FREIGHTERS

THE GREAT LAKES SHIPPING INDUSTRY PERIODICAL
EDITION #72 – NOVEMBER-DECEMBER 2023
OFFICIAL NEWSLETTER OF SHIPWATCHER NEWS – EDITED BY BRENDAN FALKOWSKI – WWW.SHIPWATCHER-NEWS.COM

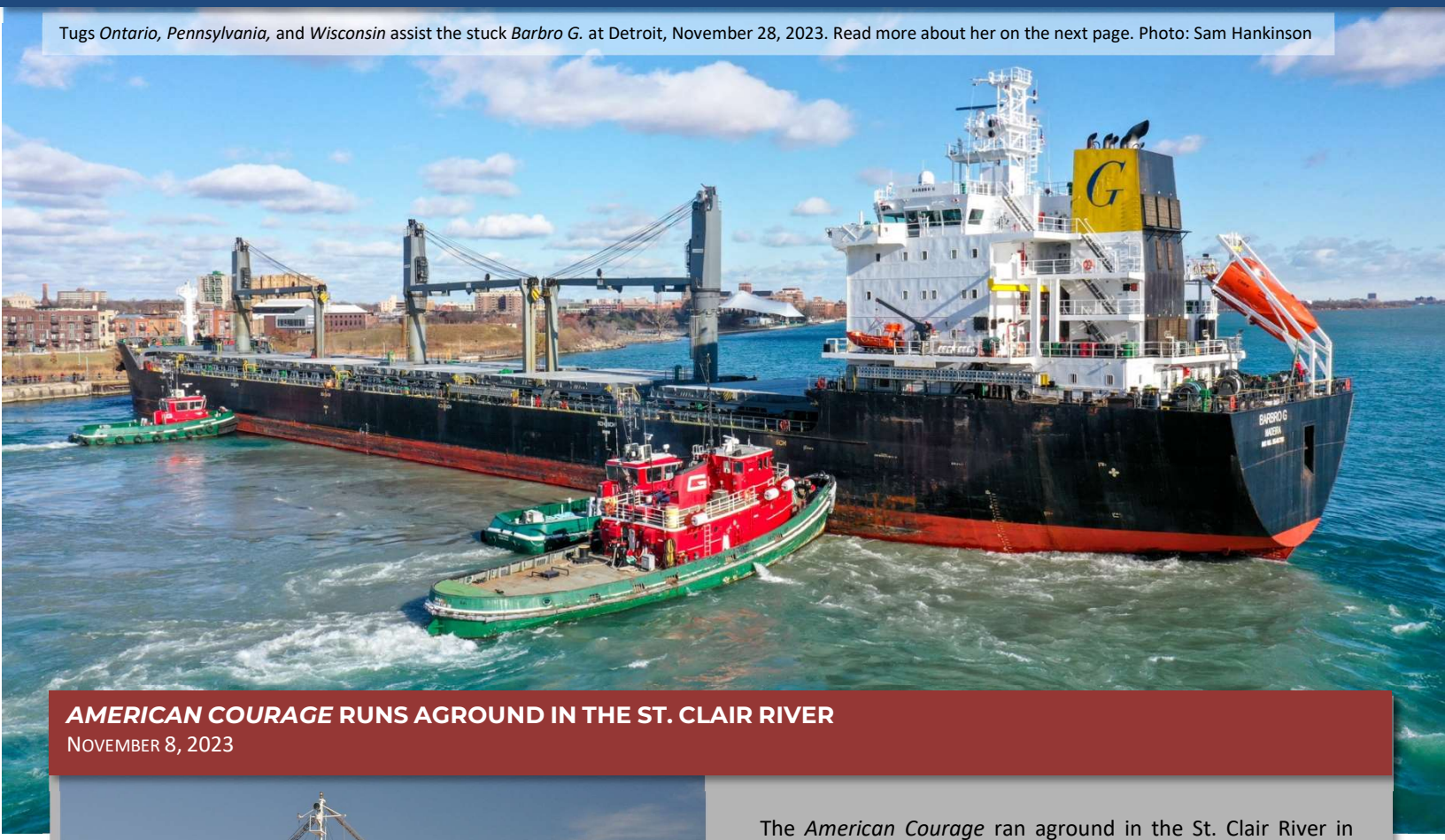
SHIPS OF PAST ERAS:
THE ONTARIO HYDRO COAL BOATS

- ALGOMA TANKERS' *BIRGIT KNUTSEN* RENAMED *ALGOLUNA*
- SALTWATER VISITOR *BARBRO G.* GROUNDS IN DETROIT RIVER
- CONTINUED GROWTH: MCKEIL MARINE ADDS TO GREAT LAKES FLEET
- IN THE DESIGN: PROPULSION SYSTEMS

LAKER REPORTS

NEWS AND HAPPENINGS FROM AROUND THE LAKES

Tugs *Ontario, Pennsylvania,* and *Wisconsin* assist the stuck *Barbro G.* at Detroit, November 28, 2023. Read more about her on the next page. Photo: Sam Hankinson



AMERICAN COURAGE RUNS AGROUND IN THE ST. CLAIR RIVER

NOVEMBER 8, 2023

American Courage on the St. Marys River, July 10, 2012. Photo: Roger LeLievre

The *American Courage* ran aground in the St. Clair River in the early morning hours of November 7, 2023 off Marine City while attempting to tie up at an aggregate dock. There was no report of damage to the vessel or pollution, as well as no report of injury to crewmembers.

American Courage was loaded with approximately 20,000 tons of stone. With the assistance of the tugs *Manitou, Ontario*, *Pennsylvania*, and *Tenacious*, the *Courage* was freed from her grounding on the evening of November 8. She proceeded to anchor after being freed before heading to the dock to unload. ◘

ALGOMA TANKERS' *BIRGIT KNUTSEN* RENAMED *ALGOLUNA*

NOVEMBER 13, 2023

In early November, Algoma Tankers brought their latest tanker acquisition under the Canadian flag and renamed her *Algoluna*. Algoma purchased the *Algoluna* in late 2022 as the *Birgit Knutsen*, operating her in European trades as well as the Great Lakes-Seaway system. Her transition into Algoma's domestic tanker fleet has now been completed since she has been reflagged Canadian. *Algoluna* was built in 2010 by Jiangnan Shipyard Corp. of Shanghai, China, and is a sister ship to Algoma fleetmate *Algoterra*. ◘

Algoluna at the Government Dock in Sarnia, ON, just after receiving her new name, November 13, 2023. Photo: Isaac Pennock

BARBRO G. GROUNDS IN THE DETROIT RIVER

NOVEMBER 28, 2023

Tug *Ontario* assists the stuck *Barbro G.*, November 28, 2023.
Photo: Sam Hankinson

On the morning of November 27, 2023, the saltwater visitor *Barbro G.* ran aground on the Detroit River near William G. Milliken State Park in Detroit. The Portuguese-flagged vessel was in the Belle Isle Anchorage when the crew lost control of the vessel and ran aground. She was bound for Italy with 21,000 tons of wheat from Thunder Bay, ON. *Barbro G.* is 623' long.

