

THE GREAT LAKES SHIPPING INDUSTRY PERIODICAL

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NEWS AND HAPPENINGS FROM AROUND THE LAKES



NACC ANTIGUA MAKES GREAT LAKES VISIT TO ASSIST IN CEMENT RUNS

SEPTEMBER 22, 2023



NACC Antigua upbound on the Detroit River, September 22, 2023. Photo: Sam Hankinson

The Panamanian-flagged cement carrier *NACC Antigua* visited the Great Lakes for the first time in mid-September, delivering a cargo of cement powder from Algeria to the Holcim Terminals in Detroit and Bay City, MI. She called on Detroit on September 22 and Bay City two days later before departing the Seaway. The load comes to help supplement the terminals as cement demand continues to remain high into the fall. *NACC Antigua* is operated by NovaAlgoma Cement Carriers (NACC), which handles the majority of Holcim's cement cargoes on the Canadian side of the Great Lakes.

PORT OF MONROE HOSTS HERITAGE DAYS, TUGBOAT AMERICA RESTORED TO ORIGINAL NAME

SEPTEMBER 30, 2023

On September 30 and October 1, 2023, the Port of Monroe hosted Heritage Days – a celebration of transportation of all kinds. Tractors, trains, and tugboats were on display for the public to come and see while flyovers dominated the skies over the Port.

One special event over the weekend was the official renaming ceremony of the historic tugboat *America* on September 30. The tug's original name was painted over *Georgia* – the name she held previously – the night before. Paul LaMarre II, father of Monroe Port Director Paul LaMarre III, had the honors of pouring the champaign over the prow of the 1897-era tug. *America* is the oldest operating tugboat in the world.



NORTHERN VENTURE ARRIVES ON THE GREAT LAKES

OCTOBER 10, 2023



McKeil Marine's latest addition to their fleet arrived on the Great Lakes on October 10, 2023. The *Northern Venture* just finished a refit at a shipyard in China over the last year where she was modified for Great Lakes service. She was built in 1998 and operated in East Asia until being purchased by McKeil. *Northern Venture* features a single-point loading system and a forward-mounted unloading boom for increased efficiency and versatility. She entered service on November 1, 2023. Read more about this vessel in the next issue of *Shipwatcher News*.

FORMER GEORGIAN BAY STEAMER NORISLE ARRIVES AT THE SCRAPYARD

OCTOBER 12, 2023

The former Georgian Bay package freighter and museum ship *Norisle* arrived at the Marine Recycling Corp. scrapyard on October 12, 2023. She was built in 1946 by Collingwood Shipbuilding to ferry people, automobiles, and package freight across Georgian Bay. She did this task until 1974 when she was retired to make way for the ferry *Chi-Cheemaun*. *Norisle* was preserved as a museum ship at Manitowaning, ON, for many years but eventually fell out of disrepair and the decision was made in 2023 to scrap the vessel. She was towed to the Port Colborne scrapyard in October.



Norisle at her former berth in Manitowaning, ON, January 13, 2023.

Photo: Isaac Pennock

SEAWAY WORKERS GO ON STRIKE, HALT TRAFFIC

OCTOBER 30, 2023



Ships pass through the Welland Canal, part of the St. Lawrence Seaway system, after the strike ended, November 1, 2023. Photo: Ethan Severson

After giving 72 hours' notice, Seaway workers represented by Unifor on the Canadian side went on strike at midnight on October 22, 2023. Vessel traffic backups quickly began to pile up as vessels awaited passage through the Welland Canal and St. Lawrence Seaway at Port Colborne, Port Weller, Cape Vincent, and Montreal. Nearly 50 ships were delayed by the strike.

The strike came as a result of the end of a labor contract between St. Lawrence Seaway Management Corp. (SLSMC), the federal operator of the Seaway system's locks for Canada, and the workers represented by Unifor. Negotiations between Unifor and SLSMC resumed on Friday October 27, and a tentative agreement was reached two days later. The Seaway reopened to traffic at 7AM on October 30, with vessels progressively filing through the system. Ripple effects from the closure will continue to be felt in the region. It is estimated that local economic losses were above \$100 Million for each day the Seaway was closed.

