FREIGHTERS

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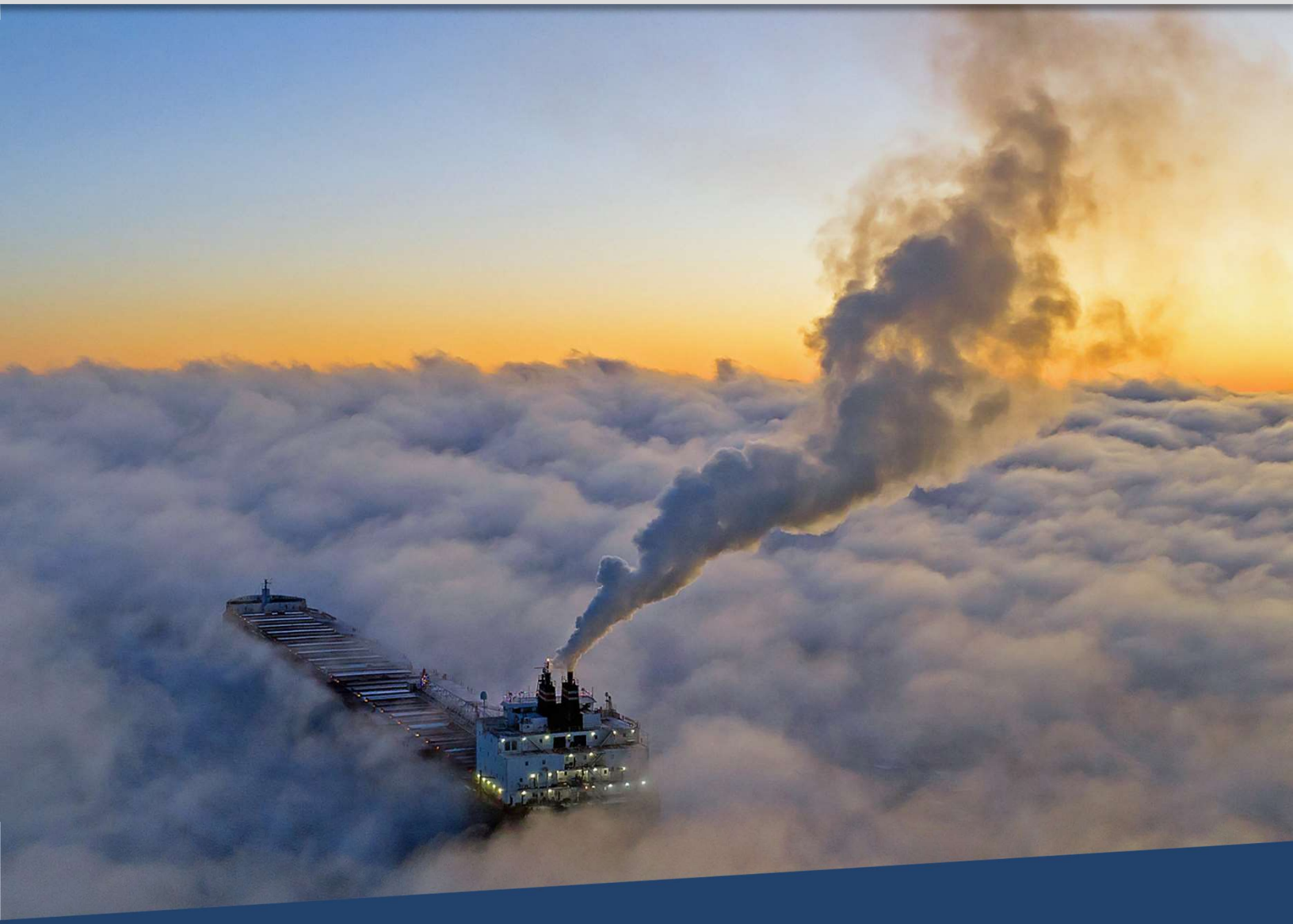


EDITOR'S PICK

SHORT ARTICLES ON HAPPENINGS AROUND THE LAKES

CSL'S NUKUMI HONORED AT INTERNATIONAL BULK JOURNAL AWARDS

NOVEMBER 23, 2022

Canada Steamship Lines' newest vessel *Nukumi* was named Bulk Ship of the Year at the International Bulk Journal (IBJ) Awards. The vessel was recognized for many design innovations built into the ship. *Nukumi* is the first diesel-electric laker and the first single-point loading capable ship in Canada.

"I am honored to accept this award on behalf of our newbuild teams who custom designed and built such an outstanding ship to service our customer, Windsor Salt" remarked Louis Martel, President and CEO of Canada Steamship Lines.

EMS-Tech was also recognized at the ceremony, receiving Best Ship Loading or Unloading System Award for involvement in design of *Nukumi*'s self-loading and unloading systems. ◘

MARK W. BARKER RECEIVES MULTIPLE AWARDS

DECEMBER 1, 2022

Interlake Steamship's *Mark W. Barker* was named one of WorkBoat's top 10 Significant Boats of 2022 as well as the Professional Mariner Ship of the Year 2023. These awards highlight the *Barker*'s significance to Great Lakes shipping and the marine industry as a whole. Design of the vessel was a collaboration of efforts by Interlake Steamship for concept design, Bay Engineering for detail design of the hull and systems and Fincantieri Bay Shipbuilding for detail design of the deckhouse.

