualoy 17, 19 and 22 – any size and length as needed up to 6" diameter and 24' long. We have 316 shafting for rudders or other needs.

Cutlass bearings in assorted sizes in metallic, non-metallic and flanged.




BMG offers its own line of tow winches available from 1/2" to 2" line capacity. Please contact us for more details.

604-821-1890

info@bracewellmarine.com www.bracewellmarine.com