FAREWELL TO THE THOMPSON

HISTORIC BARGE *JOSEPH H. THOMPSON* RETIRED SEPTEMBER 27, 2023

(Main): Joseph H. Thompson / Laura L. VanEnkevort on the way out of Duluth, MN, on their last visit to the Twin Ports together, March 30, 2023. Photo: David Schauer (Inset, Top-Bottom): Joseph H. Thompson in her WWII days as Marine Robin. The Thompson being assembled in South Chicago, October 1952. Photos: MHSD Collection



"Given the inflationary environment, it's a struggle to justify an extensive capex on a unit the age of the *Thompson* primarily due to the increases in shipyard costs, and pressures impacting the entire labor and supply chain. We made a widespread effort to try and align the cost rationalization within our current and potential customer portfolio. All facets of the industry need to work together to support one another," said Dave Groh, President of VanEnkevort Tug & Barge, former owners of the Thompson.

too costly. The tough decision was made to retire the *Thompson*.

After receiving the necessary certificates to sail to the scrapyard, *Thompson* and *Laura* departed Sturgeon Bay on September 24, making a short stopover in Cleveland and Lorain, OH, to unload equipment and supplies to be saved from the barge. *Laura L. VanEnkevort* dropped the *Thompson* off at Marine Recycling Corp. on September 27 and departed alone for Toledo, OH, for layup.

The retirement of the *Thompson* closes the book on one of the most unique stories of any vessel on the Great Lakes. She was one of the two last remaining WWII-era C4 ship conversions



on the Great Lakes, the other being the *McKee Sons*. The *Thompson* was built as the C4-S-B2 troop and cargo vessel *Marine Robin* for the Maritime Commission in 1944 by Sun Shipbuilding & Drydock of Chester, PA. Even with her late entrance to the war, *Marine Robin* participated in the invasion of



(Top) On the St. Marys River, 1970s. Photo: Roger LeLievre; (Bottom): Tug Joseph H. Thompson Jr. was built from a portion of the Thompson hull, 1990. Photo: MHSD Collection

Southern France in September 1944 and earned two battle stars for her service before eventually being placed in the reserve fleet.

With the need for more tonnage on the Great Lakes with increased demand for raw materials due to the Korean War, Marine Robin was purchased by Detroit, MI-based Sand Products Corp. along with her C4 sisters Marine Angel and Marine Star. All three of the vessels were rebuilt for Great Lakes service in some form. The Thompson was sold to Hansand Steamship, a partnership company owned by Sand Products, Wheeling Steel, and Hanna Coal & Ore.

Marine Robin from an ocean cargo ship to a Great Lakes bulk freighter.

Maryland Dry Dock of Baltimore, MD, built a new midbody for the vessel and Ingalls Shipbuilding of Pascagoula, MS, built a new forebody. Her old forebody was removed and her stern mated to the new midbody, and the sections were towed up the Mississippi River to South Chicago, IL, where the forebody and stern sections were connected and the vessel entered service as the Joseph H. Thompson on November 4, 1952, as the largest cargo vessel in the world.

The *Thompson* was laid up in Detroit in October 1982 for the last time as a powered vessel, and sold to Upper Lakes Towing of Escanaba, MI, in late 1984. After being towed to Menominee, MI, conversion into a self-unloading ATB was begun. Over the next five years a self-unloading system was installed and the vessel's old cabins removed. The stern was cut down and the hull for the pusher tug was literally constructed around her original propeller and rudder. The tug was literally cut out of the stern of the barge to create the notch. The pair entered service in September 1990.

In 2015 Joseph H. Thompson and her tug, Joseph H. Thompson Jr., were purchased by VanEnkevort Tug & Barge to expand the company's river segment. The Thompson was paired with the Laura L. VanEnkevort in 2019 as the Jr. was rebuilt to push the company's new barge Michigan Trader.

"The Fighting Joe was tough to the end. She did a great job and filling the river-class Trade for VTB in her last transformation. It's amazing to see the conversion it went through from C4 in World War II to tramp steamer to self-unloading barge. It truly







won the hearts of anyone who was involved with sailing her and will be missed," added Groh.

While the barge Joseph H. Thompson will no longer be sailing

the Great Lakes, a portion of the original 1944-circa *Marine Robin* hull still sails as part of the tugboat Dirk S. VanEnkevort, the new reincarnation of the *Joseph H. Thompson Jr*.

On September 27, 2023, the historic barge *Joseph H. Thompson* came face-to-face with the scrappers torch. The veteran barge was officially retired and dropped off at the scrapyard in Port Colborne, ON, by her tug *Laura L. VanEnkevort*. By the end of October, the *Thompson* was already pulled ashore and partially cut up. What remains of the barge will be reduced to scrap steel before long.

As for the tug *Laura L. VanEnkevort*, she may not be sitting idle for long. "We are working on a few different projects for the *Laura L. VanEnkevort*, we'll have to see which one develops first."



Special thanks to Dave Groh of VanEnkevort Tug & Barge for his assistance with this article.