The *Barker* is the first ship operating on the Great Lakes with EPA Tier 4 engines, and is 639' long and 78' wide with a capacity of 28,000 tons. The high capacity with the small size is in part due to her large "box shape" cargo holds, which lack slopes and instead use gravity bucket elevators to move cargo to the unloading belt. The large holds and deck hatches allow for added versatility for carrying project and non-bulk cargoes as well. ➲

Mark W. Barker on the St. Marys River, September 5, 2022. Photo: Roger LeLievre

➲She is a ship designed for the future. "It is important that we can move types of cargo to meet the changing supply chains of the future", noted Mark Barker, president of Interlake Steamship and namesake of the vessel, at the christening ceremony in September. ◘

COAL POWER CONTINUES PHASE OUT, FUTURE OF GREAT LAKES STEEL PRODUCTION COMES TO LIFE

DECEMBER 13, 2022

DTE Energy recently announced an updated 20-year plan for energy generation, including the accelerated retirement of remaining coal-fired power plants. On December 8, 2022 DTE retired their St. Clair coal power plant, with several to follow suit in the upcoming years. The Belle River plant will be converted to natural gas firing in 2025-2026 and will retire the use of coal in 2028. Their Monroe coal plant will continue to operate as normal until 2028 when two units will be retired, with the remaining two to be retired in 2035, five years ahead of their ➲original retirement date in 2040. The company plans to expand on renewable energy resources such as solar and wind, with eventual construction of natural gas plants as well. With the closing of the coal plants continue the reduction in demand for coal cargoes, meaning further impact to the shipping industry.

On another note, U.S. Steel announced successful completion of a new Pig Iron production facility at Gary Works, coming online in December 2022. Full production at the plant will begin in early 2023. The facility converts raw taconite pellets produced in northern Minnesota's Mesabi Range into pig iron feed stock for electric arc furnaces at their Big River Steel facility in Arkansas as part of the steel producer's plan towards cleaner manufacturing. Electric Arc Furnaces produce far less greenhouse gas emissions than traditional blast furnaces. The new plant will produce up to 500,000 tons of pig iron per year, taking delivery of taconite pellets by Great Lakes freighters, ensuring a steady future of taconite demand on the Great Lakes. ◘

SOURCES:

"2023 Ship of the Year: Mark W. Barker". Professional Mariner, 1 November 2022. https://professionalmariner.com/article/2023-ship-of-the-year-mark-w-barker/?fbclid=IwAR1rs2DTpydQ_ow1eVOQKoJgM1f0S-gHqE_MXCbhcEazSpfNYTpXxFmlZUg

"CSL's MV Nukumi Named Bulk Ship of the Year 2022". Canada Steamship Lines, 23 November 2022. https://www.cslships.com/en/media-center/news-events/csls-mv-nukumi-named-bulk-ship-year-2022

Krapf, David. "WorkBoat names its 2022 Boat of the Year". WorkBoat, 1 December 2022. https://www.workboat.com/international-workboat-show/workboat-names-its-2022-boat-of-the-year

Noble, Breana. "DTE speeds coal exit, adds natural gas and renewable energy under 2042 plan". Detroit News, 3 November 2022. https://www.detroitnews.com/story/business/2022/11/03/dte-speeds-coal-exit-adds-natural-gas-renewable-energy-in-2042-plan/69613541007/

Pete, Joseph S. "U.S. Steel casting pig iron in major milestone at new Gary Works facility". Northwest Indiana Times, 13 December 2022. https://www.nwitimes.com/business/local/u-s-steel-casting-pig-iron-in-major-milestone-at-new-gary-works-facility/article_26457e4c-b2c6-5eae-aa28-a1d5ab53be9b.html

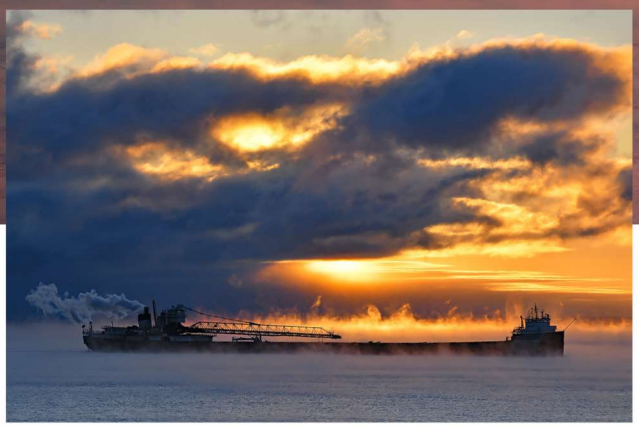
News in photos

Some of the latest news captured in photos

Lake Superior weather

As the end of the season nears, Mother Nature often likes to show her hand for some more variety of conditions than usual. This often makes for impressive scenes and amazing photographic opportunities, with several captured here by Twin Ports photographer David Schauer. ☐