Refloating efforts on the 27th were later abandoned until the morning of the 28th. After careful planning between the U.S. Coast Guard, the vessel's agents, and salvors, the Great Lakes Towing tugboats *Ontario*, *Pennsylvania,* and *Wisconsin* freed the saltwater vessel. The *Barbro G.* was escorted back to the anchorage by the tugs before undergoing survey work and drug testing before it was cleared to continue on its journey. ◘

CASON J. CALLAWAY TOWED TO ESCANABA

DECEMBER 1, 2023

The laid-up steamer *Cason J. Callaway* was towed from her layup berth at Fincantieri Bay Shipbuilding on December 1 by the Basic Marine tugboats *Nickelena* and *Erika Kobasic* to the North Shore Marine Terminal in Escanaba, MI. The 1952-era *Callaway* has been in long-term layup at Sturgeon Bay since January 16, 2021. While it is unknown what the future holds for the *Callaway*, the ship will continue its slumber at Escanaba. ◘

Cason J. Callaway in layup at Sturgeon Bay, WI, July 19, 2023.
Photo: Brendan Falkowski

FOOTERS DELIVER TACONITE TO IRONVILLE DOCK UPSTREAM ON THE MAUMEE RIVER

DECEMBER 16, 2023

Written by Sam Hankinson

American Spirit on the St. Marys River, June 30, 2023.
Photo: Brendan Falkowski

The *American Spirit*, *American Century* delivered loads of iron ore pellets at the Ironville Dock for delivery to the Cliffs HBI plant in Toledo, OH, in November and December 2023. The plant was commissioned in 2021 and produces hot briquetted iron for use in electric arc furnaces. These occasions mark the furthest upriver that 1,000-footers have traveled upstream of the Toledo Terminal Railroad Bridge on the Maumee River, with *American Spirit* as the largest vessel to travel this far upstream at 1004' long. ◘

SHIPS OF PAST ERAS: ONTARIO HYDRO COAL BOATS

LOOKING BACK AT THE CANADIAN COAL BOATS BUILT TO SERVE ONTARIO HYDRO

(Main): *Ontario Power* on Lake Ontario, 1982. Photo: MHSD Collection; (Inset, top left): *Cape Breton Miner* unloading coal at Toronto, ON, 1965. Photo: MHSD Collection; (Inset, bottom right): *Canadian Century* on the St. Marys River, 1999. Photo: Roger LeLievre;

The Canadian Great Lakes shipping fleet has changed quite a bit over the last half a century. Many of the Canadian vessels built for Great Lakes-St. Lawrence Seaway service in the 1960s and 70s were prompted by increased demand in coal for power generation.

Ontario Hydro started business in 1906 as the Hydro-Electric Power Commission of Ontario, a public-owned utility aimed at developing electricity transmission lines to supply power to municipalities from hydroelectric power plants in the Niagara region. The Power Commission – later nicknamed Ontario Hydro – was organized as a crown corporation, state-controlled company. Ontario Hydro later got into energy generation and by 1939 was given the authority to oversee and regulate all other electricity generators in Ontario. Ontario Hydro's early focus was harnessing Ontario's vast water resources to generate electricity. Demand for electricity increased significantly by the early 1960s, and the utility began developing several coal-fired power plants along the shores of Lake Ontario.

A steady supply of coal for new power plants was needed for Ontario Hydro's plants, and marked the beginning of a relationship between the utility and Upper Lakes Shipping (ULS). Ontario Hydro sought to bring in affordable coal from the Nova Scotia coal fields to power plants on Lake Ontario.

Upper Lakes contracted their shipyard Port Weller Dry Docks (PWDD) to design a unique vessel to trade on both the Seaway and oceans after ULS won the lucrative coal contract. The intention was that the vessel could fulfill the Ontario Hydro contract during the regular season and trade on the oceans in the winter.

The result was the *Cape Breton Miner*, the largest oceangoing self-unloader in the world at the time. She was 680' long, 75' wide, and had a capacity of 21,000 tons. *Cape Breton Miner* featured a deep draft with a pointed, bulbous bow and a strengthened hull for sailing on the ocean, and a steam turbine. Her cargo hold had three unloading belts running along the bottom leading to an aft incline belt that fed the 250' deck-mounted boom. *Cape Breton Miner* entered service in May 1964.

Before the *Cape Breton Miner* was completed, design and construction work were begun for a sister ship for Upper Lakes Shipping. The sister ship was named *Ontario Power*, and looked very similar to the *Miner*. *Ontario Power* was 712' long, and had several more innovations incorporated into her design. Her steam turbine plant could be controlled from the pilothouse, and her hull built with high-strength steel to reduce weight, the first application in Canadian Shipbuilding. *Ontario Power* entered service in July 1965.

Power demands continued to grow, and Ontario Hydro desired to bring in eastern coal from mines in Pennsylvania and

(Main): *Canadian Olympic* on the St. Marys River, 1970s. Photo: Roger LeLievre
(Inset): *Algobay* on the St. Marys River, November 2001. Photo: Roger LeLievre

West Virginia. The coal was exported through Ohio ports Conneaut and Sandusky on Lake Erie. Upper Lakes Shipping was once again awarded the contract for transport, and yet another revolutionary vessel was put on order. Port Weller Dry Docks designed and constructed the unique *Canadian Century* in 1967. The priority with the new ship and those following was to efficiently haul coal through the Welland Canal rather than operate on the ocean, thus cargo capacity was maximized and vessel weight held to a minimum. She featured a large, boxy hull with forward and aft accommodations pushed as far out as possible with a long cargo hold, and diesel power. She was built to maximum Seaway dimensions at 730' long and 75' wide. Inside the large cargo hold, a single conveyor belt ran along the center of the hold. Inverse slopes ran up to the center belt. A reclaiming machine – a large shuttle with augers and harrows that could travel the length of the hold – was equipped to direct cargo to the centerline belt. A transverse bucket elevator at the forward end brought cargo to deck level to the unloading boom. *Canadian Century* was the first vessel on the Great Lakes to be equipped with a reclaimer. She entered service in early 1967 and quickly proved an efficient means to transport coal to power plants in Toronto.