RETURN OF THE MIGHTY CUYAHOGA

THE *CUYAHOGA* RETURNS TO SERVICE AFTER REPAIRS FROM FIRE OCTOBER 4, 2023



sea trials on October 3.

Cuyahoga was built in 1943 as the Maritimeclass vessel J. Burton Ayers by American Shipbuilding of Lorain, OH. She was converted into a self-unloader in 1974 and reflagged Canadian and renamed Cuyahoga in 1995 as the first large vessel in the Lower Lakes Towing fleet. She was repowered to diesel in 1999. Cuyahoga is the oldest active vessel in the Canadian Great

unload her cargo of stone using shoreside generators. She was towed to Ashtabula, OH, a few days later. Over the summer her engine was

removed and taken away for refurbishment and

the fire damage was repaired. The engine was

reinstalled in September and Cuyahoga sailed on

Lakes fleet.

□

(Above): Cuyahoga downbound on the Detroit River, October 27, 2023. Photo: Brendan Falkowski; (Left): Cuyahoga on the Rouge River, bound for the salt dock, October 9, 2023. Photo: Sam Hankinson In the design – naval architecture & marine engineering department

DESIGNED WITH THE CARGO IN MIND – LIQUID BULK

HIGHLIGHTING CARGOES THAT HAVE INFLUENCED GREAT LAKES SHIP DESIGN



BACKGROUND

Liquid bulk is an important segment of the regional maritime industry that typically travels on very fixed routes in support of regional terminal networks. Cargoes such as oil, gasoline, asphalt, and calcium chloride are critical to supply chains around the region.

Since liquid cargoes are on the heavier side, structure is very important onboard the vessel. Many liquid cargoes are designated as hazardous as well, adding an additional level of safety and design considerations.

Liquid cargoes have the tendency to shift around much more inside the cargo tanks which can have big impacts on stability. The maximum free surface moment for each tank becomes a very important figure, as the higher free surface moment correlates to less stability. This is often why tank vessels will have a centerline bulkhead to separate cargo holds along the length of the vessel, as that bulkhead quarters the free surface moment of the ship. In addition, stability testing must be conducted on tank vessel designs not only for the loaded and unloaded conditions but also the loading and unloading processes. Another design process element unique to tank vessels is that tank barges must go through damage stability analysis, something not required for bulk cargo barges.

HULL DESIGN

The midship section of the average tank vessel is relatively boxy. Large rectangular holds fill the vessel, with a slight slope inward towards the centerline at the bottom and sumps at the centerline for discharge pumps. There is a prescribed height for the double bottom of the hull with a standard minimum set by classing societies as well in case of damage to the ship. In order to keep the interior of the cargo holds to just flat plate to minimize challenges with coatings and cleaning, tankers will have framework for the main deck on the exterior of the ship. Tankers will also typically have a small section of flat deck on the spar deck running the centerline with the camber of the deck running up to either side of the flat portion. This section of deck is

designed this way for several reasons, to make it easier to weld the top of the corrugated centerline bulkhead to the deck, allow for access ports into the cargo hold, and to set pipe lines on the main deck.

Tankers designed to carry hot cargoes such as asphalt provide an additional level of challenge. Since asphalt must be carried at such a high temperature it often will warp the steel in the cargo hold. Several measures in the design process must be taken to prevent cracking and fractures due to the heat. Often a thicker steel is used in the cargo hold, and most sharp corners and edges in the tanks are eliminated. A detailed Finite Element Analysis (FEA) study is conducted to determine where the highest amounts of stress will be. Tanks for asphalt and other hot liquid cargo carriers are also designed in a way for the tanks to be able to expand due to the heat without affecting the rest of the structure of the vessel. Tanks are typically separated by a gap as well to allow for room for expansion.

Asphalt and other hot liquid cargo carriers will also have large heating coil arrays in the bottom of the cargo tanks to keep the cargoes from cooling and solidifying. Many of these systems use thermal oil inside to heat the cargo.

Following the grounding and oil spill from the tanker Exxon Valdez in 1989 the Oil Pollution Act of 1990 was passed, requiring U.S. tanker vessels to have double hulls. This is a requirement for all tankers on the Great Lakes now and in many places around the world where the cargo tanks must be separated from the exterior hull of the vessel.