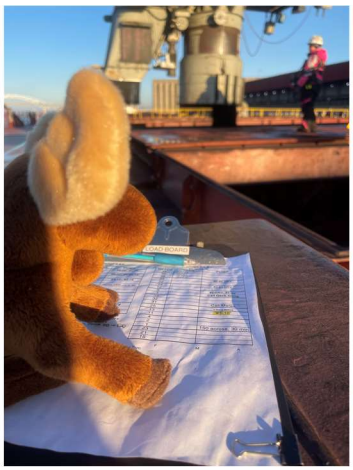
Philip R. Clarke and *James R. Barker* at anchor off of Duluth in sea smoke. Photo: David Schauer



Arthur M. Anderson at sunrise in sea smoke. Photo: David Schauer

Critter captain of the James R. Barker

In November a care package sent to the *James R. Barker* included a small stuffed moose, with the request that pictures be taken of its adventures on the lakes. Capt. Moosey Smith, as the small critter is named, is enjoying his recent time in the spotlight as he works aboard the *James R. Barker.*☐

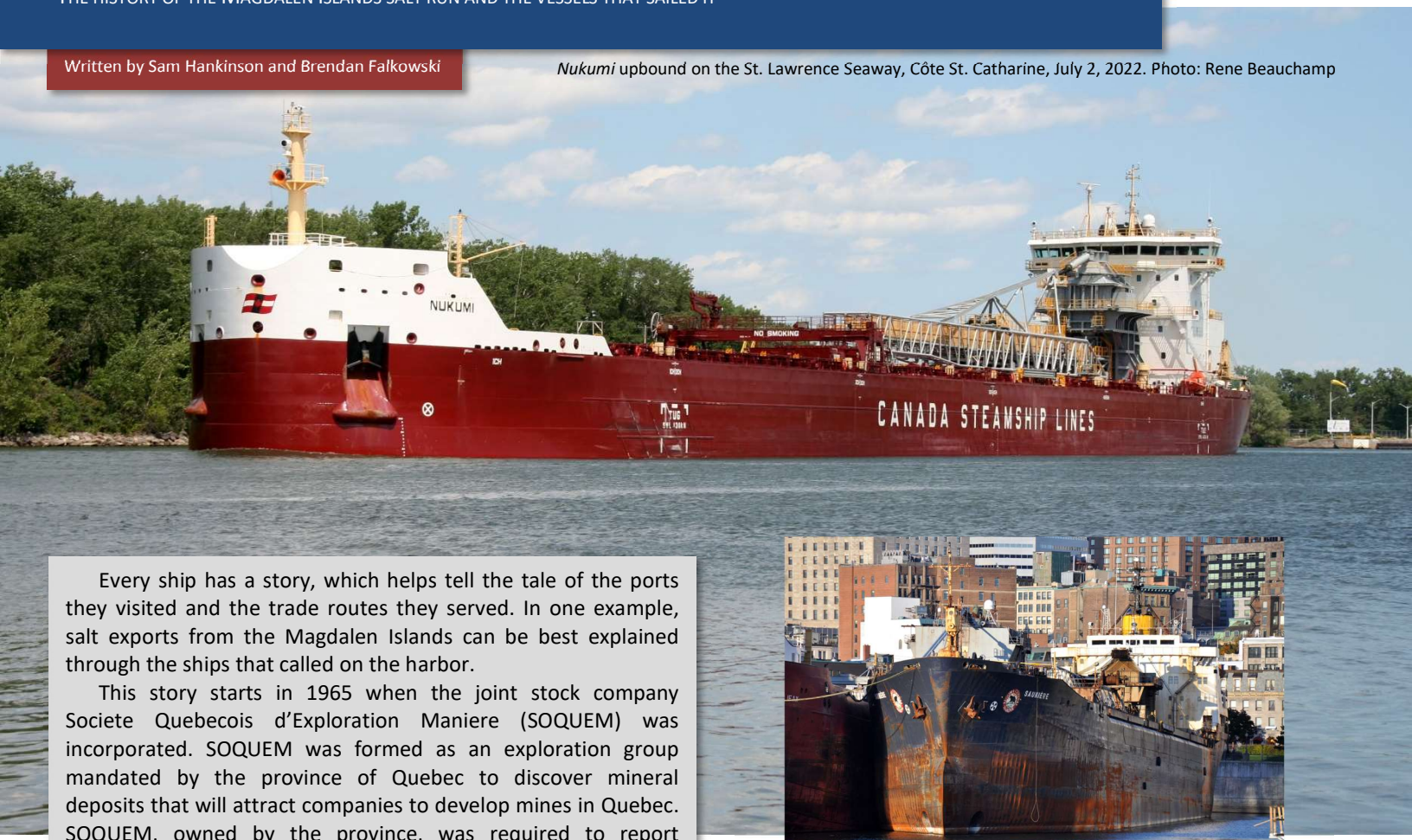


(From bottom left): Capt. Moosey overseeing loading from the pilothouse (David Schauer); Overseeing loading from deck; Full speed ahead! (Interlake Steamship)

A NEW FUTURE FOR A HISTORIC TRADE ROUTE

THE HISTORY OF THE MAGDALEN ISLANDS SALT RUN AND THE VESSELS THAT SAILED IT

Written by Sam Hankinson and Brendan Falkowski



Nukumi upbound on the St. Lawrence Seaway, Côte St. Catharine, July 2, 2022. Photo: Rene Beauchamp

Every ship has a story, which helps tell the tale of the ports they visited and the trade routes they served. In one example, salt exports from the Magdalen Islands can be best explained through the ships that called on the harbor.

