FREIGHTERS

Bi-Monthly Periodical on the Latest Great Lakes Shipping News

Edition #55 – January-February 2021

Official newsletter of Shipwatcher News – Since 2014 – Written by Brendan Falkowski – www.shipwatcher-news.com

Farewell to Familiar Ships

- ***Captain Henry Jackman launched***
- ***Roger Blough suffers major fire in layup***
- ***Grand River Navigation charters 5 vessels from American Steamship Co.***
- ***Building the International Great Lakes Datum***
- ***In the Design: Automation – A look at automation on Great Lakes ships***

EDITOR'S PICK

SHORT ARTICLES ON VARIOUS HAPPENINGS AROUND THE LAKES

CAPTAIN HENRY JACKMAN LAUNCHED

DECEMBER 25, 2020

Captain Henry Jackman was launched on December 25, 2020, as the 10th member of the Equinox Class. She was mostly complete by the time she was launched, and is being constructed by Jiangsu Yangzi-Mitsui Shipbuilding Co. in Jingjiang City, China. The *Jackman* is constructed to maximum Seaway dimensions, to the specs of the "Equinox 3.0" design, with improvements made over previous vessels of the class. Changes in the design include modified anchor pockets and bow thruster tunnel on her bow, and a slightly different accommodations block and stern design, featuring dual rudders rather than the single on earlier class members. She is expected to be delivered to Algoma Central Corp. in the second quarter of 2021. ◻

ROGER BLOUGH SUFFERS MAJOR FIRE IN LAYUP

FEBRUARY 1, 2021

A fire was reported aboard the *Roger Blough* around 2 AM on Feb. 1. She was in winter layup status at Bay Shipbuilding in Sturgeon Bay, WI when the fire occurred. The only person onboard at the time was a ship keeper, who was able to escape without injury.

The fire burned through her galley, aft accommodations, a portion of her engine room, as well as sections of her unloading system. Sturgeon Bay fire department was able to get the fire under control and mostly put out by mid-day on February 1, and crews were able to enter the vessel later in the day to begin inspection. The *Blough* is in stable condition, and the cause of the fire and extent of damage are still being investigated.

The fate of the vessel is still unknown, and more information will come in the future. ◻

Roger Blough on the St. Marys River, July 9, 2018. Photo by Roger LeLievre

GRAND RIVER NAVIGATION CHARTERS 5 SHIPS FROM AMERICAN STEAMSHIP

FEBRUARY 25, 2021

Grand River Navigation recently made an agreement to charter 5 smaller vessels from American Steamship Co. Grand River will operate the *American Courage, American Mariner, H. Lee White, John J. Boland*, and *Sam Laud* beginning in March of 2021. American Steamship will retain ownership of the vessels for the time being, and will continue to own and manage their six 1,000' vessels. ➲

➲ Grand River Navigation is currently hiring crew members to fill positions onboard the vessels, and have been recruiting at the Great Lakes Maritime Academy in Traverse City, MI. The new crew members are being hired due to different unions manning each fleet.

American Steamship Co. and Grand River Navigation are both subsidiaries of New York-based Rand Logistics, who also owns the Canadian shipping firm Lower Lakes Towing LTD.

It is currently unknown if any of the chartered vessels will be renamed or transitioned into Grand River Navigation fleet colors. More information will come in the future. ◻

SOURCES:

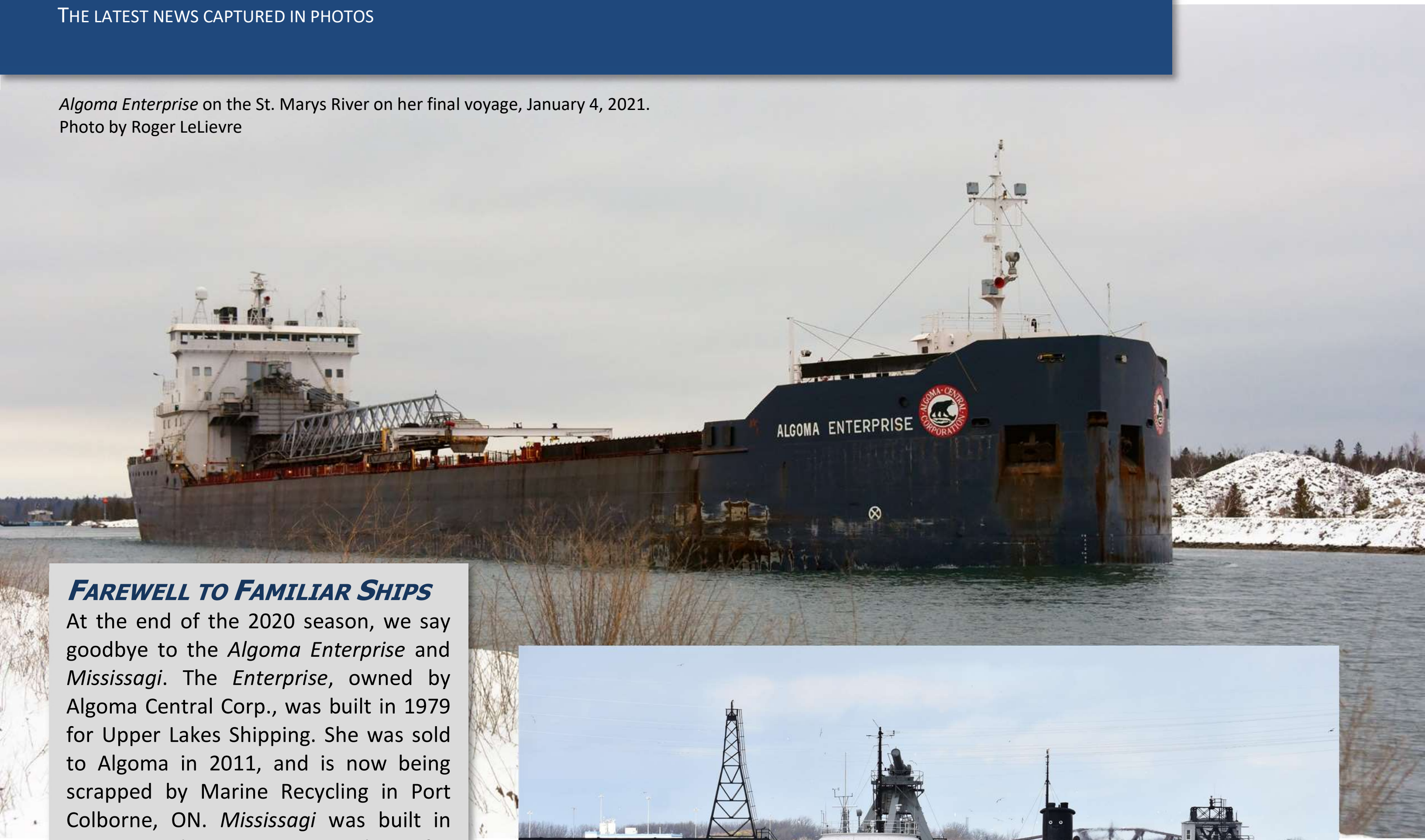
"Boatnerd Shipping News". Great Lakes and Seaway Shipping Online, Boatnerd.com, http://boatnerd.com/news/