LOADING AND UNLOADING

Liquid bulk cargoes are all handled very similarly as they all require the use of pumps. Pump types and operation setups may vary with options including diesel-electric, pneumatic, or hydraulic. Inside each tank there is a small sump where the submerged pump will draw from and send it up a pump well to the main pumping manifold at midship. Each pump is set lower than the cargo so that it always has suction pressure to be able to effectively pump. Stripping systems will also be set up in the



sumps and help to remove the remainder of the cargo that the main pump is unable to unload. Stripping lines run to the bottom of the sump and work in tandem with a negative vacuum pressure in the tank, helping to effectively remove the last bit of cargo. Some vessels may utilize a slightly different pumping setup where fewer but larger pumps are used in a manifold system and pipes run to a sump well in each tank to a main line with a valve.

Depending on the cargoes the vessel will be handling there will be different system installation requirements as well. Vessels handling hazardous cargoes will have to have special-rated electrical systems and moving equipment, and special spaces will be designated for the operations of certain pieces of equipment.

On shoreside there must be equipment to be able to handle unloading and loading hoses, as well as vapor recovery solutions. When cargo is loaded into the tanks onboard, the vapor inside is displaced. When this vapor is from a hazardous cargo then there is additional risk involved. Vessels will be equipped with vapor recovery systems in order to prevent these hazardous gases from being dispersed over a large area. Often shoreside facilities will also provide inert gases such as nitrogen to fill the voids in tanks after cargo is loaded, rather than allowing air from outside to fill the remaining void.

CLEANING

Just as with bulk carriers, when switching cargoes, the holds must be cleaned out. Tanks on liquid bulk carriers typically have a hatch at the top of the hold where a device called a Butterworth can be lowered in. A Butterworth consists of a hose fitting with two rotating nozzles, almost like a lawn sprinkler. The Butterworth is connected to a wash-down hose and lowered into the tank and sprays down the tank with water. The water from the rinse down is then collected in a slop tank onboard and pumped ashore as waste. Piping manifolds are also typically rinsed as well.

Tank ventilation is also necessary in between cargoes. Some vessels are equipped with a hydraulic-powered fan system that fits in the Butterworth hatches, forcing new air into the tank and

the vapors from the tank through a vapor header.

SAFETY

Since many of the cargoes liquid bulk carriers handle are considered hazardous, there are numerous safety design measures that must be taken into account. Firefighting requirements are very strict onboard tankers, and fixed CO2 fire suppression systems are critical. Tankers are also required to have capability to spray a water mist over a certain percentage of the deck area to keep it cool. Gas detection systems, alarms, and monitoring are all necessary to ensure there are not any breaches in the cargo handling system that may make it unsafe for crewmembers. Electrical equipment and machinery must be explosion-proof and hazardous rated.

Another unique thing to note is that ballast tanks are considered hazardous spaces since they share a boundary with cargo tanks. Potential for fumes to be in ballast pipes and tanks must be taken into account, and ballast pumps and treatment systems must be safe for using in hazardous spaces.

Escape routes and exits are planned out to avoid hazardous areas onboard. On tank barges, measures are taken to keep hazardous zones away from the tug if possible. Smoking and other things involving open flames are also prohibited onboard tank vessels carrying hazardous cargo for crew and vessel safety.

Tank vessels are very different in terms of design from typical dry bulk cargo vessels, but prove to be very safe and efficient modes of transporting liquid cargoes when handled properly. Even as energy demands shift towards more "green" fuels, the need for specialized tank vessels to transport them still remains, with minor changes in how the vessel is designed in terms of safety and cargo handling equipment. While many liquid cargoes are now transported by pipelines throughout the Great Lakes regions, some are transported much easier by ship. Liquid bulk cargo vessels will continue to serve as an important link in the maritime transportation supply chain.

Special thanks to the naval architects who provided their time and resources to assist in the writing of this article. Thank you to Travis Martin, Fred Koller, and Nicholas Posh from Bay Engineering, and Nick Hunter from NETSCo.

SAGINAW

Saginaw departing Muskegon, MI, April 17, 2021. Photo: Brendan Falkowski



In the midst of the Great Lakes shipbuilding boom in the early 1950s, American Steamship Co. placed orders for two self-unloading bulk carriers with Manitowoc Shipbuilding Co. of Manitowoc, WI, as part of their own fleet expansion program. At the time American Steamship's fleet was made up of mostly older self-unloaders and the new vessels represented investment towards a more modern fleet. The first of these vessels was laid down as Manitowoc's Hull #417 on March 15, 1952.