This story starts in 1965 when the joint stock company Societe Quebecois d'Exploration Maniere (SOQUEM) was incorporated. SOQUEM was formed as an exploration group mandated by the province of Quebec to discover mineral deposits that will attract companies to develop mines in Quebec. SOQUEM, owned by the province, was required to report annually to the Minister of Natural Resources on its activities and receive annual government approval for its development plan.

In 1972, SOQUEM discovered seven salt domes on The Magdalen Islands (French: Îles de la Madeleine) in the Gulf of St. Lawrence. This archipelago sits at the center of a vast undersea plateau known as the Magdalen Shallows. 360 million years ago the plateau was situated on the Equator and was periodically flooded with saltwater from the sea. Strong sunlight caused the water to evaporate leaving behind salt deposits. Over several million years, hundreds of meters of salt crystals formed, and were then compressed and hardened to form rock salt.

In working to develop a mine on the islands, SOQUEM encountered severe technical problems during the development stage that doubled construction costs, placing the company in a tough financial situation and forcing the Quebec government to question their involvement in building mines. At any rate, the mine, named Mines Seleine, began extracting salt in 1982 from the dome closest to the surface under Grosse-Île.

In 1985, all revenue-producing mines were spun off to form Cambior Incorporated, but not Mines Seleine. In return, SOQUEM received 40% of the shares of Cambior and roughly $150 million in cash. Mines Seleine was finally sold in 1988 to the Canadian Salt Company (Windsor Salt) and taken over by the German group K+S in 2009.

Today, the mine is a K+S Windsor Salt Limited property and is Québec's only salt mine. SOQUEM privatized many of its assets in 1986 and is currently a subsidiary of Ressources Québec, which is itself a subsidiary of Investissement Québec.➲

Saunière laid up in Montreal, October 12, 2009. Photo: Roger LeLievre

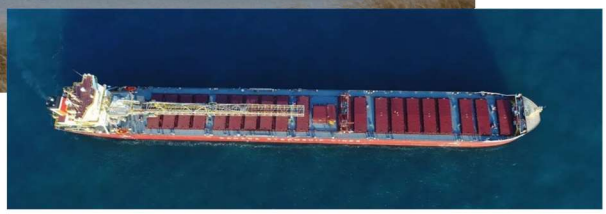
THE SHIPS

Saunière

The first ship to service Mines Seleine was Algoma Central's motor vessel *Saunière*. This oceangoing vessel was built in 1970 by Lithgows Ltd., East Yard in Glasgow, Scotland for Kristian Jebsens Rederi A/S. It was laid down as the *Bulknes* but launched as the *Brooknes*. It originally measured 520 feet 4 inches long. In 1976, Algoma acquired the *Brooknes* from Jebsens as a replacement for the ill-fated *Roy A. Jodrey*. The ship was lengthened to 642 feet at a shipyard in England and renamed *Algosea* before departing for the Great Lakes. The ship arrived at Port Colborne, Ontario in April 1976 for conversion to a self-unloader. The *Algosea* was formally christened in October 1976. In 1982, the *Algosea* was placed on a 15-year charter with Navigation Sonamar, Inc. of Pointe Claire, Quebec as charterers and SOQUEM acting as the operator of the vessel. An option to buy the *Algosea* had been extended to NS in 1980 but expired the following year without being exercised.

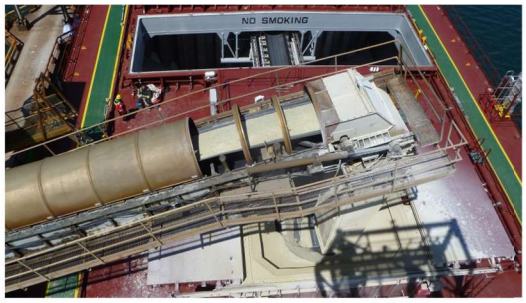
The terms of the charter would see the *Algosea* carry salt between Mines Seleine to Quebec, Ontario, Great Lakes, and East Coast ports. Interestingly, the ship was not reflagged Canadian until August 1982. It was at this time when the *Algosea* was renamed *Saunière*, which translates to salter in French. The *Saunière* remained in active service after the initial 15-year charter, continuing to frequent Mines Seleine and fill in on the➲

Salarium on the St. Clair River July 2013. Photo: Isaac Pennock



(Above) MV *Nukumi* being loaded with salt at a rate of 4,000mtph to the fixed SPL hopper. (Below) MV *Nukumi* – Laker Self-Loading / Self-Unloading vessel. 26,000dwt. Single Point Loading hopper at mid-ship location. Both photos: EMS-Tech

MV *NUKUMI* Single-Point Loading System



MV *Nukumi* Single-Point-Loading hopper aerial view during loading sequence. Photo: EMS-Tech

Travelling reversible shuttle conveyor loading salt into the vessel cargo hold. System designed and supplied by EMS-Tech Inc. Photo: EMS-Tech

80meter boom conveyor discharging salt to a pile at a rate of 5,450mtph. This particular boom conveyor is fitted with a 26meter shuttling section to support to support the control of the pile height when discharging. Photo: EMS-Tech

➲ Great Lakes moving other cargoes for Algoma when needed. The ship laid up for the last time in early March 2009 and was towed to Turkey for scrapping in 2011.