Slater, Brady. "Roger Blough's post-fire prognosis may come next week". Duluth News Tribune, 5 February 2021. Accessed 1 March 2021. https://www.duluthnewstribune.com/business/transportation/6874437-Roger-Bloughs-post-fire-prognosis-may-come-next-week

News in Photos

The latest news captured in photos

Algoma Enterprise on the St. Marys River on her final voyage, January 4, 2021. Photo by Roger LeLievre



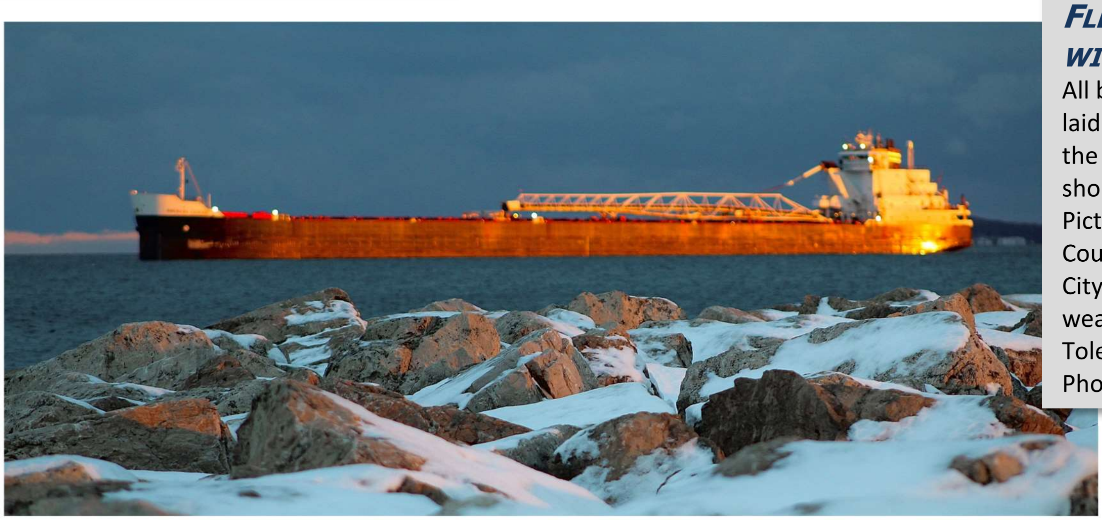
Farewell to Familiar Ships

At the end of the 2020 season, we say goodbye to the *Algoma Enterprise* and *Mississagi*. The *Enterprise*, owned by Algoma Central Corp., was built in 1979 for Upper Lakes Shipping. She was sold to Algoma in 2011, and is now being scrapped by Marine Recycling in Port Colborne, ON. *Mississagi* was built in 1943 as the *George A. Sloan* for Pittsburgh Steamship as part of the Maritime Class program. She was converted to a self-unloading in 1966, and was sold to her present owner, Lower Lakes Towing, in 2001 and renamed *Mississagi*. She was laid up at Hamilton, ON, at the end of the 2021 season, awaiting scrapping. ☐

Mississagi at Toledo, OH, in her final season of operation, November 1, 2020. Photo by Logan Vasicek

Fleet tucks in for a winter's nap

All but a handful of ships have laid up for the winter, giving the ships and their crews a short break from sailing. Pictured at left is the American Courage, anchored in Traverse City, MI, awaiting better weather, while on her way to Toledo, OH, for winter layup. Photo by Daniel Lindner