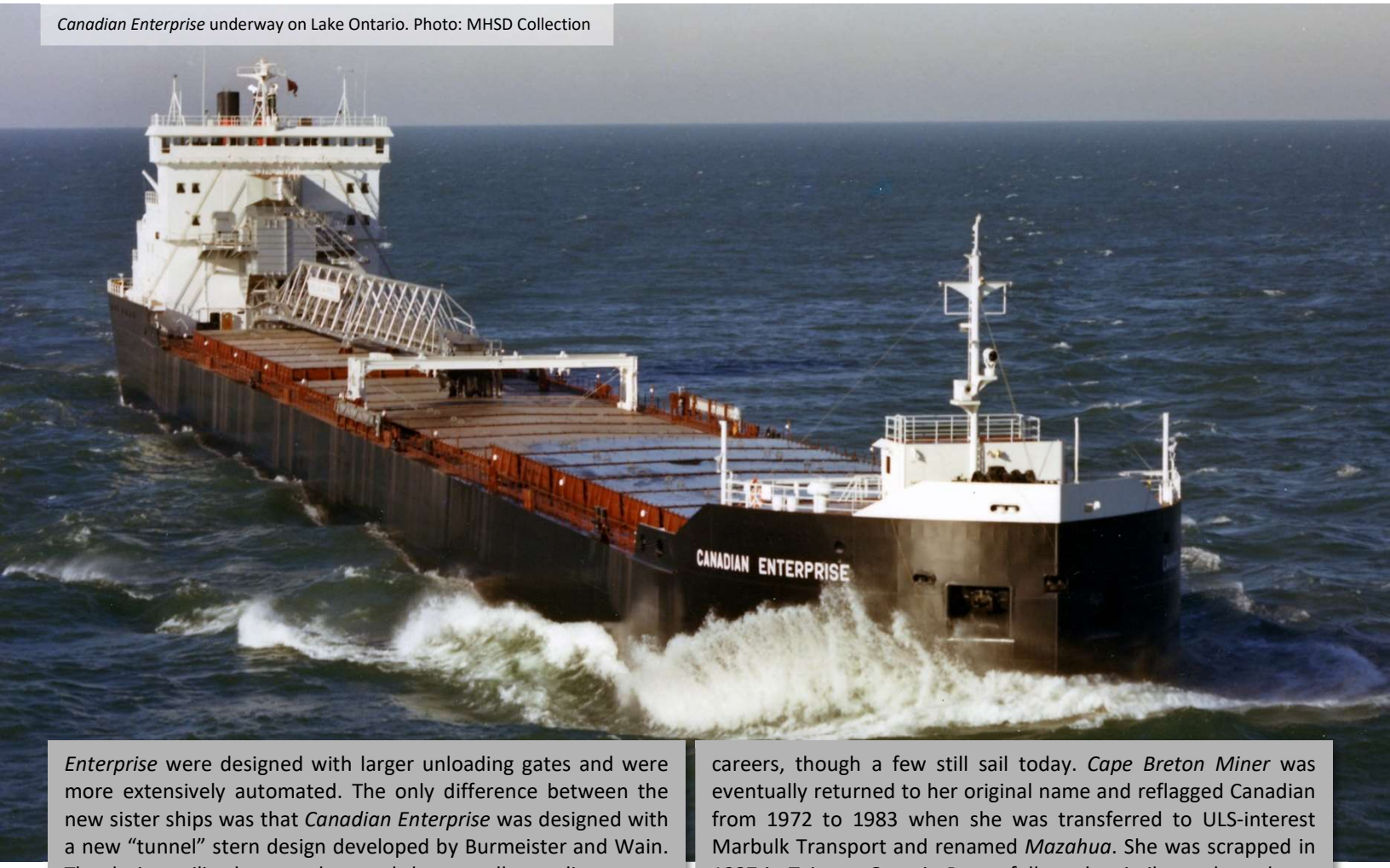
Canadian Century was followed by a near sister the following season. Upper Lakes commissioned PWDD to modify the design and build another maximum Seaway size vessel. *Canadian Progress* had a nearly identical hull design to the *Century* but had all of her cabins and unloading gear located aft. The cargo hold was a box-shape with a single centerline unloading belt on the bottom. She also utilized a reclaimer machine to direct cargo flow to the unloading belt. An aft incline belt shifted cargo to her 250' deck boom. *Canadian Progress* entered service in August 1968 on the Conneaut and Sandusky, OH, to Toronto, ON, coal run.

The Cape Breton, NS, mine had issues in the late-1960s and was not able to keep supply up with the demand from Ontario Hydro. By 1968 only one of the two oceangoing boats was needed on the Cape Breton-Lake Ontario run, and the *Cape Breton Miner* was reflagged Liberian under the name *Conveyor* and sent to trade on the ocean.

In the late 1970s Ontario Power built new coal-fired power plants in Lambton, ON, on the St. Clair River and Nanticoke, ON, on Lake Erie. New generating capacity meant new tonnage commitments. Upper Lakes once again won the contract, and ordered another ship from PWDD. *Canadian Olympic* was nearly identical to the *Canadian Progress*. The only major differences were the *Olympic* had an additional deck on her deckhouse and utilized a loop-belt elevator for her self-unloading system and automated unloading gates. *Canadian Olympic* began trading in November 1976.

Shortly after the completion of the *Canadian Olympic*, Ontario Hydro sent out a Request for Proposal to several operators for a 15-year coal haulage contract to fulfill demands of their new generating stations. Algoma Central Corp. and Upper Lakes Shipping were both awarded contracts for moving low-sulfur western Canadian coal from Thunder Bay, ON, to the Lambton and Nanticoke plants. Algoma signed a contract with Collingwood Shipyards for their Hull #215 in March 1977, which would become the *Algobay*. Similar to the *Cape Breton Miner* and *Ontario Power*, *Algobay* was designed with the intention to trade on the Canadian east coast during the winter months. She featured a pointed icebreaking bow and strengthened hull, with aft accommodations. Her unloading system consisted of three cargo hold belts leading to an aft loop-belt elevator that fed a deck boom. *Algobay* was commissioned in October 1978.

The new Upper Lakes vessels would come to follow the *Algobay* the next season. PWDD delivered the *Canadian Transport* and *Canadian Enterprise* in May and December 1979, respectively, at a total cost of $66 Million. Both vessels possessed similar hull forms to the *Canadian Olympic*, with a pointed bow, boxy hull shape, and aft accommodations. The unloading system utilized a nearly identical hold design to the *Progress* and *Olympic* with an aft loop belt. The *Transport* and



Canadian Enterprise underway on Lake Ontario. Photo: MHSD Collection

Enterprise were designed with larger unloading gates and were more extensively automated. The only difference between the new sister ships was that *Canadian Enterprise* was designed with a new "tunnel" stern design developed by Burmeister and Wain. The design utilized a tunnel around the propeller to direct more water flow, allowing her to have a larger propeller and smaller diesel engines, while still being able to travel at the same speed as her sister. The last of the Ontario Hydro coal boats entered service in 1979 with the *Canadian Transport* in April, followed by her sister *Canadian Enterprise* in mid-December.

While these vessels would fulfill the needs for Ontario Hydro over the next few decades, it was reported at the time both Collingwood Shipyards and Port Weller Dry Docks had interest in modifying their shipyards to be able to build and service 1,000'-long ships for Canadian service in the coal trade at this time. Little did they know that the market would be heading the opposite direction from the time *Canadian Transport* and *Canadian Enterprise* entered service.

Most of these vessels handled the demands of Ontario Hydro's coal needs for the next twenty years, though demand slowly dropped off enough that some boats found new trades to serve. Ontario Hydro was under heavy scrutiny beginning in the 1970s, with several inquiries into the management of the utility, overcapacity, and cost overruns in the 70s and 80s eventually led to further action. The crown corporation was broken up into five groups on March 31, 1999, following the passage of the *Energy Competition Act* of 1998 in the Legislative Assembly of Ontario. The *Energy Competition Act* authorized the establishment of a market in electricity rather than it being supervised and controlled by the government entity. Ontario phased out the use of coal as a means to generate power by public utilities in 2014, shutting down three of five remaining coal plants and converting two to burn biomass.

Most of the Ontario Hydro coal boats have since ended their careers, though a few still sail today. *Cape Breton Miner* was eventually returned to her original name and reflagged Canadian from 1972 to 1983 when she was transferred to ULS-interest Marbulk Transport and renamed *Mazahua*. She was scrapped in 1987 in Taiwan. *Ontario Power* followed a similar path, and was reflagged in Vanuatu as *Thornhill* in 1983. She was sold the following year and renamed *Alkali Seri*, and again in 1986 as *Kalli*. She was reunited with her sister in 1987 at the scrapyard in Taiwan. All of the remaining Upper Lakes vessels were sold to Algoma Central Corp. in 2011. In 2002 *Canadian Century* was renamed *John D. Leitch* and rebuilt with new side tanks and an updated unloading system. She remains in service today. *Canadian Progress* was renamed *Algoma Progress* in 2011, retired in late 2014, and scrapped at Port Colborne, ON. *Canadian Olympic* was renamed in 2011 as *Algoma Olympic,* sailed until 2018, and was towed overseas to Aliaga, Turkey, for scrapping. *Canadian Transport* and *Canadian Enterprise* were renamed in 2011 as *Algoma Transport* and *Algoma Enterprise*, respectively. *Algoma Transport* is still in service but is to be retired in early 2024 pending the arrival of Algoma's new Equinox-class vessel *Algoma Bear*. *Algoma Enterprise* was retired in late 2021 and scrapped in Port Colborne, ON. *Algobay* was sent to east coast and ocean routes much earlier on, but was given a new lease on life in 2009 when she was sent to China to be rebuilt with a new hull forward of the engine room. She returned to service in early 2010, and renamed *Radcliffe R. Latimer* in the fall of 2012.