Salarium

Following the retirement of the *Saunière*, SOQUEM chartered Canada Steamship Line's motor vessel *Nanticoke* in April 2009 as a replacement. The *Nanticoke* was built in 1979 by Collingwood Shipyards for CSL and was part of a class of ships strengthened for ocean service, making it well equipped for her new route. She was renamed *Salarium* (meaning a payment made in salt) at Montreal and began trading on the Gulf of St. Lawrence later in 2009. In 2020, the *Salarium* was retired from the active CSL fleet and towed to scrap, leaving a void in the Magdalen Islands salt run.

Nukumi

In 2020, Windsor Salt and CSL partnered to build a new state-of-the-art self-unloader that would be specifically designed to service Mines Seleine. Construction began in August 2020 by Chengxi Shipyard in Jiangyin, China. Other CSL vessels, primarily the Trillium-class *Baie St. Paul,* picked up the slack until the new ship was built.

The ship was named *Nukumi*, submitted by a Windsor Salt employee as part of a company-wide naming contest. The name refers to the legendary figure of the Indigenous Mi'kmaq people. Design considerations made to make the *Nukumi* more environmentally conscious included Diesel-electric tier 3 engines, a unique hull design that will decrease carbon emissions and improve energy efficiency, a ballast water treatment system designed to reduce the transfer of invasive species, as well as quieter machinery that will reduce vessel noise to protect marine mammals.

The most unique feature of this new self-unloader is its state-of-the-art loading and unloading systems designed by ➲ Canadian engineering firm EMS-Tech. As it would be loading at the same berth frequently, *Nukumi* was designed with a Single-Point Loading (SPL) system. The SPL reduces necessary shifting of the vessel at the loading dock and as a result increases efficiency when taking on cargo. Cargo is loaded onboard the vessel via shiploader through a fixed loading hopper located midship. The cargo then flows down to a travelling reversible shuttle conveyor running on rails beneath the spar deck inside the hold. The shuttle conveyor system is able to shift within the hold to uniformly distribute cargo throughout the length of the vessel. The ship's unloading system consists of a conventional dual-hold belt system with an aft loop-belt elevator system to deliver cargo to the deck-mounted unloading boom. Unlike other Great Lakes self-unloaders, *Nukumi's* unloading boom has a shuttle boom section on the outermost end of the boom, allowing the vessel to adjust where cargo is being unloaded without shifting the vessel or the entire boom during discharge.

The *Nukumi* departed from the shipyard on January 31, 2022 and arrived in Canada on March 27. The ship loaded its first cargo at the Magdalen Islands in early May 2022.