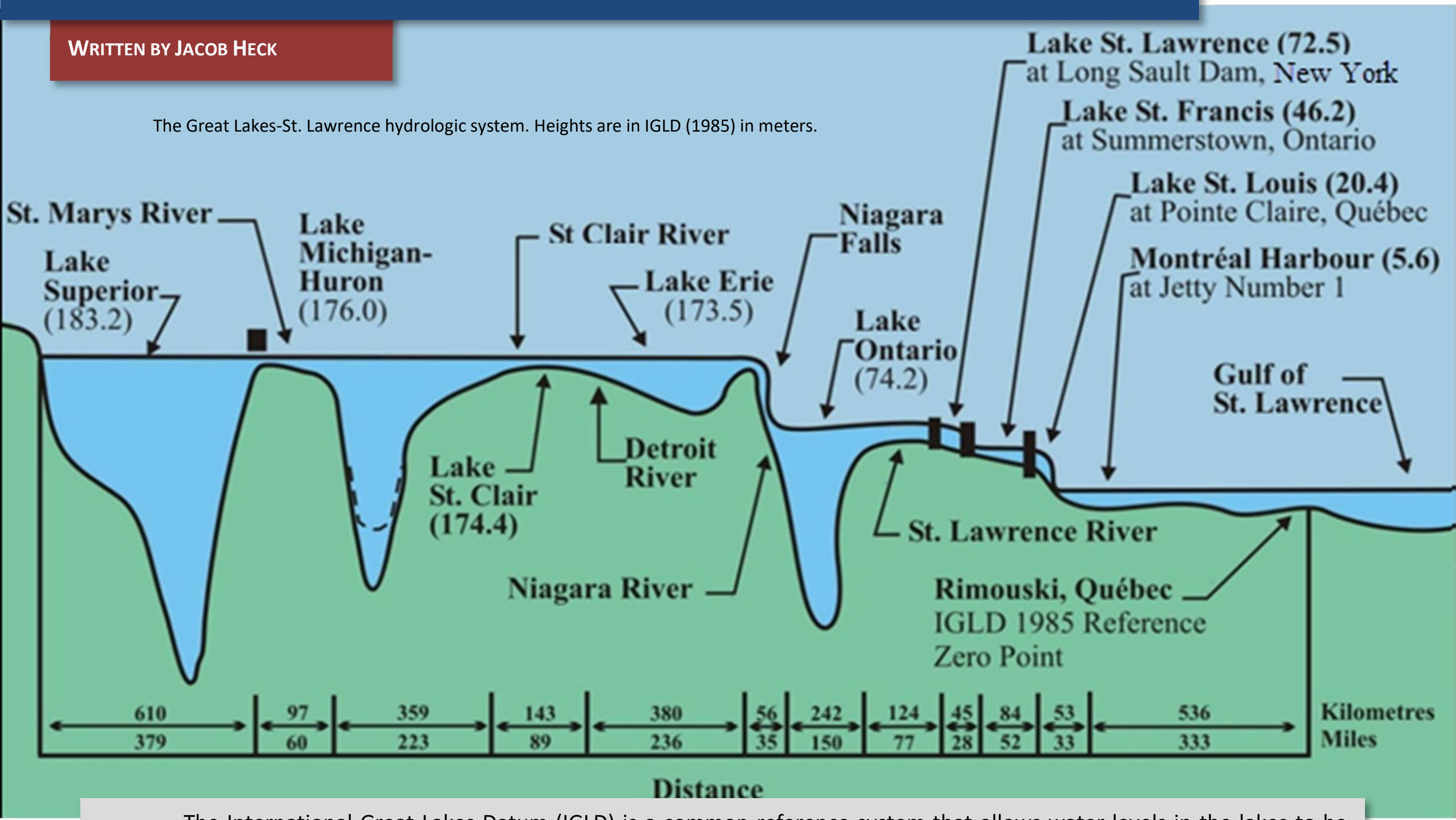


BUILDING THE INTERNATIONAL GREAT LAKES DATUM

PUTTING TOGETHER THE GREAT LAKES WATER LEVEL DATUM

OCTOBER 16, 2020

WRITTEN BY JACOB HECK



The Great Lakes-St. Lawrence hydrologic system. Heights are in IGLD (1985) in meters.

The International Great Lakes Datum (IGLD) is a common reference system that allows water levels in the lakes to be meaningfully related to each other. A common system is needed for marine navigation, water level regulation, water management, surveying, mapping, and shoreline use planning.

Typical vertical datums are used to determine what is called an orthometric height above sea level and are dependent on the local gravity variations. IGLD is slightly different, determining a value called a dynamic height that treats lake surfaces as being of constant elevation. This is important for determining hydraulic head for use in hydroelectric power generation.

Each lake has a different height, and the dynamic height on each lake is referred to the average lake surface at a master gauge station on that lake. Connecting channels are treated as sloped surfaces, since the water is flowing through them from the higher lake to the lower lake.

Established in 1955, IGLD is a joint effort between agencies in the United States and Canada. It is managed by a group of scientists known as the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data, and its Vertical Control - Water Levels Subcommittee. Agencies involved in this effort include the Canadian Hydrographic Service (CHS), the Canadian Geodetic Survey (CGS), Environment and Climate Change Canada (ECCC) and from the US: the National Oceanic and Atmospheric Administration (NOAA), the US Army Corps of Engineers (USACE), and the United States Geological Survey (USGS). Within NOAA, the Center for Operational Oceanographic Products and Services (CO-OPS) is responsible for water level datums, and the National Geodetic Survey (NGS) is responsible for geodetic (or land-based) datums.