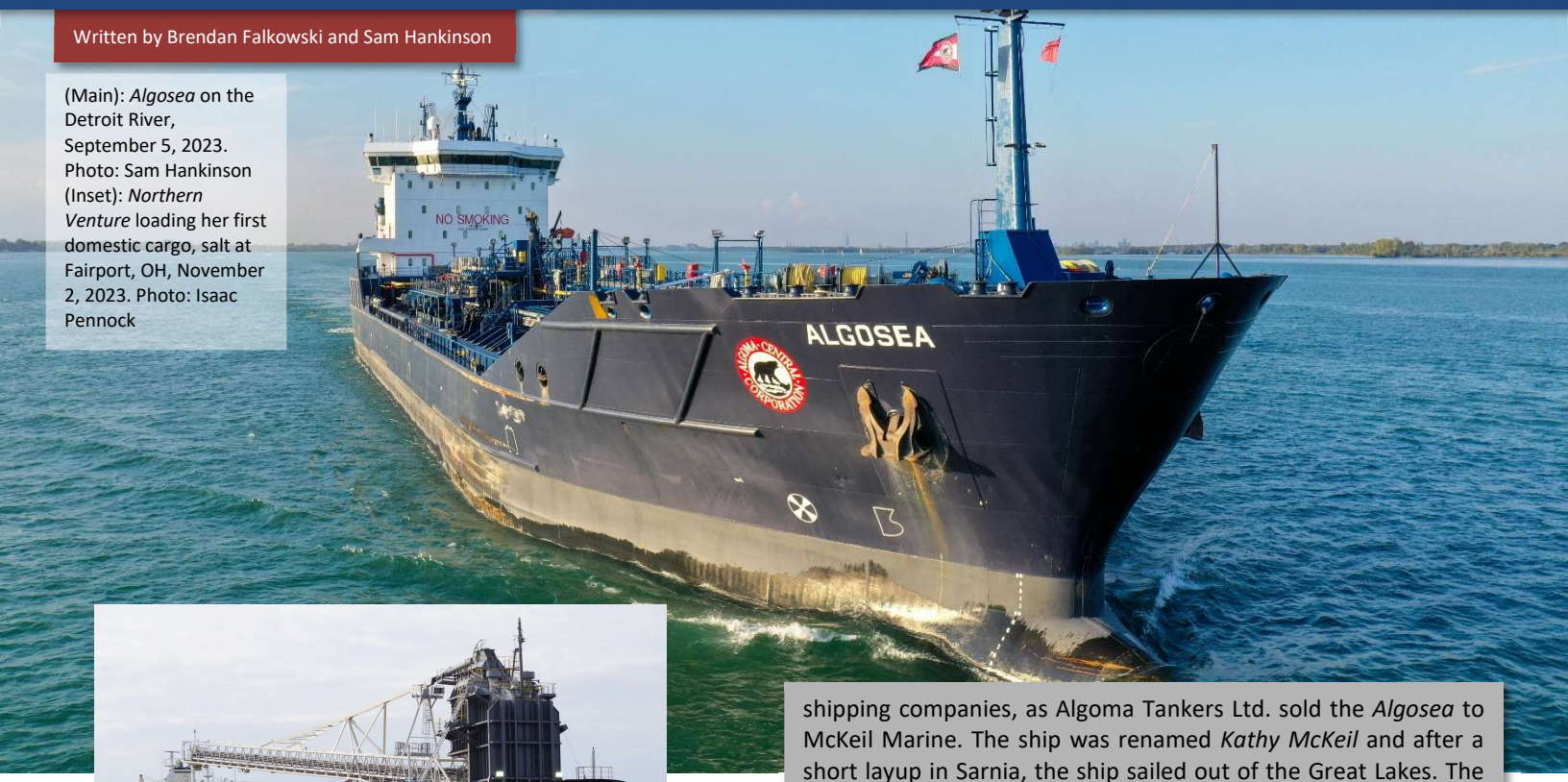
Of the eight vessels built to serve Ontario Hydro contracts, only three sail today and are soon to be only two. While many of these vessels are gone, they presented the latest in technological and design advancements at the time of their construction and drove engineers to find ways to further optimize ships for the coal trade. Many of the advancements made by these vessels still influence ships of the Great Lakes today. ☐

CONTINUED GROWTH

MCKEIL MARINE ADDS MORE SHIPS TO GREAT LAKES FLEET

NOVEMBER 2, 2023 / DECEMBER 3, 2023

Written by Brendan Falkowski and Sam Hankinson



(Main): *Algosea* on the Detroit River, September 5, 2023. Photo: Sam Hankinson (Inset): *Northern Venture* loading her first domestic cargo, salt at Fairport, OH, November 2, 2023. Photo: Isaac Pennock

NORTHERN VENTURE

McKeil Marine's *Northern Venture* made her Great Lakes debut in the fall of 2023, entering the Great Lakes on October 10 and loading her first domestic cargo on November 2, 2023. The *Northern Venture* represents the latest addition to McKeil's fleet, as well as the company's commitment to diversification.

Northern Venture was built in 1998 by a Japanese shipyard as a self-unloader for the cement clinker trade, and previously held the names *Asia Cement No. 7* and *Da Shen*. *Northern Venture* is 508'05'' long, 72'02'' wide, and 41' deep.

McKeil purchased *Northern Venture* in early 2022 as the *Da Shen*, and contracted the COSCO Shipyard of Nantong, China, to retrofit the vessel for Great Lakes service. Her single-point loading system was renovated, and her self-unloading system was reconstructed with a new, longer, boom and a new conveyor belt housing forward.

Since her entry into service, *Northern Venture* has been busy in the aggregate and salt trades. Her primary trade pattern has been delivering trap rock from Bruce Mines, ON, to lower lakes ports and hauling salt from Fairport, Ohio back north.

In her relatively short time on the Lakes, *Northern Venture* has already displayed her versatility and efficiency.

KATHY MCKEIL

A unique transaction took place this fall between Canadian shipping companies, as Algoma Tankers Ltd. sold the *Algosea* to McKeil Marine. The ship was renamed *Kathy McKeil* and after a short layup in Sarnia, the ship sailed out of the Great Lakes. The ship is reportedly bound for China for significant shipyard work. When it returns, it will be a bulk carrier.

Algoma has made a common practice of rotating old tankers out of their fleet in favor of newer vessels. In the last year, Algoma has brought in the *Algotitan* (ex *Chantaco*), *Algoberta* (ex *Chiberta*), and now the *Algoluna* (ex-*Birgit Knutsen*).

Algoma sold the *Algosea's* sister ship *Algoma Hansa* earlier this year to foreign owners and transferred the *Algonorth* to FureBear, its 50/50 joint venture with Furetank.