The self-unloader was designed to be 639'03" long, 72' wide, and 36' deep. Her self-unloading system was designed as the standard of the day, with a pair of unloading belts running side-by-side beneath the cargo hold and a forward bucket elevator that fed to a 250' unloading boom on deck. She was built with telescoping leaf-style hatches, something that makes the vessel quite unique compared to most Great Lakes ships today. Telescoping leaf-style hatches were once the norm on Great Lakes ships but due to the effort involved in opening and closing them and covering them in the winter months they were slowly phased-out in favor of single-piece covers. Telescoping hatches require the use of block and tackle and a winch to be able to pull them open rather than using a hatch crane. *Saginaw* is currently the only active vessel on the Great Lakes with telescoping hatch covers.

The vessel was powered by a single De Laval cross-compound steam turbine rated at 7700 SHP. Steam was produced by a pair of coal-fired water tube boilers. Hull #417 was christened *John J. Boland* and launched on May 9, 1953. She was the third vessel to bear the Boland name in honor of the co-founder of American Steamship Co. The *Boland* was completed at a cost of \$6.5 Million and originally carried a compliment of 41 sailors. She sailed on sea trials on September 22, 1953, and entered service



John J. Boland on Lake St. Clair, August 19, 1973. Photo: Roger LeLievre

the following day. She loaded her first cargo of limestone at Port Inland on September 25. While nearly duplicates of the *John G. Munson* completed by Manitowoc in 1952, both the *Boland* and her near sister *Detroit Edison* of 1954 were both distinguished by their large A-frames to support the unloading boom.

Much of the John J. Boland's career with American Steamship was focused in the aggregate and coal trades, with occasional iron ore and grain trips. In 1965 a bow thruster was installed onboard the Boland, and in 1971 she was converted to burn fuel oil in her boilers. In 1973 the fleet ownership changed when the Boland and Cornelius families sold American Steamship Co. to General American Transportation Co. (GATX). Operations of the vessels remained the same. While unloading coal at the Pulliam Power Plant in Green Bay, WI, on December 16, 1973, the Boland's self-unloading boom collapsed. The boom was replaced over the winter at Bay Shipbuilding Co.

In 1980, the Boland's sister ship Detroit Edison grounded on a



reef, ending her career. She was scrapped in 1986, leaving the *Boland* as the only remaining of the sisters in the American Steamship fleet.

Throughout the 1980s John J. Boland saw sporadic service due to the economic downturn, and was placed in long-term layup later in the decade. After a refit in 1991 the Boland returned to service as conditions improved, but yet again returned to the sidelines on December 27, 1998, when she was tied up at Fraser Shipyards. Her routes were taken over by her fleetmate Adam E. Cornelius, which recently returned from a charter to Inland Steel.

A new beginning for the *Boland* came on October 22, 1999, when Canadian shipping firm Lower Lakes Towing announced they purchased the vessel. She was towed from her layup berth to Sarnia, ON, by the Gaelic tug *Roger Stahl*, where she underwent a refit for return to service and was dressed in the grey and white of Lower Lakes Towing. The *John J. Boland* was rechristened *Saginaw* on November 20, 1999, and departed on her maiden voyage under the Canadian flag on December 4, 1999, bound for Meldrum Bay, ON. Her purchase by Lower Lakes

Towing opened up new trade routes for the *Saginaw*, as she found herself venturing out from the typical stone and coal cargoes she had known her entire career to more frequent loads of ore, grain, and even the occasional salt run.

Saginaw had the honor of being the last commercial vessel to transit the Soo Locks in the 2003 season. On December 31, 2007, the Saginaw laid up at Sarnia, ON, for the final time as a steamship. Over the winter her steam turbine was removed and she was repowered with a new MaK 6M43C diesel engine rated at 8160 BHP. She returned to service at the beginning of the 2008 season.

Boom troubles have continued for the *Saginaw* throughout her career, as she suffered another collapse on December 31, 2011, while loading coal at Thunder Bay, ON. The boom was repaired at the dock and she was able to deliver her cargo of coal to Essar Steel in Sault Ste. Marie, ON, shortly after.

Saginaw continues to actively serve the ore, coal, stone, and grain trades and is typically one of the busiest vessels in the Lower Lakes Towing fleet. Unlike other ships in the LLT fleet, Saginaw very rarely handles salt. □



Scott Bjorklund photo

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Shipwatcher News Crew: Content: Brendan Falkowski, Sam Hankinson, Scott Bjorklund; Photo: Jack Hurt, Daniel Lindner, Roger LeLievre, Isaac Pennock, David & Gus Schauer, Ethan Severson, Logan Vasicek

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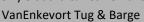
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Cover Photo: Laura L. VanEnkevort pushes her barge Joseph H. Thompson on their final voyage together to drop the Thompson at the scrapyard. They are pictured here on the Detroit River on September 25, 2023. Photo: Sam Hankinson