To account for earth's crustal movements and accurately measure water levels, IGLD needs to be updated about every 25-35 years. During the last ice age that ended about 11,000 years ago, glaciers over a mile thick sat on top of the Great Lakes basin. The massive weight of the ice sheet pressed the land down and moved material in the mantle out of the way. Once the glaciers melted, the land rebounded and even today the mantle material is moving back into its original place, which causes the land surface across the Great Lakes to change in an effect known as Glacial Isostatic Adjustment (GIA).

The existing IGLD currently in use is IGLD (1985), which is tied to the North American Vertical Datum of 1988 (NAVD 88), the vertical datum used for the United States. NAVD 88, however, has a systematic error to it, which is one of the reasons ➲

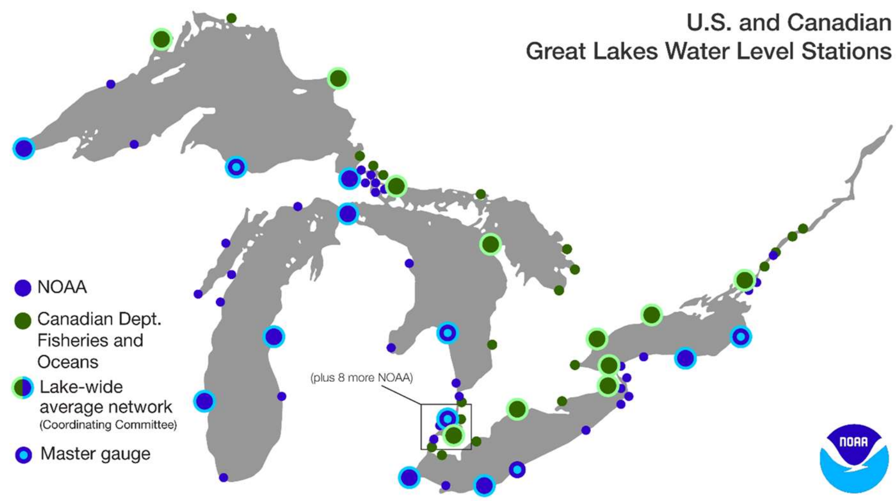
➲ why the NGS is using the latest technology to develop a new geopotential datum (a datum derived from gravity information) called the North American-Pacific Geopotential Datum of 2022 (NAPGD2022), due out around 2025. This systematic error and the continued effect of GIA are prompting IGLD (1985) to be revised over the next few years to IGLD (2020), due for release in 2025.

Data that go into the development of the datum include airborne and satellite gravity, water surface models that are derived from satellite altimeters and water level gauges, and observations from Global Navigation Satellite Systems (GNSS, which includes GPS). Fifty-three U.S and 34 Canadian permanent water level gauges continuously measure the water level on the shore. The gauge heights relative to the local ground are measured through a surveying technique called leveling to keep track of any localized motion at the gauge location. Continuous GNSS stations across the region collect positioning data derived from satellites and can show land motion over years. GNSS campaign surveys are carried out about every 5 years to track localized movements and to keep a close connection between datums.

Unfortunately, the planned 2020 field campaign was postponed due to compounding travel limitations and subsequent operational challenges, but CO-OPS, NGS, CHS, and CGS will set out seasonal water level gauges for 2022 and complete a GNSS survey campaign in the late summer of 2022. Data from these campaigns will be analyzed along with data from previous surveys, continuous observations from permanent water level gauges and continuous GNSS to create the updated International Great Lakes Datum centered on the epoch of 2020. Keep an eye out for IGLD (2020), slated for release in 2025.

For more information:
http://www.greatlakescc.org/wp36/home/international-great-lakes-datum-update/
https://oceanservice.noaa.gov/geodesy/three-datums.html
https://tidesandcurrents.noaa.gov/datum-updates/igld/

Special thanks to Jacob Heck, Great Lakes Regional Geodetic Advisor at NOAA National Geodetic Survey, and the NOAA outreach team for putting this article together for the Shipwatcher News *Freighters* newsletter