The *Algosea* and *Algoma Hansa* are significant in that they were built in the United States, albeit not for American owners. Alabama Shipyard in Mobile, AL, delivered both ships in 1998 for Dannebrog Rederi A/S of Denmark. *Algoma Hansa* was originally the *Amalienborg*, and the *Algosea* was the *Aggersborg*.

Algoma Tankers purchased the *Aggersborg* in 2005 and renamed it *Algosea*. The *Amalienborg* was purchased in 2006 and renamed *Algoma Hansa* in 2008. The *Hansa* was operated in European tanker pools, making some trips into the Great Lakes. Algoma brought the tanker into the Great Lakes for service in 2014.

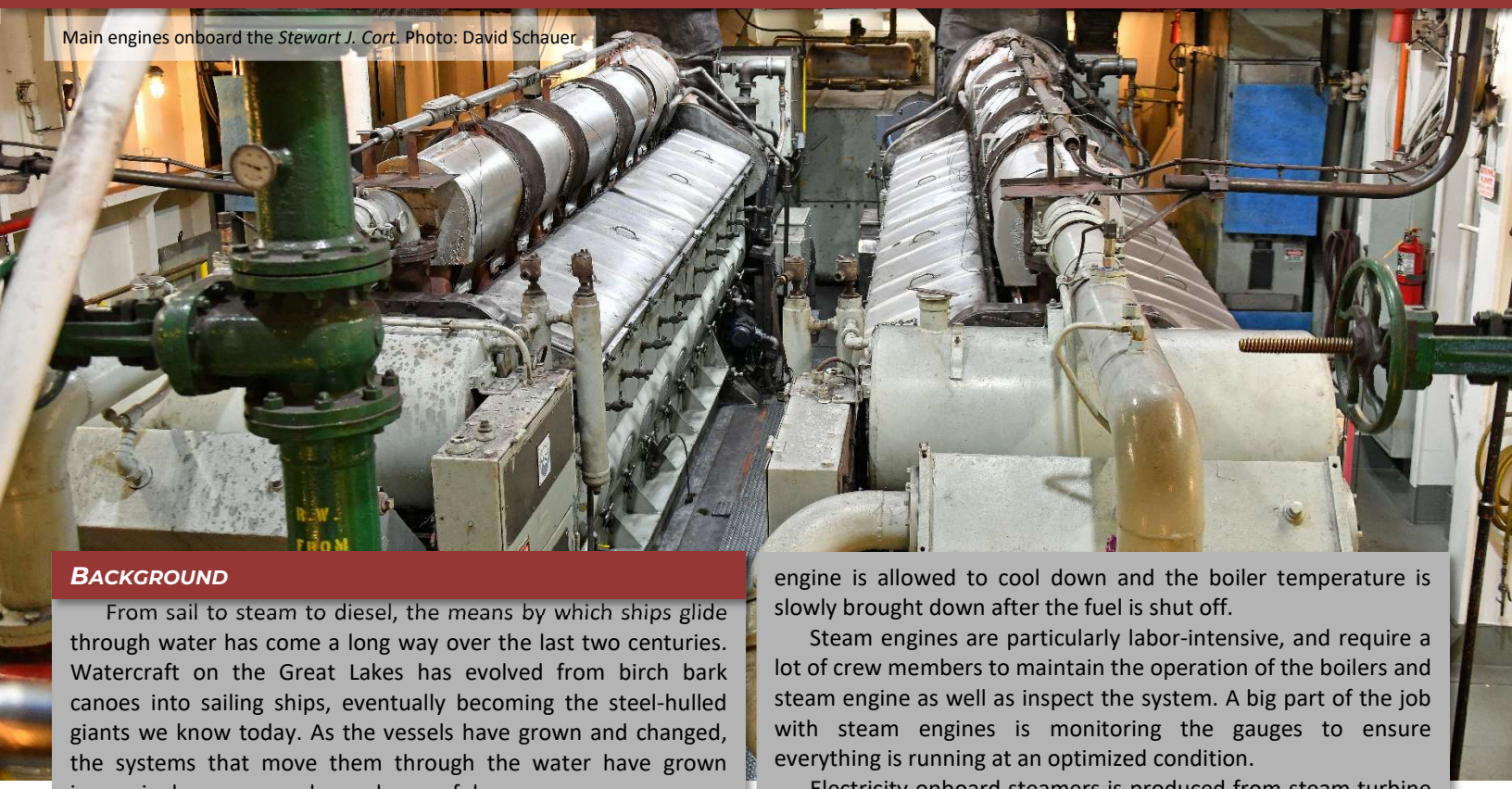
The *Algosea* acquisition is the next in a series of investments made by McKeil in the past few years to strengthen its position in dry bulk markets. It is also the first purchase McKeil has made since the company itself was sold by investment firm TorQuest Partners to Astatine Investment Partners.

It is not exactly known what McKeil plans for the Kathy McKeil, but a similar conversion took place in 2016 when Lower Lakes Towing had the tanker *Lalandia Swan* fitted with a new cargo section in China and renamed *Manitoulin*. When *Kathy McKeil* returns to the lakes, it will look much different than it did when it departed.□

IN THE DESIGN – NAVAL ARCHITECTURE & MARINE ENGINEERING DEPARTMENT

PROPULSION SYSTEMS

AN EXPLORATION OF THE MACHINES THAT MOVE THE GREAT SHIPS OF THE GREAT LAKES



Main engines onboard the *Stewart J. Cort*. Photo: David Schauer

BACKGROUND

From sail to steam to diesel, the means by which ships glide through water has come a long way over the last two centuries. Watercraft on the Great Lakes has evolved from birch bark canoes into sailing ships, eventually becoming the steel-hulled giants we know today. As the vessels have grown and changed, the systems that move them through the water have grown increasingly more complex and powerful.

STEAM ENGINES

Following the development of the steam engine in the mid-19th century, they began to take hold as a promising mode of marine power on the Great Lakes in the late 1800s. Steam engines utilized primarily coal-fired boilers to produce steam for the engines.

Boilers are a necessary piece of equipment for running any steam-powered ship. They are large pressure containers that heat water inside to produce steam for steam equipment. Water is treated before being run through a series of pipes and heated. Heat can be produced by burning coal, oil, or gas methods. When operating a boiler, it is important to maintain steady properties in the water, pressure, and heat so as to maintain the quality and pressure of the steam.

Steam from the boilers is then sent to the steam engine where it is run through a series of pistons. The steam is forced through cylinders to rotate a crankshaft and create power. Often steam engines would be directly tied to the propeller shaft of the ship connected through a reduction gear which reduces the revolutions per minute (RPM).

Starting and stopping a steam engine is a complex and lengthy process. The boilers must be "lit-off", meaning a crewmember will dress in heat-protective clothing and light the fire in the firebox utilizing a long stick with a flame on the end of it. The water in the boilers is slowly brought up to pressure and temperature while the crew monitors the boiler for any issues. From there the engine is warmed up by running small amounts of steam through in forward and reverse. The start-up process can last a few days. Shut-down follows a similar process, the engine is allowed to cool down and the boiler temperature is slowly brought down after the fuel is shut off.

Steam engines are particularly labor-intensive, and require a lot of crew members to maintain the operation of the boilers and steam engine as well as inspect the system. A big part of the job with steam engines is monitoring the gauges to ensure everything is running at an optimized condition.