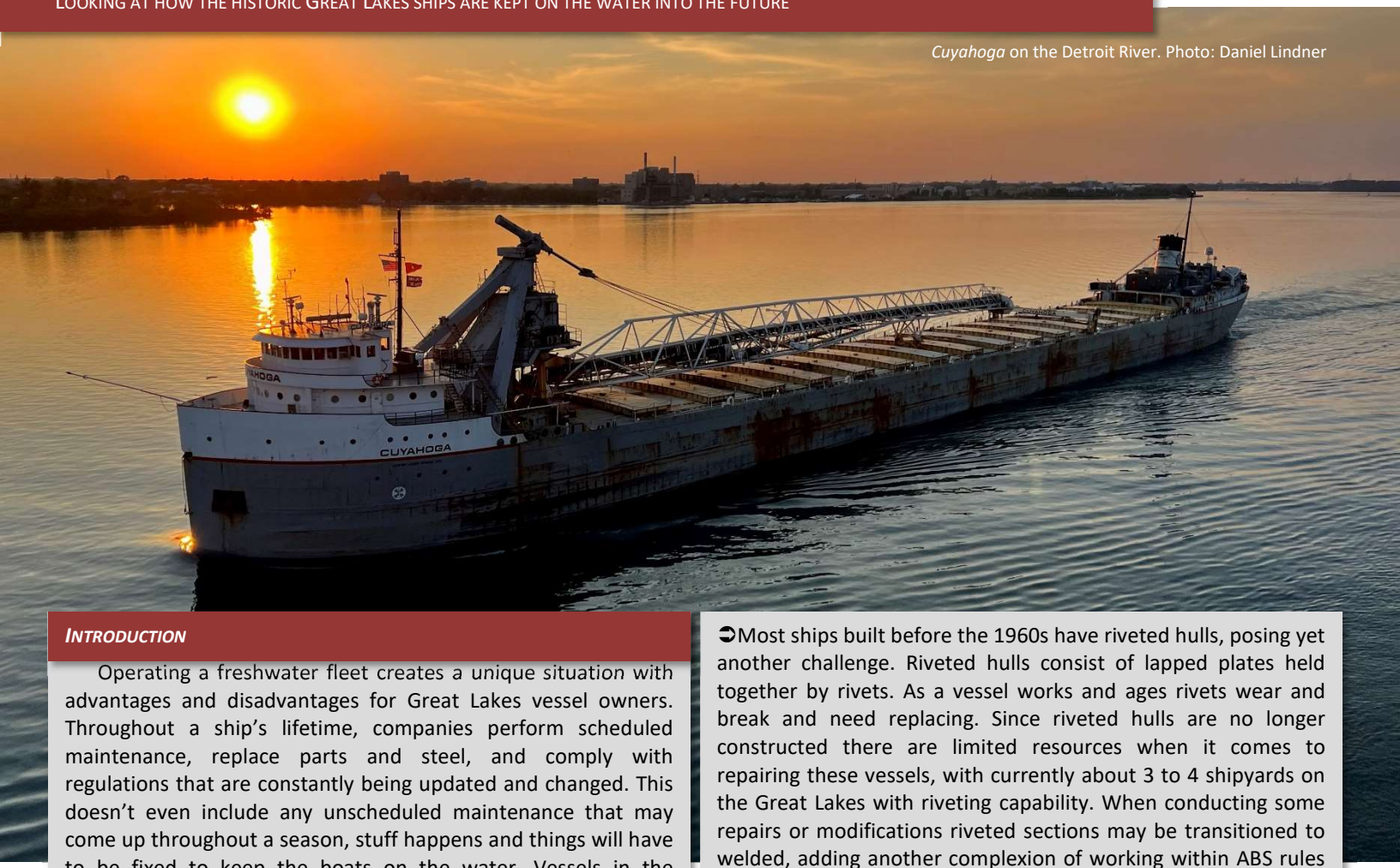
Both the *Saunière* and *Salarium* spent a majority of their time on the Gulf, making them rare visitors to the Great Lakes. However, these chartered ships managed to fit into other trade routes in their respective fleets when the need arose.

As the *Nukumi* was purpose built for the Magdalen Islands salt run, it remains to be seen if the vessel will be used in any other transportation routes in CSL's fleet. It is also unknown if the single-point loading system is specific to salt or if it can be utilized for other cargoes.□

Special thanks to Kyle Sorenson from EMS-Tech for providing information about the innovative single-point loading system.

IN THE DESIGN: MANAGING AN AGING FLEET

LOOKING AT HOW THE HISTORIC GREAT LAKES SHIPS ARE KEPT ON THE WATER INTO THE FUTURE



Cuyahoga on the Detroit River. Photo: Daniel Lindner

INTRODUCTION

Operating a freshwater fleet creates a unique situation with advantages and disadvantages for Great Lakes vessel owners. Throughout a ship's lifetime, companies perform scheduled maintenance, replace parts and steel, and comply with regulations that are constantly being updated and changed. This doesn't even include any unscheduled maintenance that may come up throughout a season, stuff happens and things will have to be fixed to keep the boats on the water. Vessels in the American Great Lakes fleet have an average age of over 50 years, much longer than oceangoing vessels. The aging Great Lakes fleet provides a unique challenge to operators, engineers, and shipyard workers alike who work to keep these majestic vessels sailing into the future.

CHALLENGES OF AN AGING FLEET

Some of the largest challenges presented with an older fleet include those related to equipment and the hull of the vessel itself. Some Great Lakes vessels are equipped with outdated machinery. Equipment and components may no longer be manufactured. In some cases, blueprints don't even exist. When equipment breaks down it is difficult to find replacement parts and even qualified service technicians to perform the work. Replacement parts may have to be reverse engineered and custom machined, and that kind of thing can't always be done locally. High-value marine components come from all over the world. In some cases, it may make more sense to completely replace a piece of equipment or modernize a system.

As the hull ages, steel wears down or rusts. Steel renewal replaces portions of the ship's hull and ensures that operating vessels continue to meet hull thickness standards prescribed by regulatory agencies such as American Bureau of Shipping (ABS). This process typically becomes more intensive as a vessel gets older as the hull develops pitting and rust in some locations. ➲

➲Most ships built before the 1960s have riveted hulls, posing yet another challenge. Riveted hulls consist of lapped plates held together by rivets. As a vessel works and ages rivets wear and break and need replacing. Since riveted hulls are no longer constructed there are limited resources when it comes to repairing these vessels, with currently about 3 to 4 shipyards on the Great Lakes with riveting capability. When conducting some repairs or modifications riveted sections may be transitioned to welded, adding another complexion of working within ABS rules specific to rivet to weld transitions.