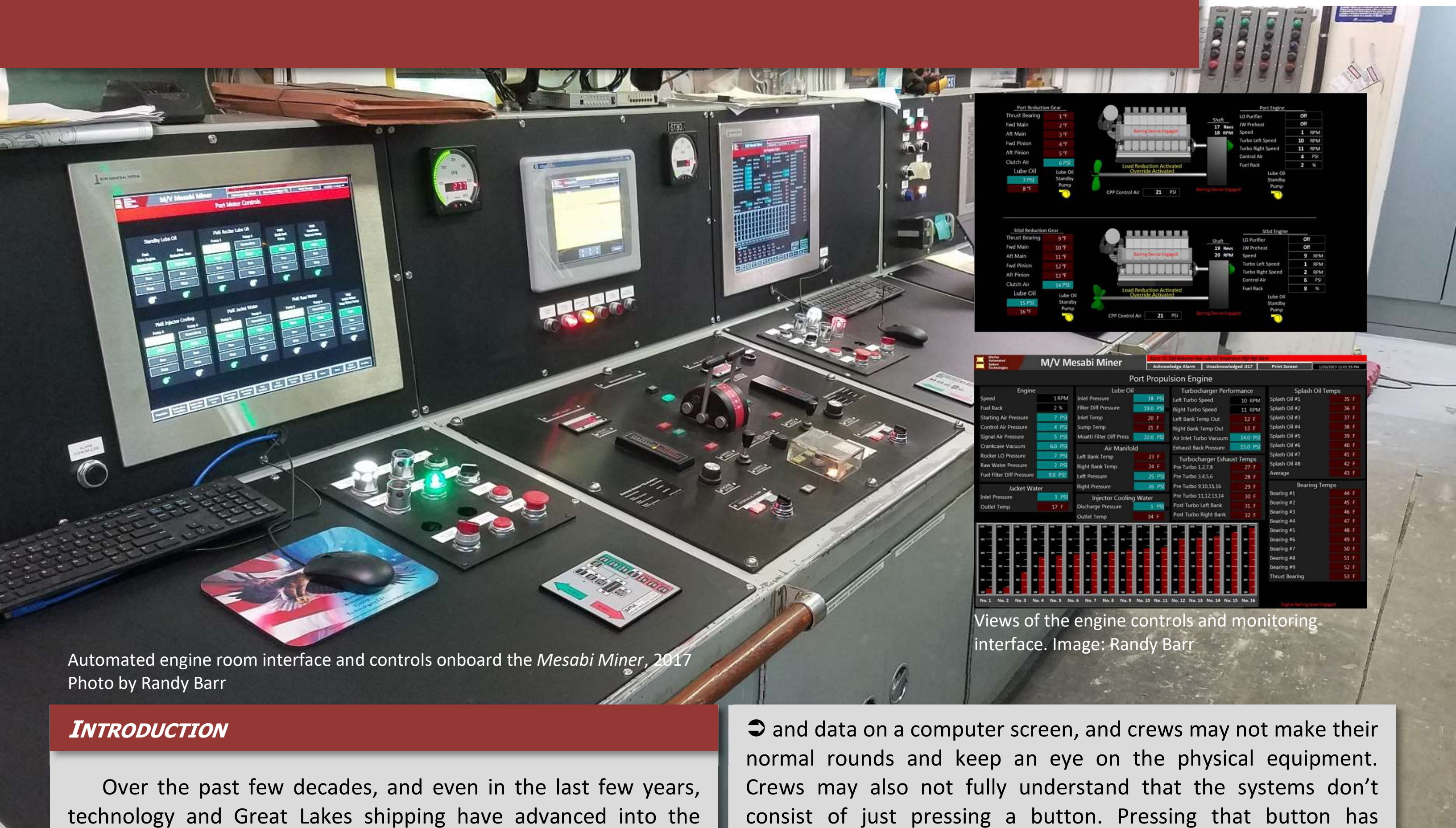
A map of the permanent water level gauges in the Great Lakes. Each lake has a different water surface height than the other lakes, and lake wide heights are referred to a master gauge.

Pictured above is the water level gauge station at Cleveland, OH. Stations like this one are located all across the Great Lakes to monitor water levels.

Detail of antennae at the water level gauge station at Cleveland, OH. Seagulls often like to perch on top of the antennae, which can be a problem as they can interfere with the GNSS signal collection.

IN THE DESIGN: AUTOMATION

A LOOK INTO THE INCREASED USE OF TECHNOLOGY ON GREAT LAKES SHIPS



Automated engine room interface and controls onboard the *Mesabi Miner*, 2017
Photo by Randy Barr

Views of the engine controls and monitoring interface. Image: Randy Barr

INTRODUCTION

Over the past few decades, and even in the last few years, technology and Great Lakes shipping have advanced into the future. Automated systems onboard Great Lakes ships have continued to become more and more common, and new developments signal a bright future ahead for automation. These systems act as a method of increasing efficiency and assisting the crews onboard the vessels.

ADVANTAGES & DISADVANTAGES

Automation systems have been developed to manage many systems on ships, such as power and propulsion, unloading, navigation, and more. Marine Automated System Technologies, or MAST, is a regional automation system contractor, developing automated systems for engine room motors and equipment, ballast systems, raw water control, unloading systems, and power management, that are found on many Great Lakes ships.

These automation systems have several advantages, with higher communication frequency to minimize chances for error. Typical automation systems consist of 800 or more sensors scanning around 40 times per second. A human crew is not physically capable of doing this. They also reduce required manning on a vessel. This allows fleet managers to hire fewer people in the future. These days, it is hard to find good workers to crew ships.

While automation can be beneficial for both crews and operators, it can promote a level of laziness among the crew. Automation systems make it convenient to watch the controls ➲

➲ and data on a computer screen, and crews may not make their normal rounds and keep an eye on the physical equipment. Crews may also not fully understand that the systems don't consist of just pressing a button. Pressing that button has consequences. For example, starting and stopping a large pump, such as part of the ballast system, could create excess heat in the motor and excessive wear and tear on the system. This could eventually lead to an overheated motor and possibly a premature failure. While the automation systems are made up of hundreds of sensors, they don't monitor everything.

DESIGN ELEMENTS

In the Great Lakes region, MAST has designed and built many automation systems. They do the design and drawings for the systems, pick sensors and build the system and interfacing, and write the programs for the system. The equipment is sent to the shipyard, where it is installed by construction crews, then MAST does the final setup. Typically, they use a modular system, housed in a PLC box, or Programmable Logic Controller. Connection modules for each sensor system are connected in the PLC, which can be controlled by a computer.