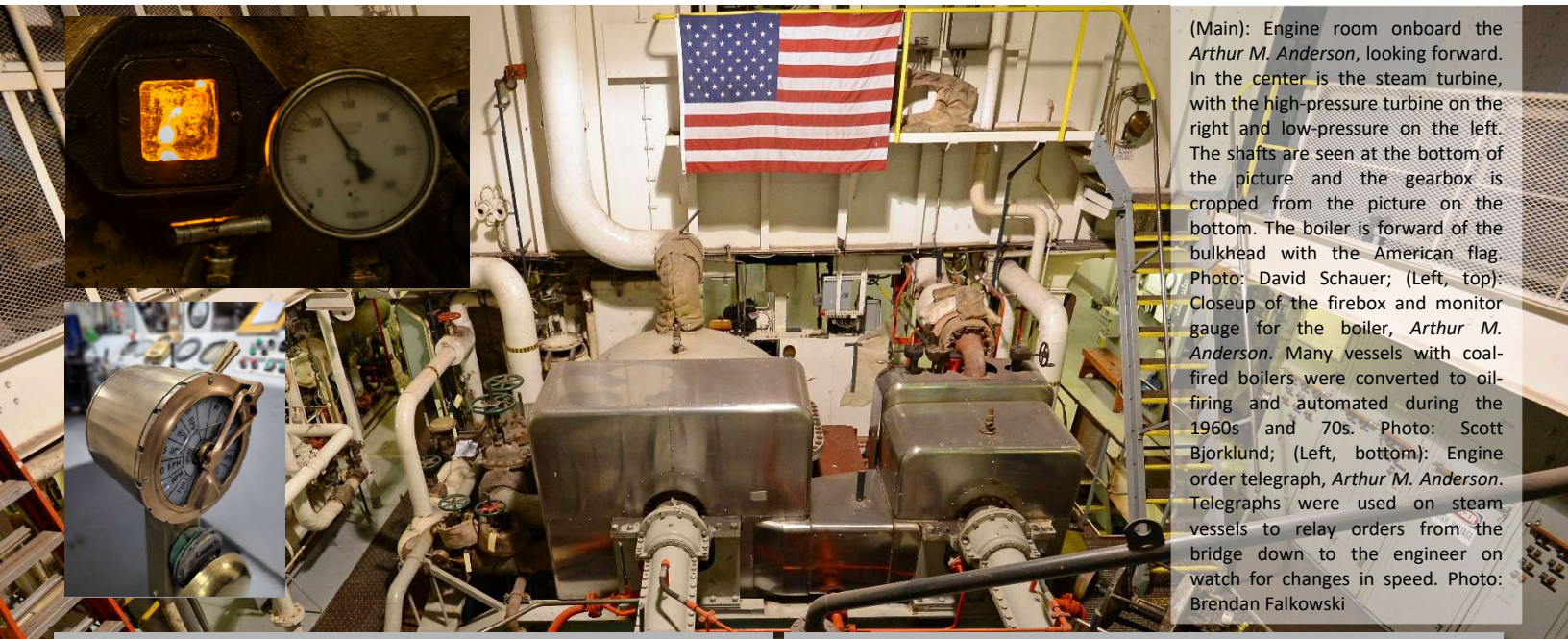
Electricity onboard steamers is produced from steam turbine generators onboard. Later vessels may have been equipped with diesel generators as they became more prevalent. The advantage of steam vessels is that the boiler usually produces more than plenty steam to be able to operate the engine, auxiliary systems, and provide heating for living spaces onboard.

STEAM TURBINES

Steam turbines began to gain popularity on the Great Lakes in the 1930s, and remained the propulsion system of choice through the 1960s. Steam turbines had a record of being very reliable and boasted improved efficiency over reciprocating steam engines. Like steam engines, steam turbines share many similar characteristics.

Steam is produced in an oil or coal-fired boiler and sent to the turbine. Most turbine-powered vessels on the Great Lakes were equipped with a cross-compound steam turbine, which consists of a high-pressure turbine casing and a low-pressure turbine casing, both on separate axles. Inside the turbine chamber, the steam flows through and expands to turn large fan blades mounted around a central shaft which produces power. Steam first enters the high-pressure turbine and partially expands, then travels to the low-pressure. The shafts from both turbines are tied into a gearbox which connects them to the propeller shaft.

Start-up and shut-down are very similar to steam engines, the boiler must be made ready ahead of time and the turbine warmed up and cooled off. In terms of maintenance, turbines require relatively minimal maintenance, though the other components to the system require more attention. Every so many hours the turbine will require a maintenance interval



(Main): Engine room onboard the *Arthur M. Anderson*, looking forward. In the center is the steam turbine, with the high-pressure turbine on the right and low-pressure on the left. The shafts are seen at the bottom of the picture and the gearbox is cropped from the picture on the bottom. The boiler is forward of the bulkhead with the American flag. Photo: David Schauer; (Left, top): Closeup of the firebox and monitor gauge for the boiler, *Arthur M. Anderson*. Many vessels with coal-fired boilers were converted to oil-firing and automated during the 1960s and 70s. Photo: Scott Bjorklund; (Left, bottom): Engine order telegraph, *Arthur M. Anderson*. Telegraphs were used on steam vessels to relay orders from the bridge down to the engineer on watch for changes in speed. Photo: Brendan Falkowski

where components are inspected and possibly replaced. While in operation the entire system has to be monitored by the crew, just like a reciprocating steam engine. Auxiliaries such as generators tend to be steam powered, while diesel generators later became more prevalent.

DIESEL ENGINES

Though they were fitted in Great Lakes freighters as early as the 1920s, diesel engines did not begin to find their way into the engine rooms of ships until the 1960s and 70s. Advances in diesel propulsion has led to increased efficiency and contributed to their rise in popularity.

Diesel engines combine the function of the boiler and steam engine all into one system, and can run on either two or four stroke cycles. Diesel engines run on the diesel cycle, meaning each piston will go through four phases in each cycle. Air is first compressed in the cylinder and fuel injected. As the piston compresses the fuel ignites to produce heat. The air will expand in the piston cylinder, and the heat is released with exhaust and the cycle repeats. In one engine a combination of pistons will work in tandem, and with each expansion and contraction the pistons will turn a crankshaft to produce power.

In addition to the diesel engines, diesel requires the use of fuel pumps, fuel heaters, and potentially scrubbers or a selective catalytic reduction system to meet emissions regulations. Even with this equipment, diesel systems take up considerably less room than steam engines or steam turbines.

Diesel engines are quite simple to operate in comparison to steam engines. Start-up and shut-down are taken care of at the press of a switch. Once the engine is started up it has to warm up before clutching in for use. Likewise, when it is time to shut down the engine must be allowed to cool down before shutting off.

Diesel engines typically require regular maintenance intervals, with full engine overhauls done every few thousand hours. These are often taken care of while the vessel is in winter lay-up and out of service. Other maintenance items consist of regular replacement of intake and fuel filters, oil changes, and checking the fuel injectors. Diesel engine rooms on Great Lakes freighters with ABS Automated Centralized Control Unmanned (ACCU) notation can be run by a single person, and even without they do not require as many people to operate in comparison to steam engines.

Diesel engines are typically accompanied by diesel generators to provide electricity to the vessel as well to maintain consistency with the systems onboard.

INCREASING EFFICIENCY

The trend of propulsion systems over the years has been closely related to the increase in efficiency of each option. Steam engines run at about 10% thermal efficiency, while steam turbines provide an increase to about 20 to 25%. Diesel engines have reached marks at about 50% efficiency, a large leap from the steam engines of a century ago.