Not just any slab of steel can be used to patch up a ship. Some structural steel members are no longer manufactured anymore and have limited specifications available. In more recent times regulatory agencies have set up rules pertaining to the grades of steel that can be used in vessel construction. These specifications did not exist when older eras of vessels were built. When conducting repairs, engineers sometimes have to take samples of steel off of the vessel and send them in for testing to determine the chemical makeup and grade of the steel to determine whether or not it will be able to be welded and what grade of steel can be used for repairs. On older vessels some unique fatigue issues have been discovered from years of loading and unloading cargoes. With constant motion eventually the steel becomes so fatigued in localized areas that it may lead to cracking. This is why it is so important to practice uniform loading and unloading of cargo and ballast as needed to keep the vessel from flexing in ways that cause fatigue. Engineers conduct Finite Element Analysis (FEA) on computer models of vessels to measure stress on the hulls to determine if modifications and strengthening must be performed to bring them up to regulation.

The increased use of 3D scanning technology to scan interior structures of vessels has made it easy for engineers and operators to develop detailed plans for ships that lack ➲

(Above) Work as simple as maintaining hull coatings goes a long way in lengthening a vessel's lifespan. Before and after hull painting, *St. Marys Challenger*, June 2020. Photo: Andrew MacDonald. (Right) The additions of self-unloading systems have prolonged the lifespan of many classic ships. *Herbert C. Jackson* unloads at Bay City, MI, October 14, 2020. Photo: Logan Vasicek

(Above Right) Some of the oldest boats on the Lakes log the most trips in a season. *Herbert C. Jackson* loads stone at Cedarville, MI, October 13, 2020. Photo: Logan Vasicek. (Below Right) Over time, repair work adds up. *Arthur M. Anderson* underwent a major overhaul in 2019, which included significant hull work. Here she is on the St. Marys River, June 8, 2022. Photo: Brendan Falkowski

➲blueprints.

Before it was realized that materials such as asbestos and lead paint were dangerous, they were heavily used in the construction and maintenance of older ships. Over time these materials are gradually abated from areas of the ship where work is being performed. Crew quarters on older vessels are often modernized and brought up to code for crew safety and comfort.

Regulations present an ever-evolving challenge for maintaining older ships. Classification rules are updated almost annually so older vessels are typically grandfathered in to older rules they were compliant with. When doing large projects on a vessel, if it is deemed a "major conversion", the vessel must be brought up to all current standards. Some items on the list can be grandfathered but must be discussed with classification inspectors on a case-by-case basis. Safety systems such as fire safety and lifesaving must be brought up to standard without exception in the case of major conversion as crew safety is always a major priority.

KEEPING BOATS RUNNING

Annual maintenance remains fairly constant even on aging vessels. For every so many hours of operation necessary maintenance tasks must be performed on the engines and other equipment onboard the vessel. As the vessel gets older structural maintenance tends to increase. Every five years ships undergo a detailed hull inspection including gauging of steel thickness and hull structural integrity. These inspections determine which areas need steel renewal and which areas need it in the near future. In some fleets it is common practice to do visual inspections on the entire vessel annually, helping operators to strategize and plan ahead where work needs to be done in the off-season. Maintenance plans are strategized for each vessel in the fleet based on what parts of the vessels need repair or replacement and an order of work on vessels for the next several seasons is planned out. For example, if several ships in the fleet were➲

➲converted to self-unloaders at the same time and are nearing the replacement window for hoppers and gates a plan might be put in place to replace a percentage of the gates on each vessel over the next few years.

As vessels are modernized safety systems are upgraded per regulation. Electronics, navigation, and communication systems are routinely upgraded to provide the crew with the resources to transport cargoes safely and efficiently. Routine maintenance is continually performed to keep vessels in sailing condition. Tasks such as steel reinforcement, steel renewal, and reapplication of hull coatings can be performed to help prolong vessel lifespans. Paintings and hull coatings have a very underestimated value to a vessel's lifespan but are critical to protecting the hull from both the inside and out.

WHAT DOES THE FUTURE HOLD?

Many upgrades can continue to be expected onboard ships, ranging from safety to operations systems, to keep them working in the future. As regulations are always changing it can be expected that with each "major conversion" project vessels will continue to meet the latest regulations. New regulations for ballast water and emissions are on the horizon meaning a new wave of challenges for engineers and operators to meet compliance. Though there is no clear answer to what will be demanded of shipping operators for these updated environmental regulations, engineers will explore new solutions to meet these new demands.

With an uncertain market, the career of older ships, and any ships, is on the line. Aging ships might be the first to meet their end if demand dips sharply. For operators, it is about finding the right vessel for the right trade pattern and meeting the demands of Great Lakes shipping for the future. ◻

Special thanks to the naval architects who provided their time and resources to help me write this article. Thank you to Travis Martin and Fred Koller from Bay Engineering, Eric Helder from Interlake Steamship Co., Nick Hunter from NETSCo., and Andrew MacDonald from Port City Marine Services – Brendan Falkowski

FRONTENAC

Frontenac on the Detroit River, August 13, 2021. Photo: Sam Hankinson

As part of Canada Steamship Lines' fleet renewal and expansion following the opening of the St. Lawrence Seaway in 1959, the keel for Davie Shipbuilding Hull #661 was laid at Lauzon, QC, on May 17, 1967. Hull #661 would soon take form of the massive gearless bulk carrier *Frontenac*, being christened and launched on December 12, 1967. Her design followed the lines of her many sisters built during the 1960s, measuring in at 730' long, 75' wide, and 39'08'' deep from keel to spar deck with a capacity of 28,000 tons. She remains powered by her original Sulzer model 6RD76 diesel engine, rated at 9600 BHP. *Frontenac* departed Lauzon on her maiden voyage on May 13, 1968 for Pointe Noire, QC, to load 25,000 tons of iron ore for delivery to Hamilton, ON.