On the Great Lakes, one of the most common forms of automation is found in the engine room. Unmanned engine room spaces have been set up on several ships in the region. Interlake Steamship Co.'s ships that underwent repowerings all have ACCU certification. ACCU, Automatic Centralized Control Unmanned, is the ABS notation for a vessel with systems to monitor and control propulsion systems from the bridge. These systems reduce crew in the engine room to a single engineer ➲

➲ on watch, during a day shift. Engine and propulsion systems are equipped with sensors to monitor the status of all of the engine room equipment. These sensors are all tied into a central computer in a control room in the engine room. Crewmembers are able to directly control the propeller pitch, engine speed, and which generators are being used from the pilothouse. This direct system is beneficial, allowing for faster reaction times, which can be crucial when navigating confined waterways.

Automation is also common for the unloading equipment. On the Great Lakes, there is only one true self-unloading bulk carrier, the *American Courage*. She utilizes computer programs and ultrasonic sensors to measure cargo flow on the unloading belt to determine and control the unloading rate. The system can be given the maximum unloading rate acceptable to the shore receiver so that the unloading system does not overload a shoreside hopper. Most self-unloading systems measure unloading rates by measuring belt motor amps. A light signal system is used to tell if gates are overloading the belts. Typically, there will be several crew members in the unloading tunnel that will open and close the unloading gates depending on belt loading. Automation systems help with safety, reducing the number of crew members in the mechanical spaces around the unloading tunnels.

Cement self-unloading systems are slightly more complicated. Since powdered cement cargoes are very fine and behave almost as a liquid, special care must be taken when handling. Older self-unloading cement systems are very messy, with ancient analog systems used to operate hydraulically operated gates. Often, the hydraulic systems can fail, and gates have to be opened manually. The unloading belt under the hold on cement carriers is fully enclosed, and therefore there is no way to gauge an unloading rate. The systems can easily be overloaded, and crews will be delayed by several hours when they have to shovel powdered cement out of the hold of an overloaded system. New developments have helped speed up the process and keep the mess down. Port City Marine's cement barge *Commander* is a perfect example, utilizing ultrasonic ➲

Engine controls onboard the *Oglebay Norton*. Photo by Roger LeLievre

Inside a typical PLC/IO Controller Box. Photo by Randy Barr

Semi-automated bridge onboard *Algoma Equinox*. Photo by Roger LeLievre

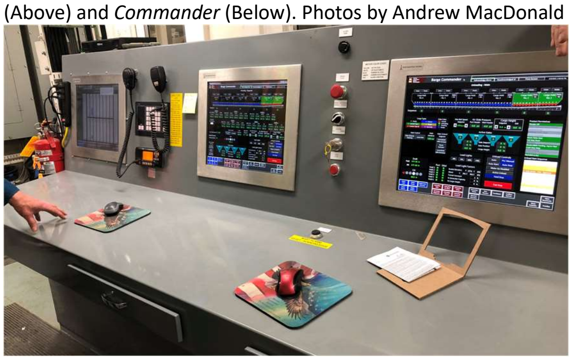
➲sensors at unloading gates to determine the unloading rate and how much cargo is on the belt. The entire system can be controlled by a crewmember at a computer station, and is equipped with many limit controls to make sure as to not overload the system. The automated system communicates with the receiver system on shore as well to gauge the unloading rate and ensure proper transfer of cargo. These systems have allowed the vessel to spend less time at the dock unloading, making it possibly to get an extra trip or two in before the end of the season.

Commander is also equipped with a MAST automated ballast system. The ballast system is also controlled by a crewmember at a computer station. The system uses automated valves and sensors inside the tanks to control water levels inside. Automated ballast systems are capable of automatically running, but require crews to understand the system to be able to work together to be more effective. Automated ballast systems can be found on many ships on the Lakes.

Emissions, navigation, and steering are other systems that can be automated. Emissions systems monitor exhaust scrubbers and can adjust the amount of treatment product is utilized in order to keep emissions within regulation. Navigation and steering systems work together, allowing crews to plot routes on digital chart plotters, and plug the course into the automatic navigation system. This will communicate with the steering system to keep the vessel on heading for their course. Automated navigation is only used on the open lake.