Ships often employ a number of different setups to help reduce the waste of heat and energy in the propulsion system. Many use shaft generators – a generator tied to the propeller shaft, much like the alternator in a car – to generate electricity for onboard use. Economizers use waste heat from engine exhaust to help contribute heat for the auxiliary boiler on some ships. The addition of electronic governing and common rail injection provide operators the option to control and improve the efficiency of the engines.

FUTURE

With the onset of new climate and environmental regulations, the propulsion system of choice is likely to change again in the near future. Potentially short-term options include modifying vessels to operate on biodiesel. Other future options may include ammonia, hydrogen, or methanol. Many considerations must be taken into account for future fuel options such as routes, safety, supply infrastructure, and onboard storage.

It is up to the fleets and operators to determine which, if any, of these future fuels have the most viability for long term use. It is unknown which of these fuels, or a combination of several, will be used to reduce emissions, but long-term success will require the collaboration between operators, regulators, classing societies, and governments alike. ☐

Special thanks to the naval architects who provided their time and resources to assist in the writing of this article. Thank you to Ryan Dow, Travis Martin, and Fred Koller from Bay Engineering, and Eric Helder from Interlake Steamship.

VESSEL FEATURE

ALGOMA TRANSPORT

(Main) *Algoma Transport* unloading coal at Zug Island, August 24, 2023. Photo: Isaac Pennock
(Right) *Algoma Transport* departing Duluth, MN, November 9, 2023. Photo: David Schauer

Following the winning of a 15-year coal transport contract for Ontario-Hydro, Upper Lakes Shipping (ULS) placed an order with their shipyard Port Weller Dry Docks for a pair of nearly-identical Seaway size self-unloaders. The first of the pair, originally known as Hull #64, was named *Canadian Transport*. Her sister, *Canadian Enterprise*, was identical in every way with the exception of her unique "tunnel" stern design to improve efficiency. Both vessels were built to 730' long, 75'11'' wide, and 46'07'' deep, and had a capacity of 32,678 tons at a draft of 30'10''.

In order to maximize cubic volume and cargo capacity for coal both vessels were designed with a single, box-shaped cargo hold with a single conveyor belt running beneath the center of the hold. The vessels also came equipped with a reclaimer machine – a shuttle with augers and harrows that can move along the length of the hold – to direct cargo to the centerline belt. A loop belt at the stern leads to the 249'04'' long deck boom. This design was very similar to earlier ULS vessels *Canadian Century*, *Canadian Progress*, and *Canadian Olympic*. In addition, the unloading system was highly automated so that the operation could be controlled almost entirely from a single control room on the focsle deck.

Canadian Transport was fitted with a pair of MAN 8L40/45 diesel engines providing a total of 10,000 BHP. She also boasted modern cabins for each of her 27 crewmembers, including amenities such as an exercise room and a sauna. The *Transport* was launched from the dry dock at Port Weller on October 28, 1978, and sailed on Sea Trials on April 19, 1979. *Canadian Transport* was commissioned the next day.

Canadian Transport's first several seasons were devoted to transporting coal from Conneaut and Sandusky, OH, to power plants at Lambton and Nanticoke, ON. On April 7, 1986, she experienced a minor loop belt fire but it was quickly put out.

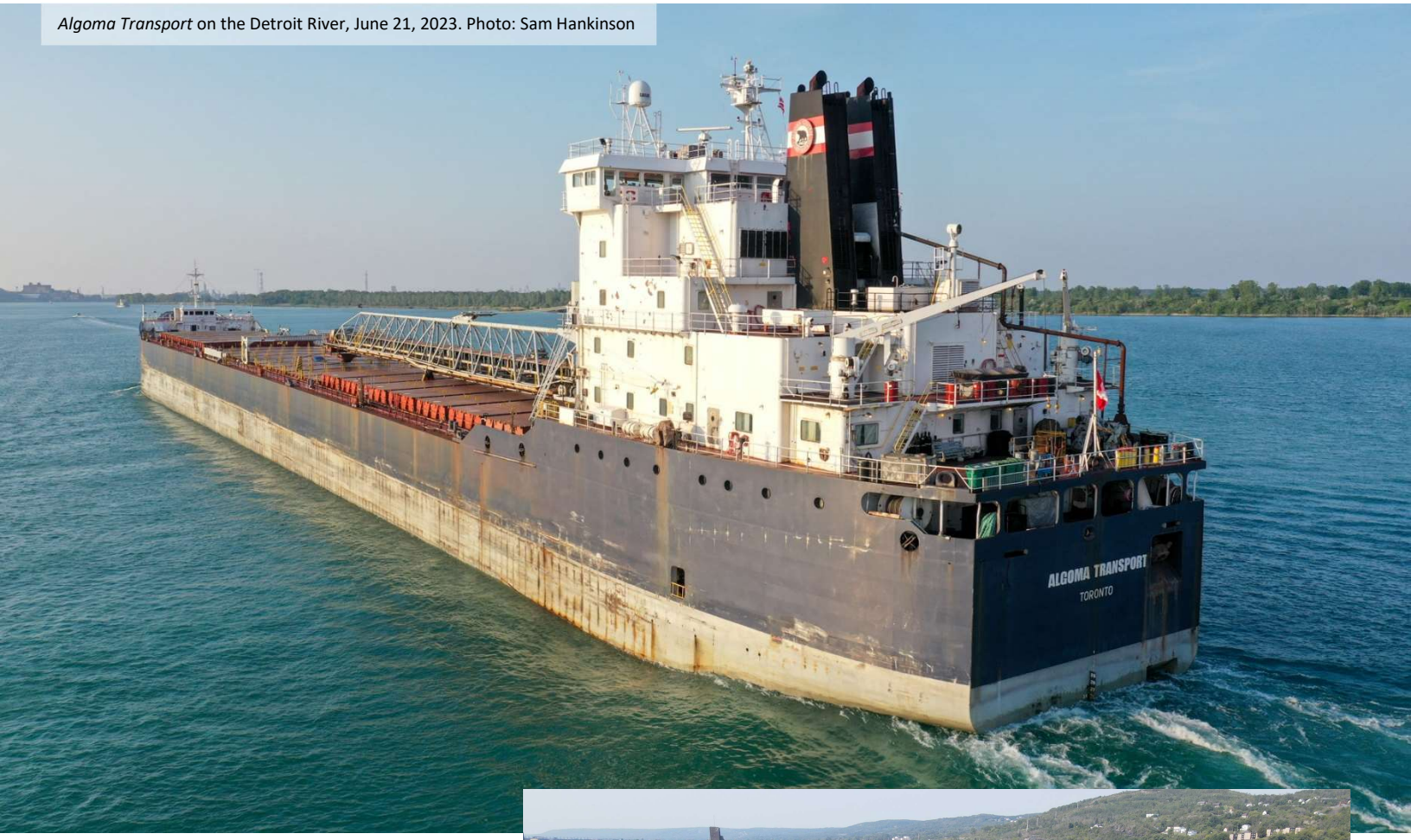
Canadian Transport on the St. Marys River, August 19, 2011. Photo: Roger LeLievre