Only four seasons after entering service, Canada Steamship Lines contracted Collingwood Shipyards of Collingwood, ON, to convert *Frontenac* into a self-unloader at the end of the 1972 season. *Frontenac* spent the winter in Collingwood undergoing a massive makeover. Inside her cargo hold, a twin hold belt conveyor system was installed lengthwise on the tank tops and new cargo hold slopes were installed to direct the flow of cargo to the belts. The cargo hold belts ran aft and into a loop belt elevator, each belt dumping cargo into a chute on either side of the vessel that fed her new 257'06'' long deck boom. The conversion reduced her cargo capacity to 26,822 tons at a draft of 27'08'', but at an advantage of much lower unloading times. Her conversion marked the first installation of a stern located self-unloading system, a trend that took hold for many self-unloader conversions during the 1970s and '80s. ➲

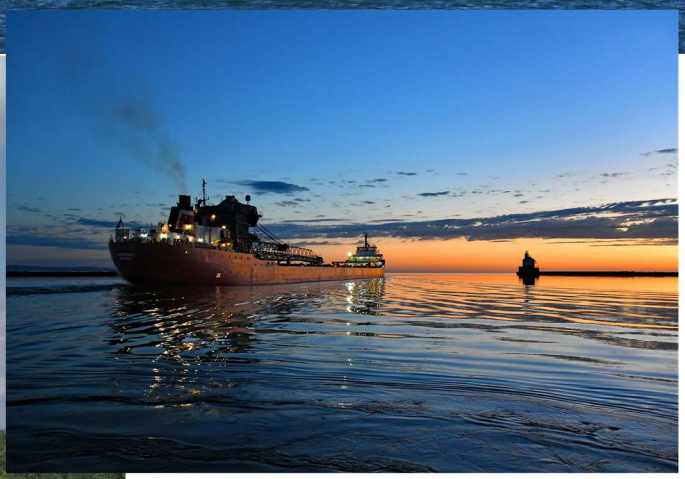
Frontenac, arriving at Nanticoke, ON, 2001. Photo: Roger LeLievre

Frontenac, St. Marys River, August 15, 2009. Photo: Roger LeLievre

Frontenac on the Detroit River, October 2, 2022. Photo: Logan Vasicek

Frontenac.
Photo: Daniel Lindner

Frontenac on the Welland Canal, June 29, 2014. Photo: Isaac Pennock



Frontenac departing Superior, WI, September 30, 2022.
Photo: David Schauer

➲In the aftermath of the events of the night of November 10, 1975, *Frontenac* assisted in the search for the missing steamer *Edmund Fitzgerald* and any possible survivors from the sunken vessel. On November 19, 1977, *Frontenac* ran aground in the St. Lawrence River, lightering a portion of her cargo into her fleetmate *Saguenay* in order to free herself.

Frontenac carried the first cargo of cement clinker by a Great Lakes freighter in 1978. The cargo proved to be a rather unsuccessful experiment due to lack of proper unloading and dust control equipment. In 1989 *Frontenac* was retrofitted with a specialized dust collector system optimized for handling cement clinker cargoes. After this installation she began handling clinker cargoes regularly, loading in Picton, ON, for delivery to Essexville, MI. ➲

➲On May 24, 1996, *Frontenac* had the honor of opening the new loading dock at Bruce Mines, ON. *Frontenac* assisted in the rescue of four stranded boaters on Lake St. Clair on August 18, 2002. Over the winter of 2003-2004, her old self-unloading gates were replaced with new hydraulically-operated gates by Fabmar Metals of Thunder Bay, ON.

Frontenac continues in active service, and is currently the oldest operating ship in the Canada Steamship Lines fleet. She continues to serve the iron ore, stone, salt, grain, and clinker markets. ◘

Sources

Falkowski, Brendan. "Frontenac". Shipwatcher News Great Lakes Ships, 26 August 2020.
https://greatlakesships.wordpress.com/frontenac/
Wharton, George. "Frontenac". Great Lakes and Seaway Shipping Online. N.d.
http://boatnerd.com/pictures/fleet/frontenac.htm

BRENDAN FALKOWSKI is a Great Lakes ship enthusiast who shares his passion for the freighters through his newsletter and research. Brendan is a graduate of Bath High School, and is attending University of Michigan's College of Engineering this fall to study Naval Architecture and Marine Engineering. Brendan is an avid musician, and is a member of the trumpet section in the Michigan Marching Band. He also is a competitive sailor, recently helping to found the Bath High School Sailing Team. He enjoys sailing and spending time with his friends and family.

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Cover Photo: *American Spirit* is barely visible through the sea smoke on Lake Superior off Duluth, MN, December 8, 2022. Photo: David Schauer