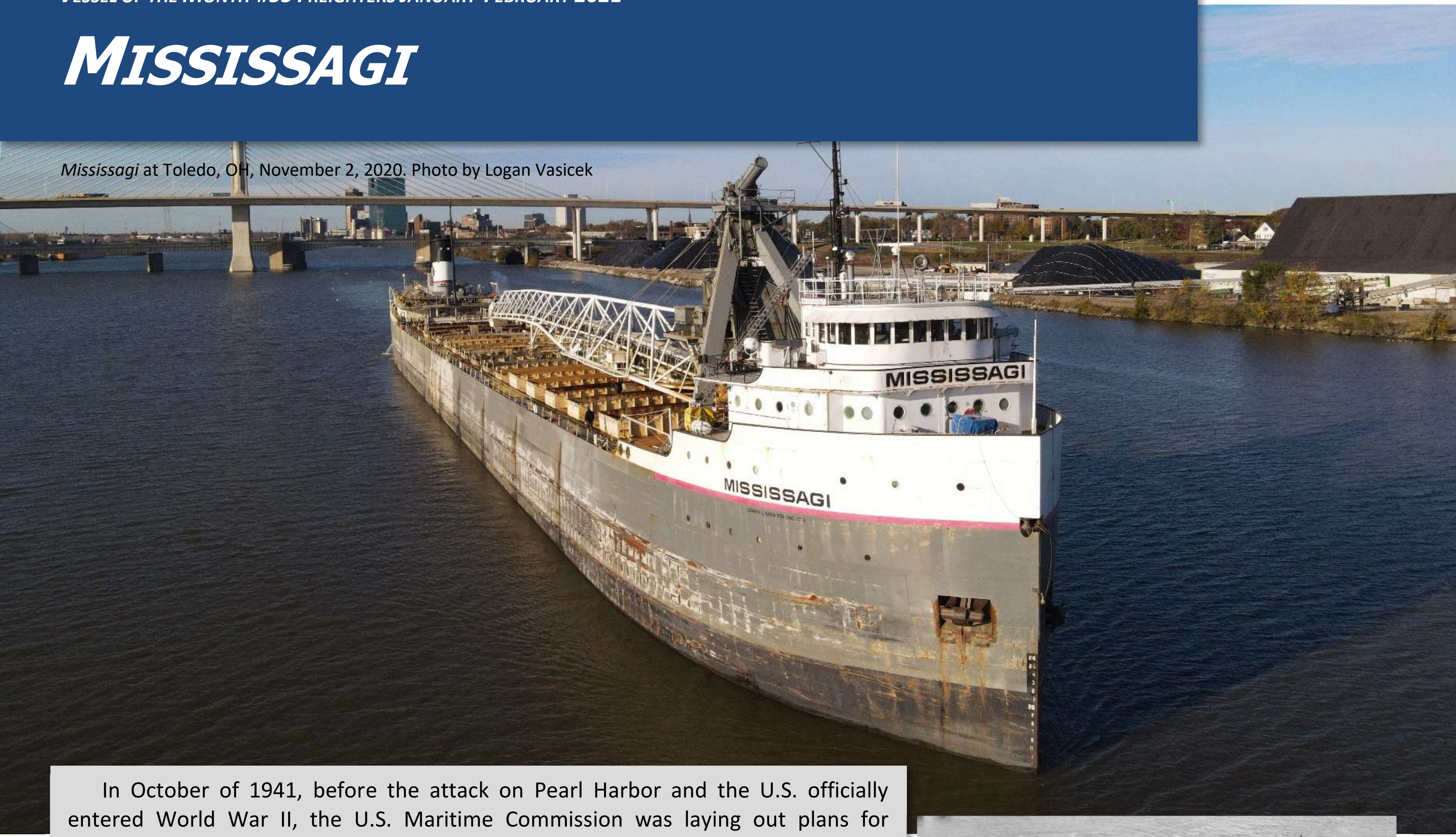
Automation definitely has a bright future on the Great Lakes. It is tough to find qualified labor who are willing to work on the freighters. Automation allows increased efficiency, helping ships spend less time at the dock and fit in more loads per season, increasing profitability. ◻

Comparison of unloading controls onboard *St. Marys Conquest* (Above) and *Commander* (Below). Photos by Andrew MacDonald



Special thanks to the naval architects who provided their time and resources to help me write this article. Thank you to Travis Martin and Chris Olson from Bay Engineering, Eric Helder from Interlake Steamship Company, Randy Barr from Marine Automated System Technologies, and Andrew MacDonald from Port City Marine Services –Brendan Falkowski

MISSISSAGI



Mississagi at Toledo, OH, November 2, 2020. Photo by Logan Vasicek

In October of 1941, before the attack on Pearl Harbor and the U.S. officially entered World War II, the U.S. Maritime Commission was laying out plans for constructing a class of Great Lakes bulk carrier to upgrade the Great Lakes bulk fleet in preparation for wartime manufacturing. The Maritime Commission signed a contract with Great Lakes Engineering Works on October 14, 1941, to construct 10 vessels of the L6-S-B1 design. This class, nicknamed the “Maritime” Class, consisted of 16 vessels of two variants, with American Shipbuilding constructing 6 vessels to the specifications of the L6-S-A1 design. The Maritime Class freighters were all 620’ long, 60’ wide, and 35’ deep with a 15,000 Ton cargo capacity. The basic design for the class was based off of the AA “Supers” constructed for Pittsburgh Steamship in 1942. The A1 subclass vessels were distinguished by their rounded forward cabins, shorter stack, and modern cruiser stern, and were powered by a Lentz Standard reciprocating steam engine. The B1 vessels, on the other hand, were characterized by their “boxy” forward cabins, tall stack, and traditional elliptical stern. The B1 ships were powered by a 2500 IHP Triple-Expansion Steam Engine. The Maritime Class vessels were offered to shipping companies on the Great Lakes for 60% of the vessel cost in cash, with the remaining 40% in value being covered by trading in equivalent tonnage in older, obsolete vessels. The older vessels were leased back to the shippers for the duration of the war, after which they were turned over to the Maritime Commission and later scrapped. Nine vessel operators participated in the program, trading in 36 older vessels in exchange for the 16 “Maritimers”.

Hull #292 was laid down at Great Lakes Engineering Works’ River Rouge, MI, yard on May 28, 1942, as the *Hill Annex*. The Annex was the third of the B1 vessels constructed, and eighth of the Maritime Class to be completed. She was launched on December 23, 1942, being sold to U.S. Steel Corporation’s Pittsburgh Steamship Company shortly after. *Hill Annex* was renamed *George A. Sloan* in June 1943, and sailed on her maiden voyage on July 22, 1943.