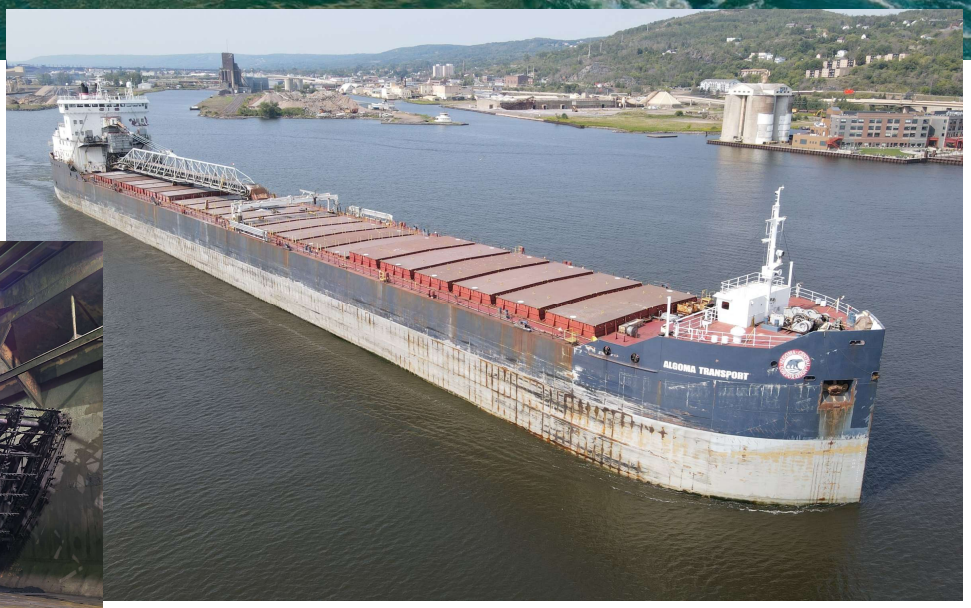
While her cargoes were primarily focused in coal, *Canadian Transport* loaded 29,300 tons of road salt in Fairport, OH, on May 11, 1986, setting a port record at the time. The *Transport* held the honor of opening the Welland Canal on March 28, 1990.

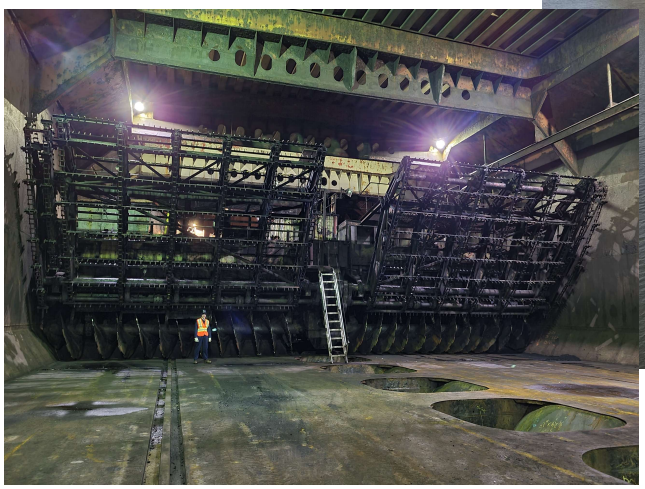
Management of *Transport* changed on several occasions. In 1993 ULS formed a partnership with Algoma Central Corp. called Seaway Self-Unloaders to manage the self-unloading vessels of the two fleets. In 2000 management was transferred to Seaway Marine Transport, the combined self-unloader and bulk carrier pools of the two companies.

On June 24, 2001, *Canadian Transport* suffered a fire in her engine room while unloading at Nanticoke. The crew evacuated

Algoma Transport on the Detroit River, June 21, 2023. Photo: Sam Hankinson





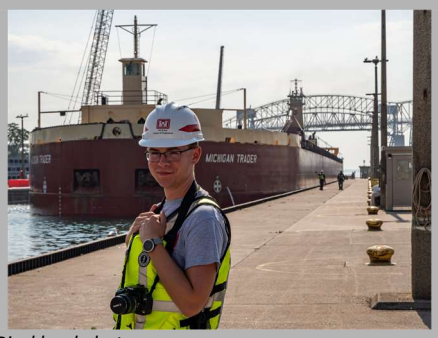


(Left to Right): The monstrous reclaimer machine inside the cargo hold. The editor is in the orange vest to the left. Photo: Jacob Wilson; *Algoma Transport* departing Duluth, MN, August 2023. Photo: Nick Stenstrup;

the engine room and activated the CO2 fire suppression system. After the fire was put out, she was towed down the Welland Canal to Port Weller Dry Docks for repairs. The remainder of her cargo was unloaded into her fleetmate *Canadian Progress* while moored at Port Weller. Repairs took about three weeks to complete.

On February 25, 2011, Upper Lakes Shipping announced that they had entered into an agreement with Algoma Central Corp. for the sale of the vessels of the ULS fleet. Algoma later announced that the *Canadian Transport* would be renamed *Algoma Transport*.

The Algoma Transport was one of the first ULS ships to be painted in Algoma Central colors, and as part of the Algoma fleet has primarily serving the coal markets with occasional loads of ore, salt, and stone. It was announced in 2022 that *Algoma Transport* would be replaced by the new Equinox-class self-unloader *Algoma Bear*. *Algoma Transport* was retired officially in January 2024 after unloading her final cargo in Hamilton, ON, and laying up at the Marine Recycling Corp. scrapyard in Port Colborne, ON. ◻



Scott Bjorklund photo

BRENDAN FALKOWSKI is a Great Lakes ship enthusiast who shares his passion for the freighters through his newsletter, research, and photography. Hailing from Bath, MI, he is a student at University of Michigan studying Naval Architecture & Marine Engineering. He is an avid musician and is a member of the Michigan Marching Band. Brendan is also a competitive sailor, and is an assistant coach and photographer for the Bath High School Sailing Team. He enjoys sailing, chasing boats, and spending time with his friends and family. ☐

SHIPWATCHER NEWS CREW: *Content:* Brendan Falkowski, Sam Hankinson, Jack Hurt, Scott Bjorklund; *Photo:* Daniel Lindner, Roger LeLievre, Isaac Pennock, David & Gus Schauer, Ethan Severson, Logan Vasicek

SPECIAL THANKS TO THE SPONSORS OF *SHIPWATCHER NEWS*

Support Shipwatcher News at www.shipwatcher-news.com/support/
Special thanks to the sponsors of Shipwatcher News:

DECKHAND SPONSORS

Slo-Mo-Sean Charter Fishing
James Poor

BOSUN SPONSORS

Jerry Heinzel
Allen Salyer

MATE SPONSORS

Duane & Jan Heck
John Hughes
Lori Limberg
Jim Millis
Tom & Lynne Palarz
Susan Wolfe

ENGINEER SPONSORS

Jack Baker
Tom & Donna Heck
Bob & Mary Schroeder
Bud Siudara

CAPTAIN SPONSORS

Algoma Central Corp.
James Atkinson
Bay Engineering, Inc.
The CSL Group
EMS-Tech Inc.
Ross & Debbie Falkowski
Jerry & Dee Dee Heck
Lauren Heck
Martha Heck & Richard Wilson
Craig Hupy
Interlake Maritime Services
Know Your Ships
NETSCo., Inc.
Ocean 5 Strategies
Port City Marine Services
David & Gus Schauer
Shepler's Mackinac Island Ferry
Jerry Siudara & Lisa Lemans
VanEnkevort Tug & Barge

Subscribe for free at: www.shipwatcher-news.com/subscribe/
Visit on the web at: www.shipwatcher-news.com

Cover Photo: *Algoma Transport* on the Detroit River during her final season of operation, June 21, 2023. Photo: Sam Hankinson