In September 1943, *George A. Sloan* suffered cracking on her spar deck while sailing in moderate seas on Lake Huron. She was quickly repaired and her hull strengthened with a 3’*2’’ steel fitted to the side of her hull. A similar incident occurred aboard her sister *Robert C. Stanley* in November. In 1951, Pittsburgh Steamship was reorganized as the Pittsburgh Steamship Division of U.S. Steel Corporation. Following the loss of the *Cedarville* in 1965, *George A. Sloan* was ➲

On the Detroit River, 1950’s. Tom Manse Collection

At Toledo, OH, 1988. Jim Hoffman

At Port Huron, MI, 2000. Roger LeLievre

George A. Sloan at Port Huron, MI, 1998. Photo by Roger LeLievre

➲transferred to the Bradley Transportation Line of U.S. Steel's Michigan Limestone Division at the end of the 1966 season. She was laid up at Fraser Shipyards in Superior, WI, at the end of the season, to be converted to a self-unloader. The project consisted of installing dual conveyor belts at the bottom of her cargo hold and hold slopes to allow her cargo to flow to the belts, as well as a forward bucket elevator feeding a 250' unloading boom located aft of her forward cabins. She returned to service on June 24, 1967, in Bradley grey livery.

In late 1967, the Bradley and Pittsburgh fleets were merged together to form USS Great Lakes Fleet. In 1977, *George A. Sloan* had her boilers automated and converted to oil-firing. U.S. Steel reorganized their shipping division once again in 1981, establishing USS Great Lakes Fleet as a separate entity, USX Great Lakes Fleet Inc., with U.S. Steel as the majority stakeholder.

George A. Sloan was repowered in 1985 with a pre-production Caterpillar 3612TA diesel engine. The work was completed by Fraser Shipyards in Superior, WI. A new rudder and controllable pitch propeller were installed as part of the project. In 1988, Blackstone Capital partners purchased a majority stake in USS Great Lakes Fleet Inc. New fleet standard colors were introduced in 1990, with a red hull and a black and grey diagonal stripe on each side of the bow.

On April 27, 1996, *George A. Sloan* lost power on Lake Superior near Isle Royale. Her fleetmate *Roger Blough* had to take her in tow, side-by-side, to Duluth, MN, for repairs. *George A. Sloan* was laid up at Sarnia, ON, in November 2000, pending sale to Lower Lakes Towing LTD. She was laid up with her fleetmates *Myron C. Taylor* and *Calcite II*, which were sold to Grand River Navigation, Lower Lakes Towing's American subsidiary.

The sale to Lower Lakes was finalized in March 2001, and the *Sloan* was reflagged Canadian. She underwent a refit to bring her to Canadian Standards for fire protection and was repainted in Lower Lakes grey and white. *George A. Sloan* was rechristened *Mississagi* on April 21, 2001, and departed on her maiden voyage under new ownership on May 3, 2001, for Bruce Mines, ON, to load stone for Toledo, OH.

Mississagi remained active in the stone, sand, grain, and salt trades for the next two decades under the Lower Lakes flag. At the end of the 2020 season, *Mississagi* was retired, departing Thunder Bay, ON, with grain for Hamilton, ON, on her final voyage, passing through the Soo Locks for the last time on January 4, 2021. She was laid up at Hamilton, ON, after unloading, awaiting a future tow to the scrapyard. □

Cleveland, OH, May 2019. Sam Hankinson

St. Marys River, June 2020. Daniel Lindner

Rouge River, December 9, 2020. Isaac Pennock

Sources:

Miller, Al. *Tin Stackers: The History of the Pittsburgh Steamship Company*. Wayne State University Press, 1999. Pp. 153, 210, 249, 308.
The Great Lakes Engineering Works: The Shipyard and its Vessels. Marine Historical Society of Detroit, 2008. Pp. 432-435.
Wharton, George. "Mississagi". Great Lakes & Seaway Shipping Online. N.d. Accessed 12 June 2020. <http://boatnerd.com/pictures/fleet/mississagi.htm>

Brendan Falkowski

Is a Great Lakes ship enthusiast who shares his passion for the freighters through his newsletter and his artwork. He is currently pursuing his high school education in mid-Michigan before graduating and moving on to college, where he plans to attend to the University of Michigan to study Naval Architecture and Mechanical Engineering. Brendan is an avid musician, and is a drum major in his high school marching band. He enjoys sailing and spending time with his friends and family.

Special Thanks to our Sponsors

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

Deckhand Sponsors

Free Eyes FM – Frederick Miller III

Bosun Sponsors

Daryl & Lyn Falkowski
Kassandra Lawhorne

Mate Sponsors

Bay Engineering, Inc.
John & Kay DeCarli
Jerry & Dee Dee Heck
Bud Siudara

Engineer Sponsors

Tom & Donna Heck

Captain Sponsors

Martha Heck & Richard Wilson
Know Your Ships
Port City Marine Services & Sand Products Corporation
Shepler's Mackinac Island Ferry
Jerry Siudara & Lisa Lemans
Dennis Sobeck

Cover Photo: *Algoma Enterprise* on the St. Clair River on her final voyage, January 5, 2021. Photo by Logan Vasicek

Subscribe for free at: www.shipwatcher-news.com/subscribe/
Contact Brendan Falkowski at: brendan@shipwatcher-news.com

Looking for Information on Ships of the Great Lakes?

Visit

Shipwatcher News

Great Lakes Ships Resource

www.greatlakesships.wordpress.com